

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**  
Washington, D.C. 20549

**Amendment No. 4 to  
FORM S-1**

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

**BULLFROG AI HOLDINGS, INC.**

(Exact Name of Registrant as specified in its charter)

Nevada (State or other Jurisdiction of Incorporation or Organization)	7374 (Primary Standard Industrial Classification Code Number)	84-4786155 (I.R.S. Employer Identification No.)
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Gaithersburg, MD 20878  
Tel. (240) 658-6710

*(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)*

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Approximate date of commencement of proposed sale to the public:  
**As soon as practicable after the effective date of this registration statement.**

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Indicate by a check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.:

Large Accelerated Filer   
Non-Accelerated Filer

Accelerated Filer   
Smaller Reporting Company   
Emerging Growth Company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided to Section 7(a)(2)(B)

**The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.**

## EXPLANATORY NOTE

This Registration Statement contains two forms of prospectuses: one to be used in connection with the initial public offering of up to 1,317,647 Units through the underwriters named on the cover page of this prospectus (the "IPO Prospectus") and one to be used in connection with the potential resale by a selling stockholders of up to 1,985,373 shares of common stock (the "Resale Prospectus"). The IPO Prospectus and the Resale Prospectus will be identical in all respects except for the alternate pages for the Resale included herein which are labeled "Alternate Pages for Resale Prospectus."

The Resale Prospectus is substantively identical to the IPO Prospectus, except for the following principal points:

- they contain different outside and inside front covers;
- they contain different Offering sections in the Prospectus Summary section;
- they contain different Use of Proceeds sections;
- the Capitalization section is deleted from the Resale Prospectus;
- the Dilution section is deleted from the Resale Prospectus;
- A Selling Stockholder section is included in the Resale Prospectus;
- the Underwriting section from the IPO Prospectus is deleted from the Resale a Plan of Distribution is inserted in its place; and
- the Legal Matters section in the Resale Prospectus deletes the reference to counsel for the underwriters.

We have included in this Registration Statement, after the financial statements, a set of alternate pages to reflect the foregoing differences of the Resale Prospectus as compared to the IPO Prospectus.

While the selling stockholders have expressed an intent not to sell the common stock registered pursuant to the Resale Prospectus prior to the closing of or concurrently with the public offering, the sales of our common stock registered in the IPO Prospectus and the Resale Prospectus may result in two offerings taking place sequentially or concurrently, which could affect the price and liquidity of, and demand for, our common stock. This risk and other risks are included in "Risk Factors" beginning on page 8 of the IPO Prospectus.

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The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

**PRELIMINARY PROSPECTUS**

**SUBJECT TO COMPLETION**

**DATED JANUARY 10, 2023**

**1,317,647 Units  
Each Unit Consisting of  
One Share of Common Stock,  
One Warrant to Purchase One share of Common Stock, and  
One Non-tradeable Warrant to Purchase One Share of Common Stock**

**BULLFROG AI HOLDINGS, INC.**

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This is a firm commitment initial public offering of 1,317,647 units (each, a "Unit," collectively, the "Units") of Bullfrog AI Holdings, Inc. (the "Company", "we", "us", "our"). We anticipate that the initial public offering price of our Units will be \$6.50 per Unit. Each Unit consists of one share of our common stock, one tradeable warrant (each, a "Tradeable Warrant," collectively, the "Tradeable Warrants") to purchase one share of common stock at an anticipated exercise price of \$7.80 per share, and one non-tradeable warrant (each, a "Non-tradeable Warrant," collectively, the "Non-tradeable Warrants"; together with the Tradeable Warrants, each, a "Warrant," collectively, the "Warrants") to purchase one share of our common stock at an exercise price of \$8.125. The Units have no stand-alone rights and will not be certificated or issued as stand-alone securities. The shares of common stock and the Warrants underlying the Units are immediately separable and will be issued separately in this offering. Each Warrant offered as part of this offering is immediately exercisable on the date of issuance and will expire five years from the date of issuance.

No public market currently exists for our common stock or Warrants. We intend to apply to list our shares of common stock and Tradable Warrants for trading on the Nasdaq Capital Market, subject to official notice of issuance, under the symbol "BFRG" and "BFRGW," respectively. No assurance can be given that our applications will be approved. The consummation of this offering is conditioned on obtaining Nasdaq approval.

We are an emerging growth company under the Jumpstart our Business Startups Act of 2012, or JOBS Act, and, as such, may elect to comply with certain reduced public company reporting requirements for future filings. Investing in our common stock involves a high degree of risk.

In connection with this offering, we will complete a 1-for-7 reverse split of our common stock immediately prior to the closing of this offering. Unless otherwise noted, the share and per share information in this prospectus reflects, other than in our historical financial statements and the notes thereto, a proposed reverse stock split of the outstanding common stock of the Company as of the date of this prospectus at an assumed 1-for-7 ratio to occur immediately following the time when the registration statement of which this prospectus forms a part is declared effective by the Securities and Exchange Commission but prior to the listing of our common stock on Nasdaq and the closing of the offering. The reverse split will not occur prior to the effectiveness of this registration statement.

The registration statement of which this prospectus forms a part also relates to the registration for resale of an aggregate of 1,985,373 shares of common stock and shares of common stock issuable upon the conversion of certain promissory notes and the exercise of certain warrants.

**Investing in our common stock is highly speculative and involves a high degree of risk. See "Risk Factors" beginning on page 8 of this prospectus for a discussion of information that should be considered in connection with an investment in our securities.**

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.**

	Per Unit	Total
Public offering price	\$	\$

Underwriting discounts and commissions (1)	\$	\$
Proceeds to Bullfrog AI Holdings, Inc. (before expenses)	\$	\$

(1) See “Underwriting” for a description of compensation payable to the underwriters.

We have granted the underwriters an option, exercisable within 45-days after the closing of this offering, to purchase 197,647 shares of our common stock at a price of \$6.48 per share and/or 197,647 Tradeable Warrants at a price of \$0.01 per Tradeable Warrant, and/or 197,647 Non-tradeable Warrants at \$0.01 per Non-tradeable Warrant, or any combination of additional shares of common stock and Warrants representing, in the aggregate, up to 15% of the number of Units sold in this offering, in all cases less the underwriting discount.

The underwriters expect to deliver our shares to purchasers in the offering on or about \_\_\_\_\_, 2023.

**WALLACHBETH CAPITAL LLC**  
**KINGSWOOD CAPITAL MARKETS**

division of Kingswood Capital Partners, LLC

The date of this prospectus is \_\_\_\_\_, 2023

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You should rely only on information contained in this prospectus. We have not, and the underwriters have not, authorized anyone to provide you with additional information or information different from that contained in this prospectus. Neither the delivery of this prospectus nor the sale of our securities means that the information contained in this prospectus is correct after the date of this prospectus. This prospectus is not an offer to sell or the solicitation of an offer to buy our securities in any circumstances under which the offer or solicitation is unlawful or in any state or other jurisdiction where the offer is not permitted.

For investors outside the United States: Neither we nor the underwriters have taken any action that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the securities covered hereby and the distribution of this prospectus outside of the United States.

The information in this prospectus is accurate only as of the date on the front cover of this prospectus. Our business, financial condition, results of operations and prospects may have changed since those dates.

No person is authorized in connection with this prospectus to give any information or to make any representations about us, the securities offered hereby or any matter discussed in this prospectus, other than the information and representations contained in this prospectus. If any other information or representation is given or made, such information or representation may not be relied upon as having been authorized by us.

Neither we nor the underwriters have done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than the United States. You are required to inform yourself about, and to observe any restrictions relating to, this offering and the distribution of this prospectus.

**PROSPECTUS SUMMARY**

*This summary highlights information contained elsewhere in this prospectus. This summary does not contain all of the information you should consider before investing in our common stock. Before investing in our securities, you should carefully read this entire prospectus, including our consolidated financial statements and the related notes thereto and the information set forth under the sections “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our consolidated financial statements and related notes thereto, in each case included in this prospectus. Some of the statements in this prospectus constitute forward-looking statements. See “Cautionary Note Regarding Forward-Looking Statements.” Except as otherwise indicated, references to “we”, “us”, “our”, and the “Company” refer to Bullfrog AI Holdings, Inc. and its wholly-owned subsidiaries.*

## Business Overview

Most new therapeutics will fail at some point in preclinical or clinical development. This is the primary driver of the high cost of developing new therapeutics. A major part of the difficulty in developing new therapeutics is efficient integration of complex and highly dimensional data generated at each stage of development to de-risk subsequent stages of the development process. Artificial Intelligence and Machine Learning (AI/ML) has emerged as a digital solution to help address this problem.

We use artificial intelligence and machine learning to advance medicines for both internal and external projects. We are committed to increasing the probability of success and decreasing the time and cost involved in developing therapeutics. Most current AI/ML platforms still fall short in their ability to synthesize disparate, high-dimensional data for actionable insight. Our platform technology, named, bfLEAP™, is an analytical AI/ML platform derived from technology developed at The Johns Hopkins University Applied Physics Laboratory (JHU-APL), which is able to surmount the challenges of scalability and flexibility currently hindering researchers and clinicians by providing a more precise<sup>1</sup>, multi-dimensional understanding of their data. We are deploying bfLEAP™ for use at several critical stages of development for internal programs and through strategic partnerships and collaborations with the intention of streamlining data analytics in therapeutics development, decreasing the overall development costs by decreasing failure rates for new therapeutics, and impacting the lives of countless patients that may otherwise not receive the therapies they need.

The bfLEAP™ platform utilizes both supervised and unsupervised machine learning – as such, it is able to reveal real/meaningful connections in the data without the need for a prior hypothesis. Supervised machine learning uses labeled input and output data, while an unsupervised learning algorithm does not. In supervised learning, the algorithm “learns” from the training dataset by iteratively making predictions on the data and adjusting for the correct answer. Unsupervised learning, also known as unsupervised machine learning, uses machine learning algorithms to analyze and cluster unlabeled datasets. These algorithms discover hidden patterns or data groupings without the need for human intervention. Algorithms used in the bfLEAP™ platform are designed to handle highly imbalanced data sets to successfully identify combinations of factors that are associated with outcomes of interest.

Together with our strategic partners and collaborators, our primary goal is to improve the odds of success at any stage of pre-clinical and clinical therapeutics development. Our primary business model is improving the success and efficiency of drug development which is accomplished either through acquisition of drugs or partnerships and collaborations with companies that are developing drugs. We hope to accomplish this through strategic acquisitions of current clinical stage and failed drugs for in-house development, or through strategic partnerships with biopharmaceutical industry companies. We are able to pursue our drug asset enhancement business by leveraging a powerful and proven AI/ML platform (trade name: bfLEAP™) initially derived from technology developed at JHU-APL. We believe the bfLEAP™ analytics platform is a potentially disruptive tool for analysis of pre-clinical and/or clinical data sets, such as the robust pre-clinical and clinical trial data sets being generated in translational R&D and clinical trial settings. In November 2021, we amended the agreement with JHU-APL to include additional advanced AI technology. On July 8, 2022, the Company entered into an exclusive, world-wide, royalty-bearing license from JHU-APL for the additional technology developed to enhance the bfLEAP™ platform. The July 8, 2022 JHU-APL license provides the Company with new intellectual property and also encompasses most of the intellectual property from the February 2018 license

We believe bfLEAP™ will inform/enable decision making throughout the development cycle:

- 1. Discovery Phase – Analyze and categorize discovery phase data to better define highest-value leads from groups of candidates, for advancement to preclinical phase of development. Integrate data from high-throughput screening, pharmacodynamics assays, pharmacokinetics assays, and other key data sets to create the most accurate profile of a pool of therapeutic candidates. There is often a high degree of similarity among closely related therapeutics in a candidate pool – bfLEAP™ is able to harmonize disparate data streams for a more nuanced understanding of each candidate’s characteristics/potency.
- 2. Pre-Clinical Data - Large-scale/multivariate analysis of pre-clinical and/or early-stage clinical data sets. In these settings, bfLEAP could be used to find novel drug targets, elucidate mechanism of action (MOA), predict potential off-target effects/side effects, uncover specific genetic/phenotypic background(s) with highest correlation to therapeutic response, etc. These insights from bfLEAP™ analysis can be used to inform decision making/study design at the subsequent step(s) of therapeutic/diagnostic development, including first-in-human/Phase I RCTs.

<sup>1</sup>In an August 2021 publication in DeepAI.org (<https://deepai.org/publication/random-subspace-mixture-models-for-interpretable-anomaly-detection>), the algorithms used in bfLEAP were compared to 10 of the most popular clustering algorithms in the world using 12 data sets. The end result showed that the algorithms used in bfLEAP had the highest average score when measuring speed and accuracy of prediction. The bfLEAP platform currently has more advanced versions of these algorithms and is applying them in multiple data analytics projects.

- 3. Clinical Development - Advanced/multivariate analysis of PhI and/or PhII clinical trials data, to find niche populations of highly responsive patients and/or inform patient selection for later-stage CT(s). This can be used to decrease overall study risk for larger clinical trials - including Phase II trials, and any Phase III Registration Clinical Trials. The bfLEAP™ platform analysis can also be used to more precisely understand complex correlations between therapeutic treatment and adverse events, side effects, and other undesirable responses which could jeopardize clinical trial success.

Our platform is agnostic to the disease indication or treatment modality and therefore we believe that it is of value in the development of biologics or small molecules.

The process for our drug asset enhancement program is to:

- acquire the rights to a drug from a biopharmaceutical industry company or academia;
- use the proprietary bfLEAP™ AI/ML platform to determine a multi-factorial profile for a patient that would best respond to the drug;
- rapidly conduct a clinical trial to validate the drug’s use for the defined “high-responder” population; and
- divest/sell the rescued drug asset with the new information back to a large player in the pharma industry, following positive results of the clinical trial.

As part of our strategy, we will continue evolving our intellectual property, analytical platform and technologies, build a large portfolio of drug candidates, and implement a model that reduces risk and increases the frequency of cash flow from rescued drugs. This strategy will include strategic partnerships, collaborations, and relationships along the entire drug development value chain, as well as acquisitions of the rights to developing failed drugs and possibly the underlying companies.

To date, we have not conducted clinical trials on any pharmaceutical drugs and our platform has not been used to identify a drug candidate that has received regulatory approval for commercialization. However, we currently have a strategic relationship with a leading rare disease non-profit organization for AI/ML analysis of late stage clinical data. We have also positioned the Company to acquire the rights to a series of preclinical and early clinical drug assets from universities, as well as a strategic collaboration with a world renowned research institution to create a HSV1 viral therapeutic platform to engineer immunotherapies for a variety of diseases. In addition, we have signed exclusive worldwide license agreements with Johns Hopkins University for a cancer drug that targets glioblastoma (brain cancer), pancreatic cancer, and other cancers. We have also signed an exclusive worldwide license with George Washington University for another cancer drug that targets hepatocellular carcinoma (liver cancer), and other liver diseases.

Our platform was originally developed by the JHU-APL. JHU-APL uses the same technology for applications related to national defense. Over several years, the software and algorithms have been used to identify relationship, patterns, and anomalies, and make predictions that otherwise may not be found. These discoveries and insights provide an advantage when predicting a target of interest, regardless of industry or sector. We have applied the technology to various clinical data sets and have identified novel relationships that may provide new intellectual property, new drug targets, and other valuable information that may help with patient stratification for a clinical trial thereby improving the odds for success. The platform has not yet aided in the development of a drug that has reached commercialization. However, we own one drug candidate that has completed a phase 1 trial and a second candidate that is in the preclinical stages. Our aim is to use our technology on current and future available data to help us better determine the optimal path for development

While we have not generated significant revenues from our AI/ML operations, we anticipate generating revenue in the future from the following three sources:

#### **Contract Services**

Our fee for service partnership offering model is designed for biopharmaceutical companies, as well as other organizations, of all sizes that have challenges analyzing data throughout the drug development process. We provide the customer with an analysis of large complex data sets using our proprietary Artificial Intelligence / Machine Learning platform called bfLEAP™. This platform is designed to predict targets of interest, patterns, relationships, and anomalies. Our service model involves a cash fee plus the potential for rights to new intellectual property generated from the analysis, which can be performed at the discovery, preclinical, or clinical stages of drug development.

#### **Collaborative Arrangements**

We plan to enter into collaborative arrangements with biotechnology and pharmaceutical companies who have drugs that are in development or have failed late Phase 2 or Phase 3 trials. The collaborations may also be at the discovery or preclinical stages of drug development. Our revenue will be a combination of fee for service cash payments and success fees based on achieving certain milestones as determined by each specific arrangement. There may also be fees or legal rights associated with the development of new intellectual property.

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#### **Acquisition of Rights to Certain Drugs**

We may acquire the rights to drugs that have failed late Phase 2 or Phase 3 trials and generate revenues by using our platform to accurately determine the profile of patients that would respond to the drugs, conduct a clinical trial to test our findings either independently or with a clinical partner, and finally sell the drug back to pharmaceutical companies. We have and may continue acquiring the rights to drugs that have not yet failed any trials. We will use our technology to improve the chances for success, conduct a trial, and divest the asset. When divesting assets, the transaction may involve a combination of upfront payments, milestone payments based on clinical success, and royalties on sales of the product.

#### **Our bfLEAP™ Analytics Platform**

We are able to pursue our drug rescue business by leveraging a powerful and proven AI/ML platform (trade name: bfLEAP™) derived from technology developed at The Johns Hopkins University Applied Physics Laboratory (JHU-APL). The bfLEAP™ platform is based on an exclusive, world-wide license granted by Johns Hopkins University Applied Physics Laboratory. The license covers three (3) issued patents, as well as a new provisional patent application, non-patent rights to proprietary libraries of algorithms and other trade secrets, which also includes modifications and improvements. On July 8, 2022, the Company entered into an exclusive, world-wide, royalty-bearing license from JHU-APL for the additional technology developed to enhance the bfLEAP™ platform. The new license provides additional intellectual property rights including patents, copyrights and knowhow to be utilized under the Company's bfLEAP™ analytical AI/ML platform. Under the terms of the new License Agreement, JHU will be entitled to eight (8%) percent of net sales for the services provided by the Company to other parties and 3% for internally development drug projects in which the JHU license was utilized. The new license also contains tiered sub licensing fees that start at 50% and reduce to 25% based on revenues.

We believe the bfLEAP™ analytics platform is a potentially disruptive tool for analysis of pre-clinical and/or clinical data sets, such as the robust pre-clinical and clinical trial data sets being generated in translational R&D and clinical trial settings. The input data for bfLEAP™ can include raw data (preclinical and/or clinical readouts), categorical data, sociodemographic data of patients, and various other inputs. Thus, the bfLEAP™ platform is capable of capturing the particular genetic and physical characteristics of patients in an unbiased manner, and contextualizing it against other disparate data sources from patients (e.g. molecular data, physiological data, etc.) for less biased and more meaningful conclusions. It is also uniquely scalable – the bfLEAP™ platform is able to perform analysis on large, high-volume data sets (i.e. 'big data') and also able to analyze highly disparate "short and wide" data as well. In terms of visualization, bfLEAP™ is able to integrate with most commonly used visualization tools for graph analytics.

We believe that the combination of a) scalable analytics (i.e., large data or short/wide data), b) state-of-the-art proprietary algorithms, c) unsupervised machine learning, and d) streamlined data ingestion/visualization makes bfLEAP™ one of the most flexible and powerful new platforms available on the market.

The Company will continue to evolve and improve bfLEAP™, and some of the proceeds from this offering may be used toward that effort either in-house or with development partners like The Johns Hopkins University Applied Physics Lab.

#### **Summary Risk Factors**

Our business is subject to numerous risks as described in the section entitled "Risk Factors" and elsewhere in this prospectus. You should carefully consider these risks before making an investment. Some of these risks include:

- We have a limited operating history upon which you can evaluate our performance, and accordingly, our prospects must be considered in light of the risks that any new company encounters.
- In order for the Company to compete and grow, it must attract, recruit, retain and develop the necessary personnel who have the needed experience.
- The development and commercialization of our technology, products, and services is highly competitive.
- The Company's success depends on the experience and skill of the board of directors, its executive officers and key employees.
- We rely on various intellectual property rights, including patents and licenses in order to operate our business.
- From time to time, third parties may claim that one or more of our products or services infringe their intellectual property rights.
- New product development involves a lengthy, expensive and complex process.
- We may not be able to conduct clinical trials necessary to commercialize and sell our proposed products and formulations.
- Our long-term viability and growth will depend upon successful clinical trials.
- We face significant competition from other biotechnology and pharmaceutical companies.
- Our research and development efforts may not succeed in developing commercially successful products and technologies, which may limit our ability to achieve profitability.
- Even if we are able to obtain regulatory approvals for new pharmaceutical products, generic or branded, the success of those products is dependent upon acceptance of such products, particularly by the pharmaceutical industry.

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- We extensively outsource our clinical trial activities and usually perform only a small portion of the start-up activities in-house.
- We may not be able to acquire the rights to any failed drugs or we may not be able to rescue failed drugs through analysis due to our technology or the lack of clinical data.
- We have no current specific plan for a significant portion of the offering proceeds and it is possible that the proceeds will be invested in a way that does not yield a favorable, or any, return for you.

#### **Implications of Being an Emerging Growth Company**

As a company with less than \$1.07 billion in revenue during our last completed fiscal year, we qualify as an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. An emerging growth company may take advantage of specified reduced reporting requirements that are otherwise applicable generally to public companies. These reduced reporting requirements include:

- an exemption from compliance with the auditor attestation requirement on the effectiveness of our internal control over financial reporting;
- an exemption from compliance with any requirement that the Public Company Accounting Oversight Board may adopt regarding mandatory audit firm rotation or a supplement to the auditor’s report providing additional information about the audit and the financial statements;
- an exemption from the requirements to obtain a non-binding advisory vote on executive compensation or a stockholder approval of any golden parachute arrangements;
- extended transition periods for complying with new or revised accounting standards;
- being permitted to present only two years of audited financial statements and only two years of related “Management’s Discussion and Analysis of Financial Condition and Results of Operations”, in addition to any required unaudited interim financial statements in this prospectus; and
- reduced disclosures regarding executive compensation in our periodic reports, proxy statements and registration statements, including in this prospectus.

We will remain an emerging growth company until the earliest to occur of: (i) the end of the first fiscal year in which our annual gross revenue is \$1.07 billion or more; (ii) the end of the first fiscal year in which we are deemed to be a “large accelerated filer,” as defined in the Securities Exchange Act of 1934, as amended, (the “Exchange Act”); (iii) the date on which we have, during the previous three-year period, issued more than \$1.00 billion in non-convertible debt securities; and (iv) the end of the fiscal year during which the fifth anniversary of this offering occurs. We may choose to take advantage of some, but not all, of the available benefits under the JOBS Act. We currently intend to take advantage of the exemptions discussed above. Accordingly, the information contained herein may be different than the information you receive from other public companies in which you hold stock.

We are also a “smaller reporting company,” as defined under SEC Regulation S-K. As such, we also are exempt from the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and also are subject to less extensive disclosure requirements regarding executive compensation in our periodic reports and proxy statements. We will continue to be deemed a smaller reporting company until our public float exceeds \$75 million on the last day of our second fiscal quarter in the preceding fiscal year.

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## Recent Developments

The Company has entered into the following licensing agreements:

### George Washington University - Beta2-spectrin siRNA License

On January 14, 2022, the Company entered into an exclusive, world-wide, royalty-bearing license from George Washington University (GWU) for rights to use siRNA targeting Beta2-spectrin in the treatment of human diseases, including hepatocellular carcinoma (HCC). The license covers methods claimed in three US and worldwide patent applications, and also includes use of this approach for treatment of obesity, non-alcoholic fatty liver disease, and non-alcoholic steatohepatitis. This program is currently in the preclinical stage of development. The Company has not yet initiated development activities or IND-enabling studies on this asset; however, the plan is to conduct this work over the next 24 months. All R&D to date on this candidate has been conducted by the licensor of the technology, George Washington University.

In consideration of the rights granted to the Company under the License Agreement GWU received a \$20,000 License Initiation Fee. Under the terms of the License Agreement, GWU will be entitled to a three percent (3%) royalty on net sales subject to quarterly minimums once the first sale has occurred subsequent to regulatory approval, as well sublicense or assignment fees in the event the Company sublicenses or assigns their rights to use the technology. The Company will also reimburse GWU for previously incurred and ongoing patent costs. The Sublicense and Assignment fee amounts decline as the Company advances the clinical development of the licensed technology. The license agreement also contains milestone payments for clinical development through the approval of an NDA and commercialization.

### Johns Hopkins University – Mebendazole License

On February 22, 2022, the Company entered into an exclusive, world-wide, royalty-bearing license from Johns Hopkins University (JHU) for the use of an improved formulation of Mebendazole for the treatment of any human cancer or neoplastic disease. This formulation shows potent activity in animal models of different types of cancer, and has been evaluated in a Phase I clinical trial in patients with high-grade glioma (NCT01729260). The trial, an open-label dose-escalation study, assessed the safety of the improved formulation with adjuvant temozolomide in 24 patients with newly diagnosed gliomas. Investigators observed no dose-limiting toxicity in patients receiving all but the highest tested dose (200mg/kg/day). Four of the 15 patients receiving the maximum tested dose of 200mg/kg/day experienced dose-limiting toxicity, all of which were reversed by decreasing or eliminating the dose given. There were no serious adverse events attributed to mebendazole at any dose during the trial. The Company is currently formulating a strategy to conduct additional clinical trials with this asset to enable evaluation of safety in humans.

The license covers six (6) issued patents and one (1) pending application. In consideration of the rights granted to the Company under the License Agreement JHU will receive a staggered Upfront License Fee of \$250,000. The Company will also reimburse JHU for previously incurred and ongoing patent costs. Under the terms of the License Agreement, JHU will be entitled to three- and one-half percent (3.5%) royalty on net sales by the Company. In addition, the Company is required to pay JHU minimum annual royalty payments of \$5,000 for 2023, \$10,000 for 2024, \$20,000 for 2025, \$30,000 for 2026 and \$50,000 for 2027 and each year after until the first commercial sale after which the annual minimum royalty shall be \$250,000. The license agreement also contains milestone payments for clinical development steps through the approval of an NDA and commercialization

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## Corporate Information

Bullfrog AI Holdings, Inc. was incorporated in the State of Nevada on February 6, 2020. Bullfrog AI Holdings, Inc. is the parent company of Bullfrog AI, Inc. and Bullfrog AI Management, LLC. which were incorporated in Delaware and Maryland, in 2017 and 2021, respectively. All of our operations are currently conducted through BullFrog AI Holdings, Inc. The Company’s principal business address is 325 Ellington Blvd, Unit 317, Gaithersburg, MD 20878. Our website address is [www.bullfrogai.com](http://www.bullfrogai.com). The references to our website in this prospectus are inactive textual references only. The information on our website is neither incorporated by reference into this prospectus nor intended to be used in connection with this offering. All of our operations are currently conducted through BullFrog AI, Inc.

## Planned Reverse Stock Split

Our Board of Directors and stockholders have approved an amendment to our Certificate of Incorporation to effect a 1-for-7 reverse stock split of our common stock in

connection with the offering. As a result of the reverse stock split, every 7 shares of our outstanding common stock will be combined and reclassified into one share of our common stock. No fractional shares will be issued in connection with the reverse stock split, and any of our stockholders that will be entitled to receive a fractional share as a result of the reverse stock split will instead receive cash in lieu of the fractional share valued at the per share price of this offering. Unless otherwise noted, the share and per share information in this prospectus reflects, other than in our historical financial statements and the notes thereto, a proposed reverse stock split of the outstanding common stock of the Company as of the date of this prospectus at an assumed 1-for-7 ratio to occur immediately following the time when the registration statement of which this prospectus forms a part is declared effective by the Securities and Exchange Commission but prior to the listing of our common stock on Nasdaq and the closing of the offering. The reverse stock split will not occur prior to the effectiveness of this registration statement.

### Going Concern

The Company intends to overcome the circumstances that impact its ability to remain a going concern through a combination of expanding its revenues and additional equity and debt financing. The Company anticipates raising additional funds through public or private financing, strategic relationships or other arrangements in the near future to support its business operations; however, the Company may not have commitments from third parties for a sufficient amount of additional capital. The Company cannot be certain that any such financing will be available on acceptable terms, or at all, and its failure to raise capital when needed could limit its ability to continue its operations. The Company's ability to obtain additional funding will determine its ability to continue as a going concern. Failure to secure additional financing in a timely manner and on favorable terms would have a material adverse effect on the Company's financial performance, results of operations and stock price and may require it to curtail or cease operations, sell off its assets, seek protection from its creditors through bankruptcy proceedings, or otherwise. Furthermore, additional equity financing may be dilutive to the holders of the Company's common stock, and debt financing, if available, may involve restrictive covenants, and strategic relationships, if necessary, to raise additional funds, and may require that the Company relinquish valuable rights. Please see note 1, in our financial statements, for further information. The Company believes that, following this offering, it will have sufficient capital to sustain its operations for at least the next 15 months, however, there can be no assurance that sufficient funds required during the subsequent year or thereafter will be generated from operations or that funds will be available from external sources such as debt or equity financings or other potential sources.

### THE OFFERING

*The following summary of the offering contains basic information about the offering and the common stock and is not intended to be complete. It does not contain all the information that is important to you. For a more complete understanding of the common stock, please refer to the section of this prospectus entitled "Description of Capital Stock."*

Securities offered by us	1,317,647 Units, each Unit consisting of (i) one share of our common stock, (ii) one Tradeable Warrant to purchase one share of our common stock from the date of issuance until the fifth anniversary of such date for an assumed exercise price of \$7.80 per share (120% of the assumed \$6.50 public offering price of one Unit) and (iii) one five-year Non-tradeable Warrant to purchase one share of our common stock at an exercise price of \$8.125, as adjusted to reflect a 1-for-7 reverse stock split of our common stock that we anticipate will be effected immediately prior to the completion of this offering. The actual number of Units we will offer will be determined based on the actual public offering price. The Units will not be certificated or issued in stand-alone form. The shares of our common stock and the Warrants underlying the Units are immediately separable upon issuance and will be issued separately in this offering. Unless otherwise noted, the share and per share information in this prospectus reflects, other than in our historical financial statements and the notes thereto, a proposed reverse stock split of the outstanding common stock of the Company as of the date of this prospectus at an assumed 1-for-7 ratio to occur immediately following the time when the registration statement of which this prospectus forms a part is declared effective by the Securities and Exchange Commission but prior to the listing of our common stock on Nasdaq and the closing of the offering.
Description of the Warrants.	Each Unit consists of one share of common stock and two Warrants: one Tradeable Warrant and one Non-tradeable Warrant. Each Tradeable Warrant is exercisable for one share of common stock for an assumed exercise price of \$7.80 per share (120% of the assumed \$6.50 public offering price of one Unit). Each Non-tradeable Warrant is exercisable for one share of common stock for an assumed exercise price of \$8.125 per share (125% of the assumed \$6.50 public offering price of one Unit). Upon exercise of a Warrant, the exercise price of the underlying share of common stock is subject to adjustment in the event of stock dividends, stock splits, stock combinations, reclassifications, reorganizations, or similar events affecting our common stock as described herein. A holder may not exercise any portion of a Warrant to the extent that the holder, together with its affiliates and any other person or entity acting as a group, would beneficially own more than 4.99% of our outstanding common stock after exercise, as such percentage ownership is determined in accordance with the terms of the Warrants, except that upon notice from the holder to us, the holder may waive such limitation up to a percentage, not in excess of 9.99%. Each Warrant will be exercisable immediately upon issuance and will expire five (5) years after the initial issuance date. The terms of the Warrants will be governed by a Warrant Agent Agreement, dated as of the effective date of this offering, between us and Vstock Transfer, LLC as the warrant agent (the "Warrant Agent"). This prospectus also relates to the offering of the shares of common stock issuable upon exercise of the Warrants. For more information regarding the Warrants, you should carefully read the section titled "Description of Capital Stock-Warrants" on page 27 of this prospectus.
Common Stock outstanding before this offering:	4,021,935 shares
Common Stock to be outstanding immediately after this offering:	5,670,748 shares <sup>(1)</sup>
Option to purchase additional shares:	We have granted the underwriters an option, exercisable within 45-days after the closing of this offering to purchase up to an additional 197,647 shares of our common stock at a price of \$6.48 per share and/or up to 197,647 Tradeable Warrants at \$0.01 per Tradeable Warrant, and/or up to 197,647 Non-Tradeable Warrants at \$0.01 per Non-tradeable Warrant, or any combination of additional shares of common stock and Warrants representing, in the aggregate, up to 15% of the number of Units sold in this offering solely to cover over-allotments, if any, in all cases less the underwriting discounts payable by us.

Use of proceeds: We expect to receive approximately \$7,534,000 in net proceeds from the sale of our Units offered by us in this offering (approximately \$8,703,000 if the underwriters exercise their over-allotment option in full), after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We intend to use the net proceeds received from this offering for general and working capital purposes, including but not limited to investing in research and development, including in our technology, the repayment of debt and for working capital and general corporate purposes

See "Use of Proceeds" on page 23 for a more complete description of the intended use of proceeds from this offering.

Dividend Policy Holders of common stock are entitled to receive ratably such dividends, if any, as may be declared by the Board of Directors out of funds legally available. We have not paid any dividends since our inception, and we presently anticipate that all earnings, if any, will be retained for development of our business. Any future disposition of dividends will be at the discretion of our Board of Directors and will depend upon, among other things, our future earnings, operating and financial condition, capital requirements, and other factors.

**Risk Factors:** Investing in our securities is highly speculative and involves a high degree of risk. You should carefully consider the information set forth in this prospectus and, in particular, the specific factors set forth in the “Risk Factors” section beginning on page 8 of this prospectus before deciding whether or not to invest in our securities.

**Reverse Stock Split** We will complete a 1-for-7 reverse split of our common stock immediately prior to the completion of this offering. The purpose of the reverse stock split is to meet minimum stock price requirement of the Nasdaq Capital Market. Unless otherwise noted, the share and per share information in this prospectus reflects, other than in our historical financial statements and the notes thereto, a proposed reverse stock split of the outstanding common stock of the Company as of the date of this prospectus, but not prior to the effectiveness of this registration statement, at an assumed 1-for-7 ratio to occur immediately following the time when the registration statement of which this prospectus forms a part is declared effective by the Securities and Exchange Commission but prior to the listing of our common stock on Nasdaq and the closing of the offering.

**Proposed Nasdaq Ticker Symbol** We intend to apply to list our common stock on the Nasdaq Capital Market, subject to official notice of issuance, under the symbol “BFRG”. We also intend to apply to have our Tradeable Warrants listed on the Nasdaq Capital Market under the symbol “BFRGW.” No assurance can be given that our applications will be approved, or that a trading market will develop for our common stock or Tradeable Warrants. The consummation of this offering is conditioned on obtaining Nasdaq approval.

**Lock-ups** We and our directors, officers and holders of ten percent (10%) or more of our outstanding securities have agreed with the underwriters, subject to certain exceptions, not to offer for sale, issue, sell, contract to sell, pledge or otherwise dispose of any of our common stock for a period of 12 months after the completion of this offering. See “Underwriting” on page 53.

(1) Based on 4,021,935 shares of common stock issued and outstanding as of January 10, 2023.

Unless otherwise indicated, the information in this prospectus assumes:

- A public offering price of \$6.50 per Units;
- No exercise by the underwriter of its option to purchase 197,647 additional shares of common stock and/ or the exercise of 197,647 Tradeable Warrants and/or the exercise of 197,647 Non-tradeable Warrants, to cover over-allotments, if any ;
- No exercise of the underwriter’s warrants;
- 1,317,647 shares of common stock sold in this offering; and
- The conversion of 331,166 shares upon automatic conversion of Convertible Bridge and SAFE Notes and the voluntary conversion of other convertible notes outstanding upon the completion of the IPO.

#### SUMMARY SELECTED FINANCIAL DATA

The summary selected financial data set forth below should be read together with our financial statements and the related notes to those statements, as well as the “Management’s Discussion and Analysis of Financial Condition and Results of Operations” section of this prospectus. The statements of operations data for the period ended September 30, 2022 has been derived from our reviewed financial statements included elsewhere in this prospectus. The statements of operations data for the period ended December 31, 2021 has been derived from our audited financial statements included elsewhere in this prospectus. Our historical results are not necessarily indicative of the results that may be expected in the future, and the results for the year ended December 31, 2021 are not necessarily indicative of results to be expected for the full year ending December 31, 2022.

#### Statements of Operations Data

	For the period ended September 30, 2022	For the year ended December 31, 2021
	Unaudited	Audited
Revenues	\$ -	\$ -
Net income (loss)	\$ (2,106,969)	\$ (585,840)
Net income (loss) per share	\$ (0.08)	\$ (0.02)
Weighted average number of shares	27,586.200	26,145,503

#### Balance Sheet Data

	Actual as of September 30, 2022	Pro Forma <sup>(1)</sup> for September 30, 2022	Pro forma as adjusted <sup>(2)</sup> September 30, 2022
Cash	\$ 42,216	\$ 42,216	\$ 7,576,098
Total assets	\$ 65,356	\$ 65,356	\$ 7,599,238
Total liabilities	\$ 2,478,716	\$ 1,067,640	\$ 1,067,640
Total stockholder’s equity (deficit)	\$ (2,413,360)	\$ (1,002,284)	\$ 6,531,598

- (1) The pro forma balance sheet data gives effect to the issuance of 331,166 shares of common stock that are issuable upon automatic conversion of Convertible Bridge Notes and SAFE Notes, as described elsewhere in this prospectus, and the voluntary conversion of other convertible notes outstanding upon the completion of the IPO.
- (2) The as adjusted balance sheet data gives effect to the issuance and sale of Units in this offering at an assumed offering price of \$6.50 per Unit, as set forth on the cover of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. The pro forma as adjusted balance sheet data also gives effect to the conversion of our preferred stock, and convertible notes and related accrued interest.

#### RISK FACTORS

*An investment in our securities is highly speculative and involves a high degree of risk. In determining whether to purchase the Company’s securities, an investor should carefully consider all of the material risks described below, together with the other information contained in this Prospectus. We cannot assure you that any of the events discussed below will not occur. These events could have a material and adverse impact on our business, financial condition, results of operations and prospects. If that were to happen, the trading price of our common stock could decline, and you could lose all or part of your investment.*



## Risks Related to Liquidity, the Company's Business and Industry

***We have a limited operating history upon which you can evaluate our performance, and accordingly, our prospects must be considered in light of the risks that any new company encounters.***

We were incorporated under the laws of Nevada on February 26, 2020. Accordingly, we have no significant history upon which an evaluation of our prospects and future performance can be made. Our proposed operations are subject to all of the business risks associated with a new enterprise. The likelihood of our creation of a viable business must be considered in light of the problems, expenses, difficulties, complications, and delays frequently encountered in connection with the inception of a business, operation in a competitive industry, and the continued development of our technology and the results of our clinical data. We anticipate that our operating expenses will increase for the near future. There can be no assurances that we will ever operate profitably. You should consider the Company's business, operations and prospects in light of the risks, expenses and challenges faced as an early-stage company.

***If we are unable to attract and retain key management, scientific personnel and advisors, we may not achieve our business objectives.***

Our success depends on the availability and contributions of members of our senior management team. The loss of services of any of these individuals could delay, reduce or prevent our drug development and other business objectives. Furthermore, recruiting and retaining qualified scientific personnel to perform drug development work will be critical to our success. We face intense competition for qualified individuals from numerous pharmaceutical and biotechnology companies, universities, governmental entities and other public and private research institutions. We may be unable to attract and retain these individuals, and our failure to do so could materially adversely affect our business and financial condition.

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***The development of our technology, products, and services is highly competitive.***

We face competition with respect to any products that we may seek to develop or commercialize in the future. Our competitors include major companies worldwide. Many of our competitors have significantly greater financial, technical and human resources than we have and superior expertise in research and development and marketing approved products/services and thus may be better equipped than us to develop and commercialize products/services. These competitors also compete with us in recruiting and retaining qualified personnel and acquiring technologies. Smaller or early stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. Accordingly, our competitors may commercialize products more rapidly or effectively than we are able to, which would adversely affect our competitive position, the likelihood that our products/services will achieve initial market acceptance and our ability to generate meaningful additional revenues from our products.

***From time to time, third parties may claim that one or more of our products or services infringe their intellectual property rights.***

Any dispute or litigation regarding patents or other intellectual property could be costly and time consuming due to the uncertainty of intellectual property litigation and could divert our management and key personnel from our business operations. A claim of intellectual property infringement could force us to enter into a costly or restrictive license agreement, which might not be available under acceptable terms or at all, could require us to redesign our products, which would be costly and time-consuming, and/or could subject us to an injunction against development and sale of certain of our products or services. We may have to pay substantial damages, including damages for past infringement if it is ultimately determined that our products infringe on a third party's proprietary rights. Even if these claims are without merit, defending a lawsuit takes significant time, may be expensive and may divert management's attention from other business concerns. Any public announcements related to litigation or interference proceedings initiated or threatened against us could cause our business to be harmed. Our intellectual property portfolio may not be useful in asserting a counterclaim, or negotiating a license, in response to a claim of intellectual property infringement. In certain of our businesses we rely on third party intellectual property licenses and we cannot ensure that these licenses will be available to us in the future on favorable terms or at all.

***Although dependent on certain key personnel, the Company does not have any key man life insurance policies on any such people.***

The Company is dependent on Vininder Singh in order to conduct its operations and execute its business plan and the loss of Vininder Singh or any member of the board of directors or executive officer could harm the Company's business, financial condition, cash flow and results of operations; however, the Company has not purchased any insurance policies with respect to those individuals in the event of their death or disability. Therefore, if Vininder Singh or any member of the board of directors or an executive officer dies or become disabled, the Company will not receive any compensation to assist with such person's absence. The loss of such person could negatively affect the Company and its operations.

***The Company's business operations may be materially adversely affected by a pandemic such as the Coronavirus COVID-19 outbreak.***

In December 2019, a novel strain of coronavirus was reported to have surfaced in Wuhan, China, which spread throughout other parts of the world, including the United States. On January 30, 2020, the World Health Organization declared the outbreak of the coronavirus disease (COVID- 19) a "Public Health Emergency of International Concern." On January 31, 2020, U.S. Health and Human Services Secretary Alex M. Azar II declared a public health emergency for the United States to aid the U.S. healthcare community in responding to COVID-19, and on March 11, 2020 the World Health Organization characterized the outbreak as a "pandemic." COVID-19 resulted in a widespread health crisis that adversely affected the economies and financial markets worldwide. The Company's business could be materially and adversely affected. The extent to which COVID-19 impacts the Company's business will depend on future developments, which are highly uncertain and cannot be predicted, including new information which may emerge concerning the severity of COVID-19 and the actions to contain COVID-19 or treat its impact, among others. If the disruptions posed by COVID-19 or other matters of global concern continue for an extended period of time, the Company's operations may be materially adversely affected. A chief concern related to such events is that they could cause a disruption to our clinical trials.

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***New product development involves a lengthy, expensive and complex process.***

We may be unable to develop or commercialize any product candidates. Moreover, even if we develop such candidates, they may be subject to significant regulatory review, approval and other government regulations. There can be no assurance that our technologies will be capable of developing and commercializing products at all. New product development involves a lengthy, expensive and complex process and we currently have no fully validated diagnostic candidates. In addition, before we can commercialize any new product candidates, we will need to:

- conduct substantial research and development;
- conduct validation studies;
- expend significant funds;
  
- develop and scale-up our laboratory processes; and
- obtain regulatory approval and acceptance of our product candidates.

This process involves a high degree of risk and takes several years. Our product development efforts may fail for many reasons, including:

- failure of the product at the research or development stage; and
- lack of clinical validation data to support the effectiveness of the product.

Few research and development projects result in commercial products, and perceived viability in early clinical trials often is not replicated in later studies. At any point, we may abandon development of a product candidate or we may be required to expend considerable resources repeating clinical trials, which would adversely impact the timing for generating potential revenues from those product candidates. In addition, as we develop product candidates, we will have to make significant investments in product development, marketing and sales resources.

***We may not be able to conduct clinical trials necessary to increase the value of our proposed products and formulations.***

In order to conduct clinical trials that are necessary to obtain approval of a product by the FDA, it is necessary to receive clearance from the FDA to conduct such clinical trials. The FDA can halt clinical trials at any time for safety reasons or because we or our clinical investigators do not follow the FDA's requirements for conducting clinical trials. If we are unable to receive clearance to conduct clinical trials or the trials are halted by the FDA, the likelihood of our ability to sell or license our products would be greatly reduced as it is the FDA approval which will enhance the value of our products.

***Our ability to resell and/or license our products will depend upon successful clinical trials.***

Only a small number of research and development programs result in the development of a product that obtains FDA approval. Success in preclinical work or early stage clinical trials does not ensure that later stage or larger scale clinical trials will be successful. Conducting clinical trials is a complex, time-consuming and expensive process. Our ability to complete our clinical trials in a timely fashion depends in large part on a number of key factors including protocol design, regulatory and institutional review board approval, the rate of patient enrollment in clinical trials, and compliance with extensive current Good Clinical Practices. If we fail to adequately manage the design, execution and regulatory aspects of our clinical trials, our studies and ultimately our regulatory approvals may be delayed, or we may fail to gain approval for our product candidates. Clinical trials may indicate that our product candidates have harmful side effects or raise other safety concerns that may significantly reduce the likelihood of regulatory approval, result in significant restrictions on use and safety warnings in any approved label, adversely affect placement within the treatment paradigm, or otherwise significantly diminish the commercial potential of the product candidate. Also, positive results in a registrational trial may not be replicated in any subsequent confirmatory trials. Even if later stage clinical trials are successful, regulatory authorities may disagree with our view of the data or require additional studies, and may fail to approve or delay approval of our product candidates or may grant marketing approval that is more restricted than anticipated, including indications for a narrower patient population than expected and the imposition of safety monitoring or educational requirements or risk evaluation and mitigation strategies. In addition, if another Company is the first to file for marketing approval of a competing drug candidate, that Company may ultimately receive marketing exclusivity for its drug candidate, thereby reducing the value of our product.

***We face significant competition from other biotechnology and pharmaceutical companies.***

While we believe that our technology, development experience and scientific knowledge provide competitive advantages, we face potential competition from many different sources, including major pharmaceutical, specialty pharmaceutical, and biotechnology companies, academic institutions and governmental agencies, and public and private research institutions. Many of our existing or potential competitors have substantially greater financial, technical and human resources than we do and significantly greater experience in the development of drug candidates as well as in obtaining regulatory approvals of those drug candidates in the United States and in foreign countries.

Mergers and acquisitions in the pharmaceutical and biotechnology industries could result in even more resources being concentrated among a small number of our competitors. Competition may increase further as a result of advances in the commercial applicability of technologies and greater availability of capital for investment in these industries. Our competitors may succeed in developing, acquiring or licensing, on an exclusive basis, drug candidates that are more effective or less costly than any drug candidate that we may develop.

Our ability to compete successfully will depend largely on our ability to:

- \* identify drugs that have suffered set backs in the clinical development and regulatory process which we believe can be assisted by our platform's ability to design a better study group;
- \* attract qualified scientific, product development and commercial personnel;
- \* obtain patent or other proprietary protection for our drugs and technologies;
- \* obtain required regulatory approvals; successfully collaborate with pharmaceutical companies in the discovery, development and commercialization of new drugs; and
- \* negotiate competitive pricing and reimbursement with third party payors

The availability of our competitors' technologies could limit the demand, and the price we are able to charge for our services and for any drug candidate we develop. The inability to compete with existing or subsequently introduced drug development technologies would have a material adverse impact on our business, financial condition and prospects.

Established pharmaceutical companies and research institutions may invest heavily to accelerate discovery and development of novel compounds or to in license novel compounds that could make bFLEAP™ less competitive, which would have a material adverse impact on our business.

***We may not be able to acquire the rights to any failed drugs or we may not be able to rescue failed drugs through analysis due to our technology or the lack of clinical data.***

Our business model is based on the use of AI/ML technology, which technology may not uncover actionable insights or we may not be able to access sufficient clinical data to uncover such insights that lead to a successful project, clinical trial, or product. The failure of such projects, clinical trials or products would result in a loss of revenue from one of our three sources, which could have a material adverse impact on our business as a whole.

***We may not succeed in acquiring the rights to failed drugs, which could limit one of our main sources of revenue.***

Our business model is partly based on our ability to acquire drugs that have failed to pass Phase 2 or Phase 3 of the FDA approval process; however, there is no guarantee that we will be able to acquire the rights to such drugs, which would significantly impact our ability to generate revenue and as a result would have a material adverse impact on our business.

***We intend to invest in early stage experimental technologies which have a high risk of failure.***

To continue supporting our business model, we intend to invest in early stage and experimental technologies, some or all of which may not be useful to us. There is a risk that we will invest in technology that will not ultimately contribute to the success of our projects, which could have a material adverse impact on our business.

***We are dependent on our collaborative agreements for the development of products and business development, which exposes us to the risk of reliance on the viability of third parties.***

In conducting our research and development activities, we currently rely, and will in the future rely, on collaborative agreements with third parties such as manufacturers, contract research organizations, commercial partners, universities, governmental agencies and not-for-profit organizations for both strategic and financial resources. The loss of, or failure to perform by us or our partners under, any applicable agreements or arrangements, or our failure to secure additional agreements for other products in development, would substantially disrupt or delay our research and development and commercialization activities. Any such loss would likely increase our expenses and materially harm our business, financial condition and results of operation.

***We extensively outsource our clinical trial activities and usually perform only a small portion of the start-up activities in-house.***

We rely on independent third-party contract research organizations (CROs) to perform most of our clinical studies, including document preparation, site identification, screening and preparation, pre-study visits, training, program management and bioanalytical analysis. Many important aspects of the services performed for us by the CROs are out of our direct control. If there is any dispute or disruption in our relationship with our CROs, our clinical trials may be delayed. Moreover, in our regulatory submissions, we rely on the quality and validity of the clinical work performed by third-party CROs. If any of our CROs' processes, methodologies or results were determined to be invalid or inadequate, our own clinical data and results and related regulatory approvals could be adversely impacted.

***We are a biotechnology company with no significant revenue. We have incurred operating losses since our inception, and we expect to incur losses for the foreseeable future and may never achieve profitability.***

We have incurred significant operating losses since our inception. To date, we have not generated any revenue and we may not generate any revenue from sales of our clinical analytics services or drug candidates for the foreseeable future. We expect to continue to incur significant operating losses and we anticipate that our losses may increase substantially as we expand our drug development programs.

To achieve profitability, we must successfully develop and obtain regulatory approval for one or more of drugs and effectively commercialize any drugs we develop. Even if we succeed in developing and commercializing one or more drug candidates, we may not be able to generate sufficient revenue and we may never be able to achieve or sustain profitability.

***We will continue to require additional capital for the foreseeable future. If we are unable to raise additional capital when needed, we may be forced to delay, reduce or eliminate our drug acquisition efforts.***

We expect to continue to incur significant operating expenses in connection with our ongoing activities, including conducting clinical trials and seeking regulatory approval of drug candidates. Our ongoing future capital requirements will depend on numerous factors, including:

- the rate of progress, results and costs of completion of clinical trials of drug candidates;
- the size, scope, rate of progress, results and costs of completion of any potential future clinical trials and preclinical tests of our drug candidates that we may initiate;
- the costs of obtaining regulatory approval of drug candidates;
- the scope, prioritization and number of drug development programs we pursue;
- the costs for preparing, filing, prosecuting, maintaining and enforcing our intellectual property rights and defending intellectual property-related claims;
- the extent to which we acquire or in-license other products and technologies and the costs to be able to obtain regulatory approval of such products;
- our ability to establish strategic collaborations and licensing or other arrangements on terms favorable to us; and
- competing technological and market developments.

Any additional fundraising efforts may divert our management from their day to day activities, which may adversely affect our ability to identify and acquire new drug candidates and to further the regulatory process of such products. Our ability to raise additional funds will depend, in part, on the success of our product development activities and other factors related to financial, economic and market conditions, many of which are beyond our control. There can be no assurance that we will be able to raise additional capital when needed or on terms that are favorable to us, if at all. If adequate funds are not available on a timely basis, we may be forced to:

- delay, reduce the scope of or eliminate one or more of our drug development programs;

- limit the amount of new products that we acquire or relinquish, license or otherwise dispose of rights on terms that are less favorable than if we were able to further the regulatory approval process; or
- liquidate and dissolve the Company.

If our operating plans change, we may require additional capital sooner than planned. Such additional financing may not be available when needed or on terms favorable to us. In addition, we may seek additional capital due to favorable market conditions or strategic considerations, even if we believe we have sufficient funds for our current and future operating plan.

***We are increasingly dependent on information technology systems to operate our business and a cyber-attack or other breach of our systems, or those of third parties on whom we may rely, could subject us to liability or interrupt the operation of our business.***

We are increasingly dependent on information technology systems to operate our business. A breakdown, invasion, corruption, destruction or interruption of critical information technology systems by employees, others with authorized access to our systems or unauthorized persons could negatively impact operations. In the ordinary course of business, we collect, store and transmit confidential information and it is critical that we do so in a secure manner to maintain the confidentiality and integrity of such information. Additionally, we outsource certain elements of our information technology systems to third parties. As a result of this outsourcing, our third party vendors may or could have access to our confidential information making such systems vulnerable. Data breaches of our information technology systems, or those of our third party vendors, may pose a risk that sensitive data may be exposed to unauthorized persons or to the public. For example, the loss of clinical trial data from completed or ongoing clinical trials or preclinical studies could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. While we believe that we have taken appropriate security measures to protect our data and information technology systems, and have been informed by our third party vendors that they have as well, there can be no assurance that our efforts will prevent breakdowns or breaches in our systems, or those of our third party vendors, that could materially adversely affect our business and financial condition.

***We must complete extensive clinical trials to demonstrate the safety and efficacy of our drug candidates. If we are unable to demonstrate the safety and efficacy of our drug candidates, we will not be successful.***

The success of our business depends primarily on our ability to further the regulatory approval process to increase the value of our drug candidates. Drug candidates must satisfy rigorous standards of safety and efficacy before they can be approved for sale which greatly enhances their value. To satisfy these standards, we must engage in

expensive and lengthy testing of drug candidates.

We may not be able to obtain authority from the FDA or other equivalent foreign regulatory agencies to move on to further efficacy segments of the Phase 2 or Phase 3 clinical trials or commence and complete any clinical trials for any of our drug candidates. Positive results in preclinical studies of a drug candidate may not be predictive of similar results in human clinical trials, and promising results from early clinical trials of a drug candidate may not be replicated in later clinical trials. A number of companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials even after achieving promising results in early-stage development. Accordingly, the results from the preclinical tests or clinical trials for our drug candidates may not be predictive of the results we may obtain in later stage trials. The failure of clinical trials to demonstrate safety and efficacy of one or more of our drug candidates will have a material adverse effect on our business and financial condition.

***Delays in the commencement of clinical trials of our drug candidates could result in increased costs to us and delay our ability to successfully license or sell such products.***

Our drug candidates will require continued extensive clinical trials to increase the value and desirability of the products. Because of the nature of clinical trials, we do not know whether future planned clinical trials will begin on time, if at all. Delays in the commencement of clinical trials could significantly increase our drug development costs and delay our ability to successfully sell or license our drug candidates. In addition, many of the factors that may cause, or lead to, a delay in the commencement of clinical trials may also ultimately lead to denial of regulatory approval of a drug candidate. The commencement of clinical trials can be delayed for a variety of reasons, including delays in:

- demonstrating sufficient safety and efficacy in past clinical trials to obtain regulatory approval
- to commence a further clinical trial;

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- convincing the FDA that we have selected valid endpoints for use in proposed clinical trials; and
- obtaining institutional review board approval to conduct a clinical trial at a prospective site.

In addition, the commencement of clinical trials may be delayed due to insufficient patient enrollment, which is a function of many factors, including the size of the patient population, the nature of the protocol, the proximity of patients to clinical sites, the availability of effective treatments for the relevant disease and the eligibility criteria for the clinical trial.

***If we are unable to obtain U.S. and/or foreign regulatory approval, we will be unable to resell or license our drug candidates.***

Our drug candidates will be subject to extensive governmental regulations relating to, among other things, research, testing, development, manufacturing, safety, efficacy, record keeping, labeling, marketing and distribution of drugs. Rigorous preclinical testing and clinical trials and an extensive regulatory approval process are required in the U.S. and in many foreign jurisdictions prior to the commercial sale of drug candidates. Satisfaction of these and other regulatory requirements is costly, time consuming, uncertain and subject to unanticipated delays. It is possible that no drug candidate that we present to the FDA will obtain marketing approval which will significantly diminish the value and desirability of our product candidates. In connection with the clinical trials for our drug candidates, we face risks that:

- the drug candidate may not prove to be efficacious;
- the drug candidate may not prove to be safe;
- the drug candidate may not be readily co-administered or combined with other drugs or drug candidates;
- the results may not confirm the positive results from earlier preclinical studies or clinical trials;
- the results may not meet the level of statistical significance required by the FDA or other regulatory agencies; and
- the FDA or other regulatory agencies may require us to carry out additional studies.

We have limited experience in conducting and managing later stage clinical trials necessary to obtain regulatory approvals, including approval by the FDA. However, this risk would be mitigated in the event the Company is successful entering into a co-development agreement with a pharma partner for late stage clinical development. The time required to complete clinical trials and for the FDA and other countries' regulatory review processes is uncertain and typically takes many years. Our analysis of data obtained from preclinical and clinical trials is subject to confirmation and interpretation by regulatory authorities, which could delay, limit or prevent regulatory approval. We may also encounter unanticipated delays or increased costs due to government regulation from future legislation or administrative action or changes in FDA policy during the period of product development, clinical trials, and FDA regulatory review.

***We will rely on third parties for manufacturing of our clinical drug supplies; our dependence on these manufacturers may impair the development of our drug candidates.***

We have no ability to internally manufacture the drug candidates that we need to conduct our clinical trials for the products that we acquire. For the foreseeable future, we expect to continue to rely on third-party manufacturers and other third parties to produce, package and store sufficient quantities of our drug candidates and any future drug candidates for use in our clinical trials. We may face various risks and uncertainties in connection with our reliance on third-party manufacturers, including:

- reliance on third-party manufactures for regulatory compliance and quality assurance;
- the possibility of breach of the manufacturing agreement by the third-party manufacturer because of factors beyond our control;
- the possibility of termination or nonrenewal of our manufacturing agreement by the third-party manufacturer at a time that is costly or inconvenient for us;
- the potential that third-party manufacturers will develop know-how owned by such third-party manufacturer in connection with the production of our drug candidates that is necessary for the manufacture of our drug candidates; and
- reliance on third-party manufacturers to assist us in preventing inadvertent disclosure or theft of our proprietary knowledge.

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Our drug candidates may be complicated and expensive to manufacture. If our third-party manufacturers fail to deliver our drug candidates for clinical use on a timely basis, with sufficient quality, and at commercially reasonable prices, we may be required to delay or suspend clinical trials or otherwise discontinue development of our drug candidates. While we may be able to identify replacement third-party manufacturers or develop our own manufacturing capabilities for these drug candidates, this process would likely cause a delay in the availability of our drug candidates and an increase in costs. In addition, third-party manufacturers may have a limited number of facilities in which our drug candidates can be manufactured, and any interruption of the operation of those facilities due to events such as equipment malfunction or failure or damage to the facility by natural disasters could result in the cancellation of shipments, loss of product in the manufacturing process or a shortfall in available drug candidates.

***We may rely on technology solution partners for the development and deployment of our AI technology***

Our partners may experience technical, financial, operational, or security issues that reduce or eliminate their ability to support the Company. This could prevent the Company

from generating revenue and eliminate our ability to operate.

In addition to the risks listed above, businesses are often subject to risks not foreseen or fully appreciated by the management. It is not possible to foresee all risks that may affect us. Moreover, the Company cannot predict whether the Company will successfully effectuate the Company's current business plan. Each prospective Purchaser is encouraged to carefully analyze the risks and merits of an investment in the Securities and should take into consideration when making such analysis, among other, the Risk Factors discussed above.

### **Risks Related to Intellectual Property Rights**

*We rely on various intellectual property rights, including patents and licenses in order to operate our business.*

Our intellectual property rights, may not be sufficiently broad or otherwise may not provide us a significant competitive advantage. In addition, the steps that we have taken to maintain and protect our intellectual property may not prevent it from being challenged, invalidated, circumvented or designed-around, particularly in countries where intellectual property rights are not highly developed or protected. In some circumstances, enforcement may not be available to us because an infringer has a dominant intellectual property position or for other business reasons, or countries may require compulsory licensing of our intellectual property. Our failure to obtain or maintain intellectual property rights that convey competitive advantage, adequately protect our intellectual property or detect or prevent circumvention or unauthorized use of such property, could adversely impact our competitive position and results of operations. We also rely on nondisclosure and noncompetition agreements with employees, consultants and other parties to protect, in part, trade secrets and other proprietary rights. There can be no assurance that these agreements will adequately protect our trade secrets and other proprietary rights and will not be breached, that we will have adequate remedies for any breach, that others will not independently develop substantially equivalent proprietary information or that third parties will not otherwise gain access to our trade secrets or other proprietary rights.

As we expand our business, protecting our intellectual property will become increasingly important. The protective steps we have taken may be inadequate to deter our competitors from using our proprietary information. In order to protect or enforce our patent rights, we may be required to initiate litigation against third parties, such as infringement lawsuits. Also, these third parties may assert claims against us with or without provocation. These lawsuits could be expensive, take significant time and could divert management's attention from other business concerns. The law relating to the scope and validity of claims in the technology field in which we operate is still evolving and, consequently, intellectual property positions in our industry are generally uncertain. We cannot assure you that we will prevail in any of these potential suits or that the damages or other remedies awarded, if any, would be commercially valuable.

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*The Company could be negatively impacted if found to have infringed on intellectual property rights.*

Technology companies, including many of the Company's competitors, frequently enter into litigation based on allegations of patent infringement or other violations of intellectual property rights. In addition, patent holding companies seek to monetize patents they have purchased or otherwise obtained. As the Company grows, the intellectual property rights claims against it will likely increase. The Company intends to vigorously defend infringement actions in court and before the U.S. International Trade Commission. The plaintiffs in these actions frequently seek injunctions and substantial damages. Regardless of the scope or validity of such patents or other intellectual property rights, or the merits of any claims by potential or actual litigants, the Company may have to engage in protracted litigation. If the Company is found to infringe one or more patents or other intellectual property rights, regardless of whether it can develop non-infringing technology, it may be required to pay substantial damages or royalties to a third-party, or it may be subject to a temporary or permanent injunction prohibiting the Company from marketing or selling certain products. In certain cases, the Company may consider the desirability of entering into licensing agreements, although no assurance can be given that such licenses can be obtained on acceptable terms or that litigation will not occur. These licenses may also significantly increase the Company's operating expenses. Regardless of the merit of particular claims, litigation may be expensive, time-consuming, disruptive to the Company's operations and distracting to management. In recognition of these considerations, the Company may enter into arrangements to settle litigation. If one or more legal matters were resolved against the Company's consolidated financial statements for that reporting period could be materially adversely affected. Further, such an outcome could result in significant compensatory, punitive or trebled monetary damages, disgorgement of revenue or profits, remedial corporate measures or injunctive relief against the Company that could adversely affect its financial condition and results of operations.

*We rely heavily on our technology and intellectual property, but we may be unable to adequately or cost-effectively protect or enforce our intellectual property rights, thereby weakening our competitive position and increasing operating costs.*

To protect our rights in our services and technology, we rely on a combination of copyright and trademark laws, patents, trade secrets, confidentiality agreements and protective contractual provisions. We also rely on laws pertaining to trademarks and domain names to protect the value of our corporate brands and reputation. Despite our efforts to protect our proprietary rights, unauthorized parties may copy aspects of our services or technology, obtain and use information, marks, or technology that we regard as proprietary, or otherwise violate or infringe our intellectual property rights. In addition, it is possible that others could independently develop substantially equivalent intellectual property. If we do not effectively protect our intellectual property, or if others independently develop substantially equivalent intellectual property, our competitive position could be weakened.

Effectively policing the unauthorized use of our services and technology is time-consuming and costly, and the steps taken by us may not prevent misappropriation of our technology or other proprietary assets. The efforts we have taken to protect our proprietary rights may not be sufficient or effective, and unauthorized parties may copy aspects of our services, use similar marks or domain names, or obtain and use information, marks, or technology that we regard as proprietary. We may have to litigate to enforce our intellectual property rights, to protect our trade secrets, or to determine the validity and scope of others' proprietary rights, which are sometimes not clear or may change. Litigation can be time consuming and expensive, and the outcome can be difficult to predict.

*We rely on agreements with third parties to provide certain services, goods, technology, and intellectual property rights necessary to enable us to implement some of our applications.*

Our ability to implement and provide our applications and services to our clients depends, in part, on services, goods, technology, and intellectual property rights owned or controlled by third parties. These third parties may become unable to or refuse to continue to provide these services, goods, technology, or intellectual property rights on commercially reasonable terms consistent with our business practices, or otherwise discontinue a service important for us to continue to operate our applications. If we fail to replace these services, goods, technologies, or intellectual property rights in a timely manner or on commercially reasonable terms, our operating results and financial condition could be harmed. In addition, we exercise limited control over our third-party vendors, which increases our vulnerability to problems with technology and services those vendors provide. If the services, technology, or intellectual property of third parties were to fail to perform as expected, it could subject us to potential liability, adversely affect our renewal rates, and have an adverse effect on our financial condition and results of operations.

*If any third-party owners of intellectual property we may license in the future do not properly maintain or enforce the patents underlying such licenses, our competitive position and business prospects will be harmed.*

We may enter into licenses for third-party intellectual property in the future. Our success will depend in part on the ability of our licensors to obtain, maintain and enforce patent protection for their intellectual property, in particular, those patents to which we have secured exclusive rights.

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If applicable, our licensors may not successfully prosecute the patent applications to which we are licensed. Even if patents issue in respect of any such patent applications, our licensors may fail to maintain these patents, may determine not to pursue litigation against other companies that are infringing these patents, or may pursue such litigation less aggressively than we would. In addition, our licensors may terminate their agreements with us in the event we breach the applicable license agreement and fail to cure the breach within a specified period of time. Without protection for the intellectual property we license, other companies might be able to offer substantially identical products for sale, which could materially adversely affect our competitive business position, business prospects and financial condition.

Because our research and development of drug candidates often incorporates compounds and other information that is the intellectual property of third parties, we depend on continued access to such intellectual property to conduct and complete our preclinical and clinical research and commercialize the drug candidates that result from this research. We expect that future licenses would impose, numerous obligations on us. For example, under our existing and future license agreements, we may be required to pay (i) annual maintenance fees until a drug candidate is sold for the first time, (ii) running royalties on net sales of drug candidates, (iii) minimum annual royalties after a drug candidate is sold for the first time, and (iv) one-time payments upon the achievement of specified milestones. We may also be required to reimburse patent costs incurred by the licensor, or we may be obligated to pay additional royalties, at specified rates, based on net sales of our drug candidates that incorporate the licensed intellectual property rights. We may also be obligated under some of these agreements to pay a percentage of any future sublicensing revenues that we may receive. Future license agreements may also include payment obligations such as milestone payments or minimum expenditures for research and development. We expect that any future licenses would contain reporting, insurance and indemnification requirements. We are actively reviewing and preparing additional patent applications to expand our patent portfolio, but there can be no assurances that patents related to our existing patent applications or any applications we may file in the future will be issued or that any issued patents will provide meaningful protection for our drug candidates, which could materially adversely affect our competitive business position, business prospects and financial condition.

***Confidentiality agreements with employees and others may not adequately prevent disclosure of trade secrets and other proprietary information and may not adequately protect our intellectual property.***

We rely on trade secrets to protect our technology, especially where we do not believe patent protection is appropriate or obtainable. However, trade secrets are difficult to protect. In order to protect our proprietary technology and processes, we also rely in part on confidentiality and intellectual property assignment agreements with our corporate partners, employees, consultants, outside scientific collaborators and sponsored researchers and other advisors. These agreements may not effectively prevent disclosure of confidential information nor result in the effective assignment to us of intellectual property, and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information or other breaches of the agreements. In addition, others may independently discover our trade secrets and proprietary information, and in such case we could not assert any trade secret rights against such party. Enforcing a claim that a party illegally obtained and is using our trade secrets is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, courts outside the U.S. may be less willing to protect trade secrets. Costly and time-consuming litigation could be necessary to seek to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could materially adversely affect our business and financial condition.

#### **Risks Related to Ownership of Our Securities and this Offering**

***The market price of our common stock may be highly volatile, and you could lose all or part of your investment.***

The trading price of our common stock is likely to be volatile. Upon the consummation of this offering, we will have a relatively small public float due to the relatively small size of this offering, and the concentrated ownership of our common stock among our executive officers and directors, and greater than 5% stockholders. As a result of our small public float, our common stock may be less liquid and have greater stock price volatility than the common stock of companies with broader public ownership.

Our stock price could be subject to wide fluctuations in response to a variety of other factors, which include:

- whether we achieve our anticipated corporate objectives;
- changes in financial or operational estimates or projections;
- termination of the lock-up agreement or other restrictions on the ability of our stockholders and other security holders to sell shares after this offering; and
- general economic or political conditions in the United States or elsewhere.

In addition, the stock market in general has recently experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Such rapid and substantial price volatility, including any stock run-up, may be unrelated to our actual or expected operating performance and financial condition or prospects, making it difficult for prospective investors to assess the rapidly changing value of our stock. This volatility may prevent you from being able to sell your securities at or above the price you paid for your securities. If the market price of our common stock after this offering does not exceed the initial public offering price, you may not realize any return on your investment in us and may lose some or all of your investment.

***Our management will have broad discretion over the use of any net proceeds from this offering and you may not agree with how we use the proceeds, and the proceeds may not be invested successfully.***

Our management will have broad discretion as to the use of any net proceeds from this offering and could use them for purposes other than those contemplated at the time of this offering. Accordingly, you will be relying on the judgment of our management with regard to the use of any proceeds from this offering and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. We have no current specific plan for a significant portion of the offering proceeds and it is possible that the proceeds will be invested in a way that does not yield a favorable, or any, return for you.

***Investors in this offering may experience future dilution as a result of this and future equity offerings.***

In order to raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock. Investors purchasing our shares or other securities in the future could have rights superior to existing common stockholders, and the price per share at which we sell additional shares of our common stock or other securities convertible into or exchangeable for our common stock in future transactions may be higher or lower than the price per share in this offering.

***An active trading market for our common stock or Warrants may not develop, and you may not be able to sell your common stock at or above the initial public offering price.***

Prior to the consummation of this offering, there has been no public market for our common stock or Warrants. An active trading market for shares of our common stock or Warrants may never develop or be sustained following this offering. If an active trading market does not develop, you may have difficulty selling your shares of common stock or Warrants at an attractive price, or at all. The price for our Units in this offering will be determined by negotiations between us and the underwriters, and it may not be indicative of prices that will prevail in the open market following this offering. Consequently, you may not be able to sell your common stock or Warrants at or above the initial public offering price or at any other price or at the time that you would like to sell. An inactive market may also impair our ability to raise capital by selling our common stock, and it may impair our ability to attract and motivate our employees through equity incentive awards and our ability to acquire other companies, products or technologies by using our common stock as consideration.

***The price of our common stock may fluctuate substantially.***

You should consider an investment in our common stock to be risky, and you should invest in our common stock only if you can withstand a significant loss and wide fluctuations in the market value of your investment. Some factors that may cause the market price of our common stock to fluctuate, in addition to the other risks mentioned in this “Risk Factors” section and elsewhere in this prospectus, are:

- sales of our common stock by our stockholders, executives, and directors;
- volatility and limitations in trading volumes of our shares of common stock;
- our ability to obtain financing to conduct and complete research and development activities;
- our ability to attract new customers;
- changes in the development status of the drugs we acquire;
- failures to meet external expectations or management guidance;
- changes in our capital structure or dividend policy or future issuances of securities;
- our cash position;
- announcements and events surrounding financing efforts, including debt and equity securities;
- reputational issues;
- announcements of acquisitions, partnerships, collaborations, joint ventures, new products, capital commitments, or other events by us or our competitors;
- changes in general economic, political and market conditions in or any of the regions in which we conduct our business;
- changes in industry conditions or perceptions;
- changes in valuations of similar companies or groups of companies;
- analyst research reports, recommendation and changes in recommendations, price targets, and withdrawals of coverage;
- departures and additions of key personnel;
- disputes and litigations related to intellectual property rights, proprietary rights, and contractual obligations;
- changes in applicable laws, rules, regulations, or accounting practices and other dynamics; and
- other events or factors, many of which may be out of our control.

In addition, if the market for stocks in our industry or industries related to our industry, or the stock market in general, experiences a loss of investor confidence, the trading price of our common stock could decline for reasons unrelated to our business, financial condition and results of operations. If any of the foregoing occurs, it could cause our stock price to fall and may expose us to lawsuits that, even if unsuccessful, could be costly to defend and a distraction to management.

***The Warrants may not have any value.***

Each Tradeable Warrant will have an assumed exercise price equal to \$7.80 (120% of the assumed \$6.50 offering price per Unit). Each Non-tradeable Warrant will have an assumed exercise price equal to \$8.125 per share (125% of the assumed \$6.50 offering price per Unit). The Warrants will be exercisable from the date of issuance until the fifth anniversary of the issue date. In the event our common stock price does not exceed the exercise price of the Warrants during the period when the Warrants are exercisable, the Warrants may not have any value.

***Holders of Warrants have no rights as stockholders until such holders exercise their Warrants and acquire our shares of Common Stock.***

Until holders of our Warrants acquire shares of common stock upon exercise thereof, such holders will have no rights with respect to the shares of common stock underlying the Warrants. Upon exercise of the Warrants, the holders will be entitled to exercise the rights of a stockholder only as to matters for which the record date occurs after the date they were entered in the register of members of the Company as a stockholder.

***Future sales of shares by existing stockholders could cause our stock price to decline.***

If our existing stockholders sell, or indicate an intent to sell, substantial amounts of our common stock in the public market after the twelve-month contractual lock-up and other legal restrictions on resale discussed in this prospectus lapse, the trading price of our common stock and Warrants could decline significantly and could decline below the initial public offering price. Based on shares outstanding as of the date of this prospectus, upon the completion of this offering, we will have 5,670,748 outstanding shares of common stock. Of these shares, assuming no shares are purchased in this offering by our existing stockholders 2,525,116 shares of common stock, plus any shares sold pursuant to the underwriters’ option to purchase additional shares, will be immediately freely tradable, without restriction, in the public market.

After the six-month lock-up agreements pertaining to this offering expire, as the case may be, and based on shares outstanding as of the date of the prospectus, an additional 3,145,632 shares will be eligible for sale in the public market. In addition, upon issuance, the 900,000 shares reserved for future issuance under our 2022 Equity Incentive Plan may become eligible for sale in the public market in the future, subject to certain legal and contractual limitations. If our existing stockholders sell substantial amounts of our common stock in the public market, or if the public perceives that such sales could occur, this could have an adverse impact on the market price of our common stock, even if there is no relationship between such sales and the performance of our business.

***After the completion of this offering, we may be at an increased risk of securities class action litigation.***

Historically, securities class action litigation has often been brought against a company following a decline in the market price of its securities. If we were to be sued, it could result in substantial costs and a diversion of management’s attention and resources, which could harm our business.

***We have never paid dividends on our capital stock and we do not anticipate paying any dividends in the foreseeable future. Consequently, any gains from an investment in our common stock will likely depend on whether the price of our common stock increases.***

We have not paid dividends on any of our classes of capital stock to date and we currently intend to retain our future earnings, if any, to fund the development and growth of our business. In addition, the terms of any future indebtedness we may incur could preclude us from paying dividends. As a result, capital appreciation, if any, of our common stock will be your sole source of gain from an investment in our common stock for the foreseeable future. Consequently, in the foreseeable future, you will likely only experience a gain from your investment in our common stock if the price of our common stock increases.

***We are not subject to all Sarbanes-Oxley regulations and lack of financial controls and safeguards required of public companies.***

We do not have the internal infrastructure necessary, and are not required, to complete an attestation about our financial controls that would be required under Section 404 of the Sarbanes-Oxley Act of 2002. There can be no assurance that there are no significant deficiencies or material weaknesses in the quality of our financial controls. We expect to incur additional expenses and diversion of management’s time if and when it becomes necessary to perform the system and process evaluation, testing and remediation required in order to comply with the management certification and auditor attestation requirements.

***If you invest in securities in this offering, you will incur immediate and substantial dilution in the book value of your common stock.***

The offering price per share of our common stock that is part of a Unit will be substantially higher than the net tangible book value per share of our common stock immediately

after this offering. Investors purchasing Units in this offering will pay a price per Unit that substantially exceeds the book value of our tangible assets after subtracting our liabilities. As a result, investors purchasing Units in this offering will incur immediate dilution of \$5.35 per share of our common stock, based on the assumed offering price of \$6.50 per Unit.

***If equity research analysts do not publish research or reports about our business or if they issue unfavorable commentary or downgrade our common stock, the price of our common stock could decline.***

The trading market for our common stock may be affected by the research and reports that equity research analysts publish about us and our business. We do not control these analysts. The price of our common stock could decline if one or more equity analysts downgrade our common stock or if analysts issue other unfavorable commentary or cease publishing reports about us or our business.

***We may not be able to satisfy listing requirements of Nasdaq to maintain a listing of our common stock or Warrants.***

When our common stock and Tradeable Warrants are listed on Nasdaq, we must meet certain financial and liquidity criteria to maintain such listing. If we violate the maintenance requirements for continued listing of our common stock and Tradeable Warrants, our common stock or Tradeable Warrants may be delisted. In addition, our board of directors may determine that the cost of maintaining our listing on a national securities exchange outweighs the benefits of such listing. A delisting of our common stock or Tradeable Warrants from Nasdaq may materially impair our stockholders' ability to buy and sell our common stock or Warrants and could have an adverse effect on the market price of, and the efficiency of the trading market for, our common stock or Tradeable Warrants. In addition, the delisting of our common stock or Tradeable Warrants could significantly impair our ability to raise capital.

***Provisions of our charter documents or Nevada law could delay or prevent an acquisition of our company, even if the acquisition would be beneficial to our stockholders, and could make it more difficult to change management.***

Provisions of our certificate of incorporation and bylaws may discourage, delay or prevent a merger, acquisition or other change in control that stockholders might otherwise consider favorable, including transactions in which stockholders might otherwise receive a premium for their shares. In addition, these provisions may frustrate or prevent any attempt by our stockholders to replace or remove our current management by making it more difficult to replace or remove our board of directors. These provisions include:

- limitations on our stockholders' ability to call special meetings of stockholders;
- an advance notice requirement for stockholder proposals and nominations for members of our Board;
- the authority of our Board to determine the number of director seats on our Board;
- the authority of our Board to fill vacancies occurring on the Board;
- the authority of our Board to issue preferred stock with such terms as our Board may determine.

***Our certificate of incorporation grants our Board of Directors the power to designate and issue additional shares of common and/or preferred stock.***

Our authorized capital consists of 100,000,000 shares of common stock and 10,000,000 shares of preferred stock. Our preferred stock may be designated into series pursuant to authority granted by our certificate of incorporation, and on approval from our Board of Directors. The Board of Directors, without any action by our stockholders, may designate and issue shares in such classes or series as the Board of Directors deems appropriate and establish the rights, preferences and privileges of such shares, including dividends, liquidation and voting rights. The rights of holders of other classes or series of stock that may be issued could be superior to the rights of holders of our common stock. The designation and issuance of shares of capital stock having preferential rights could adversely affect other rights appurtenant to shares of our common stock.

***We will indemnify and hold harmless our officers and directors to the maximum extent permitted by Nevada law.***

Our bylaws provide that we will indemnify and hold harmless our officers and directors against claims arising from our activities, to the fullest extent not prohibited by Nevada law. If we were called upon to perform under our indemnification agreement, then the portion of our assets expended for such purpose would reduce the amount otherwise available for our business.

***We must implement additional and expensive procedures and controls in order to grow our business and organization and to satisfy new reporting requirements, which will increase our costs and require additional management resources.***

Upon becoming a fully public reporting company, we will be required to comply with the Sarbanes-Oxley Act of 2002 (the "Sarbanes-Oxley Act") and the related rules and regulations of the SEC, including the requirements that we maintain disclosure controls and procedures and adequate internal control over financial reporting. In the future, if our securities are listed on a national exchange, we may also be required to comply with marketplace rules and heightened corporate governance standards. Compliance with the Sarbanes-Oxley Act and other SEC and national exchange requirements will increase our costs and require additional management resources. We recently have begun upgrading our procedures and controls and will need to continue to implement additional procedures and controls as we grow our business and organization and to satisfy new reporting requirements. If we are unable to complete the required assessment as to the adequacy of our internal control over financial reporting, as required by Section 404 of the Sarbanes-Oxley Act or if we fail to maintain internal control over financial reporting, our ability to produce timely, accurate and reliable periodic financial statements could be impaired.

If we do not maintain adequate internal control over financial reporting, investors could lose confidence in the accuracy of our periodic reports filed under the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Additionally, our ability to obtain additional financing could be impaired or a lack of investor confidence in the reliability and accuracy of our public reporting could cause our stock price to decline.

***We are an "emerging growth company" under the JOBS Act of 2012 and we cannot be certain if the reduced disclosure requirements applicable to emerging growth companies will make our common stock less attractive to investors.***

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"), and we may take advantage of certain exemptions from various reporting requirements that are not applicable to other public companies that are not "emerging growth companies" including, but not limited to, not being required to comply with the auditor attestation requirements of section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and shareholder approval of any golden parachute payments not previously approved. We cannot predict if investors will find our common stock less attractive because we may rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

In addition, Section 107 of the JOBS Act also provides that an "emerging growth company" can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933 (the "Securities Act") for complying with new or revised accounting standards. In other words, an "emerging growth company" can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We are choosing to take advantage of the extended transition period



for complying with new or revised accounting standards.

We will remain an “emerging growth company” until the last day of the fiscal year following the fifth anniversary of the date of the first sale of our common stock pursuant to an effective registration statement under the Securities Act, although we will lose that status sooner if our revenues exceed \$1.07 billion, if we issue more than \$1 billion in non-convertible debt in a three year period, or if the market value of our common stock that is held by non-affiliates exceeds \$700 million as of the last day of our most recently completed second fiscal quarter.

Investors may be unable to compare our business with other companies in our industry if they believe that our financial accounting is not as transparent as other companies in our industry. If we are unable to raise additional capital as and when we need it, our financial condition and results of operations may be materially and adversely affected.

***Because Vininder Singh, our Chief Executive Officer and director, controls a significant number of shares of our voting capital stock, he has effective control over actions requiring stockholder approval.***

Upon the completion of this offering, Mr. Vininder Singh, our Chief Executive Officer and a director will beneficially own approximately 48.36% of the Company’s common stock (approximately 46.73% if the over-allotment option is exercised). As a result, Mr. Singh may have the ability to control the outcome of matters submitted to our stockholders for approval, including the election of directors and any merger, consolidation or sale of all or substantially all of our assets. Accordingly, any investors who purchase shares will be minority shareholders and as such will have little to no say in the direction of us and the election of directors. Additionally, this concentration of ownership might harm the market price of our common stock by:

- delaying, deferring or preventing a change in corporate control;
- impeding a merger, consolidation, takeover or other business combination involving us; or
- discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of us.

### CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements that involve substantial risks and uncertainties. The forward-looking statements are contained principally in the sections entitled “Prospectus Summary,” “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Business,” but are also contained in this prospectus. In some cases, you can identify forward-looking statements by the words “may,” “might,” “will,” “could,” “would,” “should,” “expect,” “intend,” “plan,” “aim,” “objective,” “anticipate,” “believe,” “estimate,” “predict,” “project,” “potential,” “continue,” “ongoing,” “target,” “seek” or the negative of these terms, or other comparable terminology intended to identify statements about the future. Forward-looking statements contained in this prospectus include, but are not limited to, statements about:

- our future financial performance, including our revenue, costs of revenue, operating expenses and profitability;
- the sufficiency of our cash and cash equivalents to meet our liquidity needs;
- our predictions about the property development, digital transformation technology and biohealth businesses and their respective market trends;
- our ability to attract and retain customers in all our business segments to purchase our products and services;
- the availability of financing for smaller publicly traded companies like us;
- our ability to successfully expand in our three principal business markets and into new markets and industry verticals; and
- our ability to effectively manage our growth and future expenses.

We caution you that the foregoing list may not contain all of the forward-looking statements made in this prospectus.

These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. Although we believe that we have a reasonable basis for each forward-looking statement contained in this prospectus, we caution you that these statements are based on a combination of facts and factors currently known by us and our expectations of the future, about which we cannot be certain.

You should refer to the “Risk Factors” section of this prospectus for a discussion of important factors that may cause our actual results to differ materially from those expressed or implied by our forward-looking statements. As a result, of these factors, we cannot assure you that the forward-looking statements in this prospectus will prove to be accurate. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, or at all. We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by federal securities law.

You should read this prospectus and the documents that we reference in this prospectus and have filed as exhibits to the registration statement, of which this prospectus is a part, completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of our forward-looking statements by these cautionary statements.

### USE OF PROCEEDS

We expect the net proceeds from this offering to be approximately \$7,534,000, or approximately \$8,703,000 if the underwriters exercise their option to purchase additional shares in full, assuming an initial public offering price of \$6.50 per Unit and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

Each \$1.00 increase (decrease) in the assumed initial public offering price of \$6.50 per Unit of common stock would increase (decrease) the net proceeds to us by approximately \$1,199,000, assuming that the number of Units offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting the estimated underwriting discounts and commissions. We may also increase or decrease the number of Units we are offering. Each increase (decrease) of 1,000,000 shares in the number of shares of common stock offered by us would increase (decrease) the net proceeds to us by approximately \$5,915,000, assuming that the assumed initial public offering price remains the same, and after deducting the estimated underwriting discounts and commissions.

We intend to use the net proceeds received from this offering for general and working capital purposes, including but not limited to investing in research and development, including in our technology, the repayment of debt and for working capital and general corporate purposes

**RESEARCH AND DEVELOPMENT.** We anticipate using approximately \$2.0 million of the net proceeds on expenditures related to our licensed programs and collaborations. Of such amount, we anticipate spending \$1.5 million on our Mebendazole program on license and patent obligations, as well as initiating development activities including regulatory efforts towards an IND filing and drug product manufacturing to support preclinical studies. We will also increase our efforts for securing partners to advance the program through clinical development. Our siRNA program is an earlier stage program, and we anticipate expending approximately \$500,000 on discovery collaborations seeking indications, primarily for siRNA before initiating drug product manufacturing initiatives for IND enabling studies.

**DEBT REDUCTION.** Approximately 10% for repayment of debt incurred related to the engagement of consultants and employees directed at developing the operations and supporting our public listing as well as other trade liabilities. Further, the Company has borrowed working capital to support the public listing initiative under a convertible bridge note agreement. The note, with a \$195,000 face value with a 9% interest rate and maturity on February 9, 2023 has a current balance with accrued interest of approximately \$208,000. The holder has the right to convert the note into equity but has not confirmed their intent to convert therefore we anticipate repaying the debt from proceeds.

**WORKING CAPITAL.** The remainder for working capital and other general corporate purposes.

The actual allocation of proceeds realized from this offering will depend upon our operating revenues and cash position and our working capital requirements and may change. The estimated use of proceeds is preliminary and subject to change. We cannot specify with certainty all of the particular uses for the net proceeds to be received upon the closing of this offering.

We will pay all of our own expenses and certain expenses of the underwriters related to this offering. See “Underwriting” on page 53.

#### DIVIDEND POLICY

Holders of common stock are entitled to receive ratably such dividends, if any, as may be declared by the Board of Directors out of funds legally available. We have not paid any dividends since our inception, and we presently anticipate that all earnings, if any, will be retained for development of our business. Any future disposition of dividends will be at the discretion of our Board of Directors and will depend upon, among other things, our future earnings, operating and financial condition, capital requirements, and other factors.

#### CAPITALIZATION

The following table sets forth our cash, cash equivalents, capitalization and indebtedness as of September 30, 2022:

- on an actual basis, reflecting the 1-7 reverse share split;
- on a pro forma basis to give effect to (i) the automatic conversion of the outstanding Convertible Bridge Notes and SAFE Notes and (ii) the conversion of other convertibles notes outstanding, pursuant to an optional conversion, effective immediately prior to the effectiveness of the registration statement of which this prospectus forms a part;
- on a pro forma as adjusted basis to give further effect to the sale of 1,317,647 Units in this offering at an assumed initial offering price of \$6.50 per Unit, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

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The pro forma and pro forma as adjusted information below is illustrative only and our capitalization following the completion of this offering is subject to adjustment based on the initial public offering price of the Units and other terms of this offering determined at pricing. You should read the following table in conjunction with the “Use of Proceeds” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” sections of this prospectus and our consolidated financial statements and related notes appearing elsewhere in this prospectus.

	As of September 30, 2022 (Unaudited)		
	Actual	Pro forma <sup>(1)</sup>	Pro forma as adjusted <sup>(2)</sup>
Cash	\$ 42,216	\$ 42,216	\$ 7,576,098
Debt	\$ 2,478,716	\$ 1,067,640	\$ 1,067,640
Stockholders’ equity:			
Preferred stock, par value \$0.00001 per share, 10,000,000 shares authorized, 0 outstanding	\$ -	\$ -	\$ -
Common stock, par value \$0.00001 per share, 100,000,000 shares authorized, 4,021,935 shares outstanding	40	43	56
Additional paid-in capital	\$ 1,290,137	\$ 2,701,210	10,235,079
Accumulated deficits	\$ (3,703,537)	\$ (3,703,537)	\$ (3,703,537)
Total stockholder’s equity (deficit)	\$ (2,413,360)	\$ (1,002,284)	\$ 6,531,598
Total capitalization	\$ (2,413,360)	\$ (1,002,284)	\$ 6,531,598

- (1) The number of shares of common stock shown above to be outstanding before and after this offering gives effect to our planned reverse stock split at a ratio of 1-for-7. Includes 331,166 shares of common stock that are issuable upon automatic conversion of Convertible Bridge and SAFE Notes and the voluntary conversion of other convertible notes outstanding upon the completion of the IPO.
- (2) Reflects the sale of units in this offering at an assumed initial public offering price of \$6.50 per Unit, and after deducting the estimated underwriting discounts, and estimated offering expenses payable by us. The pro forma as adjusted information is illustrative only, and we will adjust this information based on the actual initial public offering price and other terms of this offering determined at pricing.

Each \$1.00 increase (decrease) in the assumed initial public offering price of \$6.50 per share of common stock would increase (decrease) the net proceeds to us by approximately \$1,199,000, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting the estimated underwriting discounts and commissions. We may also increase or decrease the number of shares we are offering. Each increase (decrease) of 1,000,000 shares in the number of shares of common stock offered by us would increase (decrease) the net proceeds to us by approximately \$5,915,000, assuming that the assumed initial public offering price remains the same, and after deducting the estimated underwriting discounts and commissions.

If the underwriters exercise their option to purchase additional shares in full, pro forma cash, additional paid-in capital, total stockholders’ (deficit) equity and total capitalization and shares of common stock outstanding as of September 30, 2022 would be \$8,745,180, \$11,404,159, \$7,700,680 and 5,868,395 shares, respectively.

The total number of shares of our common stock reflected in our actual and pro forma information set forth in the table above excludes:

- Warrants to purchase 418,023 shares of common stock at an exercise price of \$2.76 per share, with terms expiring April 1, 2026 through May 3, 2032
- Options to purchase 69,217 shares of common stock at a weighted average exercise price of \$3.06 per share; and
- Warrants to purchase 274,284 shares of common stock at an exercise price of \$0.0007 per share, with terms expiring February 7, 2030; and
- Warrants to purchase 340,185 shares of common stock at an exercise price of \$2.50 per share, with terms expiring August 9, 2031 through August 19, 2031

#### DILUTION

If you invest in our securities in this offering, your ownership interest will be diluted to the extent of the difference between the initial public offering price per share of our common stock that is a part of the Unit and the pro forma net tangible book value per share of our common stock immediately after this offering. The net tangible book value of our common stock as of September 30, 2022 was \$(2,413,360), or \$(0.60) per share. Net tangible book value per share represents our total tangible assets (which excludes deferred offering costs, which were \$0 at September 30, 2022 less our total liabilities, divided by the number of shares of outstanding common stock after adjusting for the stock split of the shares of existing stockholders).

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Our pro forma net tangible book value (deficit) as of September 30, 2022 was \$(1,002,284), or \$(0.23) per share. Pro forma net tangible book value (deficit) represents the amount of our total assets less our total liabilities, after giving effect to the automatic conversion of Convertible Bridge and SAFE Notes and the voluntary conversion of other convertible notes outstanding upon the completion of the IPO.

After giving further effect to the receipt of the net proceeds from our sale of 1,317,647 shares of common stock in this offering, at an assumed initial public offering price of \$6.50 per Unit after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of September 30, 2022 would have been approximately \$6,531,598 or \$ 1.15 per share. This amount represents an immediate increase in pro forma as adjusted net tangible book value of \$1.38 per share to our existing stockholders and an immediate dilution of \$5.35 per share to new investors purchasing Units in this offering.

We determine dilution per share to investors participating in this offering by subtracting pro forma as adjusted net tangible book value per share after this offering from the assumed initial public offering price per share paid by investors participating in this offering. The following table illustrates this dilution on a per share basis to new investors:

Assumed initial public offering price per Unit	\$	6.50
Net tangible book value per share as of September 30, 2022	\$	(0.60)
Increase in price per share attributable to the conversion of outstanding convertible notes	\$	0.37
Pro forma net tangible book value (deficit) per share as of September 30, 2022	\$	(0.23)
Increase in pro forma as adjusted net tangible book value per share attributable to new investors purchasing shares	\$	1.38
Pro forma as adjusted net tangible book value per share after this offering	\$	1.15
Dilution in net tangible book value per share to new investors in this offering	\$	5.35

Each \$1.00 increase (decrease) in the assumed initial public offering price of \$6.50 per Unit would increase (decrease) the pro forma net tangible book value by \$0.21 per share and increase (decrease) the dilution per share to new investors by \$(0.21) per share, assuming the number of Units offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting the estimated underwriting discounts and commissions.

Similarly, each increase (decrease) of 1,000,000 shares in the number of common stock we are offering would increase (decrease) our pro forma net tangible book value by approximately \$5,915,000, or \$0.71 per share and decrease (increase) the dilution per share to new investors participating in this offering by \$0.71 per share, assuming that the assumed initial public offering price of \$6.50 remains the same, and after deducting the estimated underwriting discounts and commissions.

The pro forma information discussed above is illustrative only and will change based on the actual initial public offering price, number of shares and other terms of this offering determined at pricing.

If the underwriters exercise their option to purchase additional shares in this offering in full at the assumed initial public offering price of \$6.50 per Unit and assuming the number of shares of common stock offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses, the pro forma net tangible book value would be approximately \$1.31 per share, and the dilution in pro forma net tangible book value per share to investors in this offering would be approximately \$5.19 per share.

The table below summarizes as of September 30, 2022, adjusted pro forma basis described above, the number of shares of our common stock, the total consideration and the average price per share (i) paid to us by existing stockholders and (ii) to be paid by new investors purchasing our common stock in this offering at an assumed initial public offering price of \$6.50 per Unit, before deducting underwriting discounts and commissions and estimated offering expenses.

	Shares Purchased		Total Consideration		Average Price Per Share
	Number	Percent	Amount	Percent	
Existing stockholders	4,353,101	76.8%	\$ 2,701,253	26.4%	\$ 0.62
New investors	1,317,647	23.2%	\$ 7,533,882	73.6%	\$ 5.72
Total	45,670,748	100.0%	\$ 10,235,135	100.0%	\$ 1.80

In addition, if the underwriters exercise their option to purchase additional shares in full, the number of shares held by existing stockholders will be reduced to 74.2% of the total number of shares of common stock to be outstanding upon the closing of this offering, and the number of shares of common stock held by new investors participating in this offering will be further increased by 197,647, or 2.6% of the total number of shares of common stock to be outstanding upon the closing of this offering.

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Each \$1.00 increase (decrease) in the assumed initial public offering price of \$6.50 per share of common stock would increase (decrease) total consideration paid by new investors by approximately \$1,199,000, assuming that the number of shares of common stock offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting the estimated underwriting discounts and commissions. We may also increase or decrease the number of shares we are offering. Each increase (decrease) of 1,000,000 shares in the number of shares of common stock offered by us would increase (decrease) total consideration paid by new investors by approximately \$5,915,000, assuming that the assumed initial price to the public remains the same, and after deducting the estimated underwriting discounts and commissions.

The total number of shares of our common stock reflected in our actual and pro forma information set forth in the table above excludes:

- Warrants to purchase 418,023 shares of common stock at an exercise price of \$2.76 per share, with terms expiring April 1, 2026 through May 2, 2032
- Options to purchase 69,217 shares of common stock at a weighted average exercise price of \$3.06 per share; and
- Warrants to purchase 274,284 shares of common stock at an exercise price of \$0.0007 per share, with terms expiring February 7, 2030; and
- Warrants to purchase 340,185 shares of common stock at an exercise price of \$2.50 per share, with terms expiring August 9, 2031 through August 19, 2031

## DESCRIPTION OF CAPITAL STOCK

### General

Our authorized capital stock consists of 100,000,000 shares of common stock, par value \$0.00001 per share, and 10,000,000 shares of preferred stock, par value \$0.00001 per share, including 5,500,000 shares of Series A Preferred Stock.

### Common Stock

#### *Common stock outstanding*

As of January 10, 2023, there were 4,021,935 shares of our common stock outstanding.

#### *Voting rights*

Each share of common stock entitles the holder to one vote, either in person or by proxy, at meetings of stockholders. The holders are not permitted to vote their shares cumulatively.

#### *Dividend rights*

Holders of common stock are entitled to receive ratably such dividends, if any, as may be declared by the Board of Directors out of funds legally available.

#### *Rights upon liquidation*

Upon our liquidation, dissolution or winding up, the holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities

#### *Other rights*

Holders of our common stock do not have any pre-emptive rights or other subscription rights, conversion rights, redemption or sinking fund provisions.

### Preferred Stock

#### *Preferred stock outstanding*

As of January 10, 2023, there are 73,449 shares of Series A Preferred Stock issued and outstanding.

#### *Conversion rights*

Each holder of Series A Preferred Stock may, from time to time, convert any or all of such holder's shares of Series A Preferred Stock into fully paid and nonassessable shares of Common Stock in an amount equal to ten shares of common stock for each one share of Series A Preferred Stock surrendered.

A holder of shares of Series A Preferred Stock is not entitled to convert shares of Series A Preferred Stock if upon such conversion the number of shares of common stock to be received, together with the number of shares of common stock beneficially owned by the holder and its affiliates on the conversion date, would result in beneficial ownership by the holder and its affiliates of more than 4.99% of the outstanding shares of common stock of the Company on such conversion date

#### *Voting rights*

Each holder of Series A Preferred Stock has no voting rights.

#### *Rights upon liquidation*

Upon our liquidation, dissolution or winding up, the holders of our Series A Preferred Stock shall not be entitled to any liquidation preference and are to receive any liquidation as if they were converted to common stock.

### Warrants

#### *Warrants to Be Issued in the Offering*

*Overview.* The following summary of certain terms and provisions of the Warrants included in the Units offered hereby is not complete and is subject to, and qualified in its entirety by, the provisions of the Warrant Agent Agreement between us and VStock Transfer, LLC, as Warrant Agent, and the forms of Tradeable Warrant and Non-Tradeable Warrant, all of which are filed as exhibits to the registration statement of which this prospectus is a part. Prospective investors should carefully review the terms and provisions set forth in the Warrant Agent Agreement, including the annexes thereto, and forms of Warrant. The Tradeable Warrant and the Non-tradeable Warrant have identical terms except that (i) unlike the Non-tradeable Warrant, the Tradeable Warrant will be tradeable and will be listed on the Nasdaq Capital Market, and (ii) the exercise price per share of common stock is \$7.80 for the Tradeable Warrant and \$8.125 for the Non-tradeable Warrant.

*Exercisability.* The Warrants are exercisable at any time after their original issuance and at any time up to the date that is five years after their original issuance. The Warrants will be exercisable, at the option of each holder, in whole or in part by delivering to us a duly executed exercise notice and, at any time a registration statement registering the issuance of the shares of common stock underlying the Warrants under the Securities Act is effective and available for the issuance of such shares, or an exemption from registration under the Securities Act is available for the issuance of such shares, by payment in full in immediately available funds for the number of shares of common stock purchased upon such exercise. If a registration statement registering the issuance of the shares of common stock underlying the Warrants under the Securities Act is not effective or available and an exemption from registration under the Securities Act is not available for the issuance of such shares, the holder of a Warrant may, in its sole

discretion, elect to exercise the Warrant through a cashless exercise, in which case the holder would receive upon such exercise the net number of shares of common stock determined according to the formula set forth in the Warrant.

*Exercise Limitation.* A holder of a Warrant will not have the right to exercise any portion of the Warrant if the holder (together with its affiliates and any other person or entity acting as a group) would beneficially own more than 4.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the Warrants. However, upon notice from the holder to us, the holder may waive such limitation up to a percentage, not in excess of 9.99%, provided that any increase in such percentage shall not be effective until 61 days following delivery of such notice from the holder to us.

*Exercise Price.* The exercise price per whole share of common stock purchasable upon exercise of (i) the Tradeable Warrants is \$7.80 per share, which is 120% of the assumed offering price of the Units and (ii) the Non-tradeable Warrant is \$8.125 per share, which is 125% of the assumed offering price of the Units. The exercise price of both the Tradeable Warrants and Non-tradeable Warrants is subject to appropriate adjustment in the event of certain stock dividends and distributions, stock splits, stock combinations, reclassifications or similar events affecting our common stock and also upon any distributions of assets, including cash, stock or other property to our stockholders.

*Fractional Shares.* No fractional shares of common stock will be issued upon exercise of the Warrants. If, upon exercise of a Warrant, a holder would be entitled to receive a fractional interest in a share, we will, upon exercise, round up to the next whole share.

*Transferability.* Subject to applicable laws, the Warrants may be offered for sale, sold, transferred or assigned without our consent.

*Exchange Listing.* We have applied for listing of our common stock and the Tradeable Warrants on The Nasdaq Capital Market under the symbols “BFRG” and “BFRGW,” respectively. No assurance can be given that our listing application will be approved.

*Warrant Agent; Global Certificates.* The Warrants will be issued in registered form under a Warrant Agent Agreement between the Warrant Agent and us. The Tradeable Warrants shall initially be represented only by one or more global warrants deposited with the Warrant Agent, as custodian on behalf of The Depository Trust Company (“DTC”) and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC. The Non-tradeable Warrants will be evidenced by a global certificate, which shall be deposited on behalf of the Company with the Warrant Agent.

*Fundamental Transactions.* In the event of a fundamental transaction, as described in the Warrants and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, or the acquisition of more than 50% of our outstanding common stock, the holders of the Warrants will be entitled to receive upon exercise of the Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the Warrants immediately prior to such fundamental transaction.

*Rights as a Stockholder.* Except as otherwise provided in the Warrants or by virtue of such holder’s ownership of shares of our common stock, the holder of a Warrant does not have the rights or privileges of a holder of our Common Stock, including any voting rights, until the holder exercises the Warrant.

*Cashless Exercise.* If at the time of exercise there is no effective registration statement registering the issuance of the shares of common stock underlying the Warrants (the “Warrant Shares”), then the holder of a Warrant may, in its sole discretion, exercise in whole or in part, and in lieu of making the cash payment otherwise contemplated to be made to the Company upon such exercise in payment of the aggregate exercise price, elect instead to exercise the Warrant on a cashless basis. Notwithstanding anything herein to the contrary, the Company shall not be required to make any cash payments or net cash settlement to the Warrant holder in lieu of delivery of the Warrant Shares. Upon a “cashless exercise,” the Warrant holder shall be entitled to receive the number of Warrant Shares equal to the quotient obtained by dividing (A-B) (X) by (A), where:

(A) = the last VWAP immediately preceding the date of exercise giving rise to the applicable “cashless exercise,” as set forth in the applicable Election to Purchase (as defined in the Warrant Agent Agreement) (to clarify, the “last VWAP” will be the last VWAP as calculated over an entire trading day such that, in the event that the Warrant is exercised at a time that the trading market is open, the prior trading day’s VWAP shall be used in this calculation);

(B) = the Exercise Price then in effect for the applicable Warrant Shares at the time of the exercise of the Warrant, as adjusted as set forth herein; and

(X) = the number of Warrant Shares that would be issuable upon exercise of the Warrant in accordance with the terms of the Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

*Governing Law; and Exclusive Forum.* The Warrants and the Warrant Agent Agreement are governed by New York law. The warrant certificates governing the Tradeable Warrants and Non-tradeable Warrants provide that all legal proceedings concerning the interpretations, enforcement and defense of the transactions contemplated by the warrant certificate (whether brought against a party to the warrant certificate or their respective affiliates, directors, officers, shareholders, partners, members, employees or agents) shall be commenced exclusively in the state and federal courts sitting in the City of New York, Borough of Manhattan. The warrant certificates further provide that we and the Warrant holders irrevocably submit to the exclusive jurisdiction of the state and federal courts sitting in the City of New York, Borough of Manhattan, for the adjudication of any dispute under the warrant certificate or in connection with it or with any transaction contemplated by it or discussed in it. Furthermore, we and the Warrant holders irrevocably waive, and agree not to assert in any suit, action or proceeding, any claim that we or they are not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is improper or is an inconvenient venue for such proceeding. With respect to any complaint asserting a cause of action arising under the Securities Act or the rules and regulations promulgated thereunder, we note, however, that there is uncertainty as to whether a court would enforce this provision and that investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder. Section 22 of the Securities Act creates concurrent jurisdiction for state and federal courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. Section 27 of the Exchange Act creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder. As a result, the exclusive forum provision in the Warrant certificates expressly does not apply to suits brought to enforce any duty or liability created by the Exchange Act. We irrevocably waive any right we may have to, and agree not to request, a jury trial for the adjudication of any dispute under, in connection with, or arising out of the Warrant or any transaction contemplated by the Warrant.

As of January 10, 2023, the Company had 1,032,492 warrants issued and outstanding, each exercisable for one share of common stock at an average exercise price of \$1.94 per share.

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## Convertible Bridge Notes and Warrants

In December 2021, the Company initiated a placement of Convertible Bridge Notes seeking \$1.5M in operating capital to ensure the Company had operating capital while it finished the audit of its financial statements and prepared the S-1 registration statement related to the IPO. In December, the Company sold a convertible promissory note to an unrelated party for \$25,000. On April 11, 2022, the Company entered into an exclusive engagement agreement with WallachBeth Capital LLC in connection with a proposed private and/or public offering by the Company. As discussed in the notes to our consolidated financial statements, a significant component of the Company’s plan to secure capital is the intention of the Company to seek to be listed on a national exchange through an initial public offering (“IPO”) of its common stock. WallachBeth was engaged in this regard and on April 28, 2022, the Company received net proceeds of approximately \$775,000 from the sale of Convertible Bridge Notes and warrants to several institutional investors, as well as certain individual accredited investors. In addition to the money received on April 28th, the Company also received \$100,000 from the sale of a Convertible Bridge Note and warrants to a related party in early April on the same terms. The Company received additional proceeds of \$25,000 from the sale of a Convertible Bridge Note and warrants to an unrelated party in early September on the same terms.

As of January 1, 2023, the Company had approximately \$1.13M in face value of Convertible Bridge Notes outstanding. The notes were sold with a 10% original Issue discount

and convert at the IPO at the lesser of a 20% discount to the IPO price or a \$25 million pre-money valuation. The purchasers also received a warrant for each share of common stock to be issued upon conversion. The warrant exercise price will be the lesser of (i) 90% of the per share IPO price; or (ii) a \$25 million pre-market valuation.

#### **Anti-Takeover Provisions of Nevada Law, or Certificate of Incorporation and our Bylaws**

Our certificate of incorporation and bylaws contain certain provisions that may have the effect of delaying, deferring or preventing a party from acquiring control of us and encouraging persons considering unsolicited tender offers or other unilateral takeover proposals to negotiate with our Board of Directors rather than pursue non-negotiated takeover attempts. According to our bylaws and certificate of incorporation, neither the holders of our common stock nor the holders of our preferred stock have cumulative voting rights in the election of our directors. The combination of the present ownership by a few stockholders of a significant portion of our issued and outstanding common stock and lack of cumulative voting makes it more difficult for other stockholders to replace our Board of Directors or for a third party to obtain control of our Company by replacing our Board of Directors.

The following provisions of the Nevada Revised Statutes (“NRS”) could, if applicable, have the effect of discouraging takeovers of our company.

*Transactions with Interested Stockholders.* The NRS prohibits a publicly-traded Nevada company from engaging in any business combination with an interested stockholder for a period of three years following the date that the stockholder became an interested stockholder unless, prior to that date, the Board of Directors of the corporation approved either the business combination itself or the transaction that resulted in the stockholder becoming an interested stockholder.

An “interested stockholder” is defined as any entity or person beneficially owning, directly or indirectly, 10% or more of the outstanding voting stock of the corporation and any entity or person affiliated with, controlling, or controlled by any of these entities or persons. The definition of “business combination” is sufficiently broad to cover virtually any type of transaction that would allow a potential acquirer to use the corporation’s assets to finance the acquisition or otherwise benefit its own interests rather than the interests of the corporation and its stockholders.

In addition, business combinations that are not approved and therefore take place after the three year waiting period may also be prohibited unless approved by the board of directors and stockholders or the price to be paid by the interested stockholder is equal to the highest of (i) the highest price per share paid by the interested stockholder within the 3 years immediately preceding the date of the announcement of the business combination or in the transaction in which he or she became an interested stockholder, whichever is higher; (ii) the market value per common share on the date of announcement of the business combination or the date the interested stockholder acquired the shares, whichever is higher; or (iii) if higher for the holders of preferred stock, the highest liquidation value of the preferred stock.

*Acquisition of a Controlling Interest.* The NRS contains provisions governing the acquisition of a “controlling interest” and provides generally that any person that acquires 20% or more of the outstanding voting shares of an “issuing corporation,” defined as Nevada corporation that has 200 or more stockholders at least 100 of whom are Nevada residents (as set forth in the corporation’s stock ledger); and does business in Nevada directly or through an affiliated corporation, may be denied voting rights with respect to the acquired shares, unless a majority of the disinterested stockholder of the corporation elects to restore such voting rights in whole or in part.

The statute focuses on the acquisition of a “controlling interest” defined as the ownership of outstanding shares sufficient, but for the control share law, to enable the acquiring person, directly or indirectly and individually or in association with others, to exercise (i) one-fifth or more, but less than one-third; (ii) one-third or more, but less than a majority; or (iii) a majority or more of the voting power of the corporation in the election of directors.

The question of whether or not to confer voting rights may only be considered once by the stockholders and once a decision is made, it cannot be revisited. In addition, unless a corporation’s articles of incorporation or bylaws provide otherwise (i) acquired voting securities are redeemable in whole or in part by the issuing corporation at the average price paid for the securities within 30 days if the acquiring person has not given a timely information statement to the issuing corporation or if the stockholders vote not to grant voting rights to the acquiring person’s securities; and (ii) if voting rights are granted to the acquiring person, then any stockholder who voted against the grant of voting rights may demand purchase from the issuing corporation, at fair value, of all or any portion of their securities.

The provisions of this section do not apply to acquisitions made pursuant to the laws of descent and distribution, the enforcement of a judgment, or the satisfaction of a security interest, or acquisitions made in connection with certain mergers or reorganizations.

#### **Listing**

We intend to apply to list our common stock and Tradeable Warrants on the Nasdaq Capital Market under the symbol “BFRG” and “BFRGW,” respectively. No assurance can be given that our application will be approved. The consummation of this offering is conditioned on obtaining Nasdaq approval.

#### **Transfer Agent and Registrar**

The transfer agent and registrar for our common stock is VStock Transfer, LLC.

### **MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATION**

*The following discussion and analysis of our financial condition and results of operations should be read in conjunction with the section titled “Selected Consolidated Financial and Other Data” and the consolidated financial statements and related notes thereto included elsewhere in this prospectus. This discussion contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those discussed below. Factors that could cause or contribute to such differences include, but are not limited to, those identified below and those discussed in the section titled “Risk Factors” included elsewhere in this prospectus.*

#### **OVERVIEW**

Bullfrog AI Holdings, Inc. was incorporated in the State of Nevada on February 6, 2020. Bullfrog AI Holdings, Inc. is the parent company of Bullfrog AI, Inc. and Bullfrog AI Management, LLC. which were incorporated in Delaware and Maryland, in 2017 and 2021, respectively. Operations are currently conducted through BullFrog AI Holdings, Inc., which began operations on February 6, 2020. We are a company focused specifically on advanced Artificial Intelligence / Machine Learning (AI/ML) analysis of complex data in the advancement of medicine. Our AI/ML platform (trade name: bfLEAP™) was created from technology originally developed at The Johns Hopkins University Applied Physics Laboratory (JHU-APL).

In February of 2018, BullFrog AI Holdings secured the original exclusive, world-wide, royalty-bearing license from JHU-APL for the technology. The license covers three (3) issued patents, one (1) new provisional patent application, non-patent rights to proprietary libraries of algorithms and other trade secrets including modifications and improvements. On July 8, 2022, a new license was secured that provides the Company with new intellectual property and also encompasses most of the intellectual property from the February 2018 license. Our objective is to utilize our for a precision medicine approach toward drug development with biopharmaceutical collaborators, as well as our own internal clinical development programs. We believe the bfLEAP™ platform is ideally suited for evaluating pre-clinical and clinical trial data generated in translational research and clinical trial settings that lead to faster, less expensive drug approvals.

Our aim is to improve the odds of success in each stage of developing medicine, ranging from early pre-clinical through late-stage clinical development. Our ultimate objective is to utilize bfLEAP™ to enable the success of ongoing clinical trials or rescue late-stage failed drugs (i.e., Phase 2 or Phase 3 clinical trial failures) for development and divestiture; although, we will also consider collaborations for earlier stage drugs. We hope to accomplish this through strategic acquisitions of current clinical stage and failed

drugs for in-house development, or through strategic partnerships with biopharmaceutical industry companies.

On July 8, 2022, the company entered into an exclusive, world-wide, royalty-bearing license from JHU-APL for the additional technology. The new license provides additional intellectual property rights including patents, copyrights and knowhow to be utilized under the Company's bfLEAP™ analytical AI/ML platform. In consideration of the new license, the Company issued to JHU-APL 39,879 shares of common stock. In September 2020 and October of 2021, the Company executed Amendments to the original license which represents improvements and new advanced analytics capabilities. In consideration of the rights granted to the Company under the original License Agreement, the Company granted JHU 178,571 warrants exercisable to purchase shares of common stock at \$2.10 per share. Under the terms of the new License Agreement, JHU will be entitled to eight (8%) percent of net sales for the services provided by the Company to other parties and 3% for internally development drug projects in which the JHU license was utilized. The new license also contains tiered sub licensing fees that start at 50% and reduce to 25% based on revenues. In addition, the Company is required to pay JHU an annual maintenance fee of \$1,500. Minimum annual payments are set to be \$30,000 for 2022, \$80,000 for 2023, and \$300,000 for 2024 and beyond, all of which are creditable by royalties.

We will continue to evolve and improve bfLEAP™, and some of the proceeds from this offering may be used toward that effort either in-house or with development partners like The Johns Hopkins University Applied Physics Lab. We plan to leverage our proprietary AI/ML platform developed over several years at one of the top innovation institutions in the world which has already been successfully applied in multiple sectors.

We are preparing to ramp our business using funds from this offering and through our partnerships and relationships. We currently have a strategic relationship with a leading rare disease non-profit organization for AI/ML analysis of late-stage clinical data. We have also acquired the rights to a series of preclinical and early clinical drug assets from universities, as well as a strategic collaboration with a world-renowned research institution to create a HSV1 viral therapeutic platform to engineer immunotherapies for a variety of diseases. We have signed exclusive worldwide License Agreements with Johns Hopkins University for a cancer drug that targets glioblastoma (brain cancer), pancreatic cancer, and others. We have also signed an exclusive worldwide license from George Washington University for another cancer drug that targets hepatocellular carcinoma (liver cancer), and other liver diseases. Additionally, we intend to gain access to later-stage clinical assets through partnerships or the acquisition of rights to failed therapeutic candidates for drug rescue. In certain circumstances, we intend to conduct late-stage clinical trials in an effort to rescue therapeutic assets that previously failed. In these cases there will be a requirement for a drug supply and regulatory services to conduct clinical trials. The success of our clinical development programs will require finding partners to support the clinical development, adequate availability of raw materials and/or drug product for our R&D and clinical trials, and, in some cases, may also require establishment of third-party arrangements to obtain finished drug product that is manufactured appropriately under (GMP) industry-standard guidelines, and packaged for clinical use or sale. Since we are a company focused on using our AI technology to advance medicines, any clinical development programs will also require, in all cases, partners and the establishment of third-party relationships for execution and completion of clinical trials. Over the next 15-18 months, the Company expects to spend approximately \$2.1 million on preclinical IND enabling activities and on R&D to enable future clinical trials evaluating our drug assets for new disease indications.

## **Our Strategy**

The Company has a unique strategy designed to reduce risk and increase the frequency of cash flow. The first part of the strategy is to generate revenues through strategic relationships with biopharma companies. These relationships will be structured as a combination of fees and intellectual property based on the specific scope of the engagement. The objective of these engagements will be to uncover valuable insights to reduce the risk and/or increase the speed of the drug development process which can be achieved through manual or automated integration into the client's work flow or analysis of discrete data sets.

In the future, the second part of our strategy involves acquiring the rights to clinical stage drugs, using our bfLEAP technology to design a precision medicine trial, conduct the trial with a partner, and sell the asset. This approach may also apply to earlier phases in the drug development process such as discovery and preclinical. In any case, the objective is to create near term value and exit and monetize as quickly as possible, preferably within approximately 30 months

## **Results of Operations**

### *For the years ended December 31, 2021 and 2020*

Through the end of 2021, the Company has not recorded any revenues and has an accumulated deficit of approximately \$1,600,000. Net loss from operations in 2021 was approximately \$600,000 versus \$340,000 in 2020. The 2021 increase reflects the costs of engaging advisors and consultants and other costs associated with readying the Company for the IPO including the costs related to auditing the Company's past and current financial statements. Cash used in operations in 2021 was approximately \$382,000 versus approximately \$212,000 in 2020 and cash inflows from financing activities in 2021 was approximately \$387,000 versus approximately \$210,000 in 2020.

### *For the periods ended September 30, 2022 and 2021*

Through September 30, 2022, the Company has not recorded any revenues and has an accumulated deficit of approximately \$3,700,000. Net loss from operations for the nine months ended September 30, 2022 was approximately \$2,107,000 versus \$425,000 in the 2021 period. The 2022 increase reflects the costs of engaging advisors and consultants and other costs associated with readying the Company for the IPO including the acquisition of two drug development programs, the costs related to auditing the Company's past and current financial statements. Cash used in operations in the nine months ended September 30, 2022 was approximately \$871,000 versus approximately \$294,000 in the same period in 2021.

For the period ended September 30, 2022 our Consolidated Statement of Operations reflects operating expenses of \$1,873,000 versus \$414,000 for the period ended September 30, 2021. The increase reflects the expansion of our management team, the acquisition of two drug development programs as well as an increase in professional services related to the intended IPO. Also included in this increase in the period ended September 30, 2022 is stock based compensation of \$291,000 versus \$75,000 in the 2021 period. The increase reflects the increase in the value of the shares of the Company's common stock to \$4.76 per share versus \$0.306 per share in 2021. The increased value reflects the license of two drug development candidates from universities in early 2022 and other developments.

## **Liquidity and Capital Resources**

In 2020, the Company received proceeds of approximately \$210,000 from the sale of a convertible note for \$200,000 and approximately \$10,000 under the SBA PPP loan program. In 2021, we received net proceeds of approximately \$387,000, primarily from the sale of a SAFE note (\$150,000) and a convertible promissory note (\$99,900) and three unsecured promissory notes (\$49,000) to a related party. In addition, in July and December 2021, the Company sold convertible bridge notes to two unrelated parties and received net proceeds of approximately \$88,000. Through September 30, 2022 the Company received net proceeds from the sale of Convertible Bridge Notes of approximately \$961,000 and repaid the unsecured promissory notes sold in 2021 in the amount of \$49,000.

In anticipation of the initial public offering, a management team with extensive deep industry experience has been identified and engaged as employees and consultants to assist the Company in preparing for the initial public offering and subsequently, to operate and function as a public company. Through 2021, the Company primarily operated with only one full time employee and a series of consultants. During this period the primary activities included: technology evaluation, acquisition and validation, capital acquisition and business development activities which in general, have readied the Company for contract services while exploring strategic partnering and asset acquisition. The Company expended approximately \$88,000 and \$206,000 on these activities in 2019 and 2020, respectively. The majority of this was paid to employees and consultants as compensation. In 2021, the Company used approximately \$382,000 on operating activities including approximately \$203,000 in salaries and approximately \$150,000 on professional services and fees directly related to preparation for the intended IPO. The Company also made payments totaling \$25,000 under two evaluation/option agreements for the two drug development programs licensed in 2022. In 2022, three consultants engaged by the Company became part time employees and the Company now has four employees. For the nine months ended September 30, 2022, the Company used approximately \$871,000 on operating activities versus approximately \$294,000 for the same period in 2021. The

2022 cash use included approximately \$388,000 in salaries, approximately \$438,000 in consulting and professional fees including legal, accounting and auditing fees as well as consulting fees for operational activities and approximately \$448,000 in technology license fees, patent cost reimbursements and minimum annual royalties which has been recorded as a research & development expense.

Through the period ended September 30, 2022, the Company has an accumulated deficit of approximately \$3,700,000 and funded its operations through the sale of common stock and debt. We anticipate that our expenses will increase in the future to support our service offerings, clinical and pre-clinical research and development activities associated with strategic partnering and collaborations as well as acquired product candidates and the increased costs of operating as a public company. These increases will likely include increased costs related to the hiring of additional personnel and fees to outside consultants, lawyers and accountants, among other expenses. Additionally, we anticipate increased costs associated with being a public company including expenses related to services associated with maintaining compliance with exchange listing and Securities and Exchange Commission requirements, insurance, and investor relations costs.

We will need substantial additional funds while we develop our services business and to significantly advance development of our licensed programs. The Company's existence is dependent upon management's ability to develop profitable operations and to obtain additional funding sources, including the proceeds from this offering.

These factors raise substantial doubt about our ability to continue as a going concern.

The Company's current operations include BullFrog AI, Inc. and BullFrog Management, LLC. which are wholly owned subsidiaries of BullFrog AI Holdings, Inc., which is a holding company that depends upon the sale of its securities and cash generated through its subsidiaries to fund consolidated operations.

As of September 30, 2022, the Company received net proceeds of approximately \$961,000 from the sale of convertible promissory notes and warrants.

### **Critical Accounting Policies**

In Footnote 3 of our Audited Financial Statements for the year ended December 31, 2021 found elsewhere in this filing, we included a discussion of the most critical accounting policies used in the preparation of our financial statements. There has been no material change in the policies and estimates used in the preparation of our financial statements since the completion of the 2021 audit.

### **Off-Balance Sheet Arrangements**

We do not have any off-balance sheet arrangements, as such term is defined in Item 303(a)(4) of Regulation S-K.

## **Financial operations overview**

### **Revenue**

We did not produce any revenues through September 2022, we do anticipate generating our first revenues in late 2022 from our services related to the strategic relationship with a leading NGO and from a pharmaceutical customer. We currently have multiple discussions underway and anticipate, although there can be no assurance, entering into additional service agreements and business relationships in 2022.

### **Operating Expenses**

We plan to classify our operating expenses into two categories: research and development and general and administrative. To date, our financial statements have not reflected research and development expenses as the first of our two acquired drug development programs was not licensed until early 2022 and we have not yet initiated development activities. Prior to 2022, most of our activities were related to: technology evaluation, acquisition and validation, capital acquisition and business development activities which in general, which we believe have readied the Company for contract services while exploring strategic partnering and asset acquisition. These activities and related expenditures have been recorded and reported as General and Administrative in our Financial Statements. In 2022 we licensed two drug development programs from universities and also entered into a new license with JHU-APL for new IP and other enhancements used with our bfLEAP™ platform. During the nine-months ended September 30, 2022, we expended approximately \$448,000 on license related payments for our bfLEAP™ AI/ML platform and our two drug development programs from universities. We expect that our research and development expenses will increase in 2023 as we initiate development activities directed towards initiating preclinical IND enabling studies.

### **Research and Development Costs and Expenses**

Research and development costs and expenses consist primarily of costs related to the acquisition of licensed technology and fees paid to external service providers. We anticipate our research and development costs could become significant as we execute on our business plan and begin conducting preclinical research and development activities directed at filing Investigational New Drug (IND) applications for our licensed drug development programs describes in this filing, as well as under strategic partnerships and for other drug development programs we may acquire. Research and development expenses are recorded in operating expenses in the period in which they are incurred. Estimates will be used in determining the expense liability of certain costs where services have been performed but not yet invoiced. We will monitor levels of performance under each significant contract for external service providers, including the extent of patient enrollment and other activities through communications with the service providers to reflect the actual amount expended.

### **General and Administrative Expenses**

In anticipation of the initial public offering, a management team with deep industry experience has been identified and engaged as employees and consultants to assist the Company in preparing for the initial public offering and subsequently, to operate and function as a public company. Through 2021, the Company primarily operated with only one full time employee and a series of consultants. In 2022, three of the consultants became part time employees of the Company. During this period, the primary activities included: technology evaluation, acquisition and validation, capital acquisition and business development activities which in general, have readied the Company for contract services while exploring strategic partnering and asset acquisition as noted above. The Company's financial statements reflect an accumulated deficit of approximately \$3,700,000 as a result of these activities including the licensing costs for bfLEAP™. Our 2021 Statement of Operation reflects approximately \$555,000 in operating expenses in 2021 versus approximately \$260,000 in 2020. For the period ended September 30, 2022 the Statement of Operation reflects approximately \$1,232,000 in operating expenses versus \$242,000 in the 2021 period. The increase reflects the Company's preparation for its IPO including legal and accounting costs related to the audit of the Company's 2019 – 2021 financial statements. The Company also engaged the management team noted above which resulted in increased consulting and stock-based compensation expenses in 2021 and 2022. The 2022 Consolidated Statement of Operations reflects Salaries of approximately \$388,000, Consulting and other professional fees of approximately \$438,000 and Stock based compensation of \$291,000. For the 2021 nine-month period these amounts were approximately \$155,000, \$137,000 and \$75,000. We anticipate that our general and administrative expenses will increase in the future to support our service offerings, clinical and pre-clinical research and development activities associated with strategic partnering and collaborations as well as any newly acquired product candidates and the increased costs of operating as a public company. These increases will likely include increased costs related to the hiring of additional personnel and fees to outside consultants, lawyers and accountants, among other expenses. Additionally, we anticipate increased costs associated with being a public company including expenses related to services associated with maintaining compliance with exchange listing and Securities and Exchange Commission requirements, insurance, and investor relations costs.



## **Our Corporate History and Background**

BullFrog Holdings AI, Holdings, Inc. was incorporated in the State of Nevada on February 6, 2020. Our principal business address is 325 Ellington Blvd, Unit 317, Gaithersburg, MD 20878. All of our operations are currently conducted through BullFrog AI Holdings, Inc. BullFrog AI, Inc., is a wholly owned subsidiary has the sole purpose of housing and protecting all of the organization's intellectual property, was acquired through a share exchange. BullFrog AI Management, LLC is a wholly owned subsidiary that handles all HR and payroll activities.

### ***Acquisition of BullFrog AI***

In March of 2020, BullFrog AI, Inc. received an investment from TEDCO - the Technology Development Corporation of Maryland, a State of Maryland Investment Fund – pursuant to the issuance of a \$200,000 convertible note with an 18-month term, 6% annual interest rate, and a 20% discount. In June of 2020, BullFrog AI Holdings, Inc. acquired BullFrog AI, Inc. via a 1:1share exchange. Immediately prior to the share exchange, each authorized common share of BullFrog AI, Inc. was split into 25 shares of common stock. Share amounts in our financial statements for 2021 and 2020 have been adjusted to reflect this forward share split and shares exchange. All of our operations are currently conducted through BullFrog AI Holdings, Inc. BullFrog AI, Inc., is a wholly owned subsidiary, has the sole purpose of housing and protecting all of the organization's intellectual property. BullFrog AI Management, LLC is a wholly owned subsidiary that handles all HR and payroll activities Pursuant to the agreement, 24,223,975 shares of the Company's common stock were issued to the shareholders of BullFrog AI, Inc. in exchange for 100% of the ownership interests of BullFrog AI, Inc. Upon completion of the Exchange, BullFrog AI, Inc. became the Company's wholly-owned subsidiary and the shareholders of BullFrog AI, Inc. own a 100% controlling interest in the Company. As a result, BullFrog AI, Inc. became BullFrog AI Holdings, Inc's wholly owned subsidiary and assumed a total of \$330,442 in net liabilities. All of the entities were controlled both before and after the transactions by the same controlling shareholder. This transaction is being accounted for as a common control transaction and all entities are being presented as if the transactions took place at the beginning of the earliest period presented. Share amounts in our financial statements for 2021 and 2020 have been adjusted to reflect this forward share split and shares exchange. BullFrog AI, Inc was incorporated in 2017 as discussed in the previous notes. All of our operations are currently conducted through BullFrog AI Holdings, Inc.

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### ***BullFrog AI Corporate History***

BullFrog AI, Inc. was incorporated in the State of Delaware on August 25, 2017. Vininder Singh is the founder, CEO and chairman of BullFrog AI

### **Our Strategy**

We plan to achieve our business objectives by enabling the successful development of drugs and biologics using a precision medicine approach via our proprietary artificial intelligence platform bLEAP. We will execute our plan by doing all or any of the following: partnering with biopharmaceutical companies in a fee for service model to assist and enable them with their drug development programs, acquiring rights to and rescuing drugs that have failed FDA review following pivotal Phase 2 or Phase 3 clinical trials (we refer to this rescue process as “drug rescue”), and acquiring rights to drugs that are in early stage clinical trials and have not failed, and discovering new drugs and biologics.

The process for enhancing developing and late-stage failed drugs is to:

- acquire the rights to the failed drug from a biopharmaceutical industry company or university,
- use the proprietary bLEAP™ AI/ML platform to determine a multi-factorial profile for a patient that would best respond to the drug,
- Rapidly conduct a clinical trial likely with a partner to validate the drug's use for the defined “high-responder” population; and
- Divest/sell the rescued drug asset with new information back to the pharma industry, following positive results of the clinical trial.

We also plan to deploy this strategy for all discovery and early stage clinical candidates. The common objective is to monetize our assets as quickly as possible with no current plan to commercialize any asset. As part of our strategy, we will continue evolving our intellectual property, analytical platform and technologies, build a large portfolio of drug candidates, and implement a model that reduces risk and increases the frequency of cash flow from rescued drugs. This strategy will include strategic partnerships, collaborations, and relationships along the entire business value chain.

We did not produce any revenues through 2021, we do anticipate generating our first revenues in late 2022 from our services related to the strategic relationship with a leading NGO and a pharmaceutical company.

To date, we have not conducted clinical trials on any pharmaceutical drugs and our platform has not been used to identify a drug candidate that has received regulatory approval for commercialization. However, we currently have a strategic relationship with a leading rare disease non-profit organization for AI/ML analysis of late stage clinical data. We have also positioned the Company to acquire the rights to a series of preclinical and early clinical drug assets from universities, as well as a strategic collaboration with a world renowned research institution to create a HSV1 viral therapeutic platform to engineer immunotherapies for colorectal cancer. In addition, we have signed exclusive world-wide license agreements with Johns Hopkins University for a cancer drug that targets glioblastoma (brain cancer), pancreatic cancer, and other cancers. We have also signed an exclusive worldwide license with George Washington University for another cancer drug that targets hepatocellular carcinoma (liver cancer), and other liver diseases.

Our platform was originally developed by the JHU-APL. JHU-APL uses the same technology for applications related to national defense. Over several years, the software and algorithms have been used to identify relationship, patterns, and anomalies, and make predictions that otherwise may not be found. These discoveries and insights provide an advantage when predicting a target of interest, regardless of industry or sector. We have applied the technology to various clinical data sets and have identified novel relationships that may provide new intellectual property, new drug targets, and other valuable information that may help with patient stratification for a clinical trial thereby improving the odds for success. The platform has not yet aided in the development of a drug that has reached commercialization. However, we own one drug candidate that has completed a phase 1 trial and a second candidate that is in the preclinical stages . Our aim is to use our technology on current and future available data to help us better determine the optimal path for development

### ***Contract Services***

Our fee for service partnership offering is designed for biopharmaceutical companies, as well as other organizations, of all sizes that have challenges analyzing data throughout the drug development process. We provide the customer with an analysis of large complex data sets using our proprietary Artificial Intelligence / Machine Learning platform called bLEAP™. This platform is designed to predict targets of interest, patterns, relationships, and anomalies. Our service model involves a cash fee plus the potential for rights to new intellectual property generated from the analysis, which can be performed at the discovery, preclinical, or clinical stages of drug development.

### ***Collaborative Arrangements***

We will enter into collaborative arrangements with pharmaceutical companies who have drugs that have failed late Phase 2 or Phase 3 trials. Our revenue will be based on achieving certain milestones as determined by each specific arrangement.

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### ***Acquisition of Rights to Certain Drugs***

In certain circumstances, we may also acquire rights to drugs that are in early stage clinical trials, use our technology to produce a successful later stage precision medicine trial, and divest the asset. The same process may apply to the discovery of new drugs.

## Our Products

Product/Platform	Description	Target Market/Indications
bfLEAP™ – AI/ML platform for analysis of preclinical and/or clinical data	AI/ML analytics platform derived from technology developed at Johns Hopkins University Applied Physics Laboratory and licensed by the Company.	Biotechnology and pharmaceutical companies and other organizations.
siRNA	siRNA targeting Beta2-spectrin in the treatment of human diseases developed at George Washington University licensed by the Company	Hepatocellular carcinoma (HCC), treatment of obesity, non-alcoholic fatty liver disease, and non-alcoholic steatohepatitis. Has not yet initiated clinical testing.
Mebendazole	Improved formulation of Mebendazole developed at Johns Hopkins University and licensed by the Company	Glioblastoma. Has begun the process of clinical testing but has not received regulatory approval for commercialization.

On January 14, 2022, the Company entered into an exclusive, world-wide, royalty-bearing license from George Washington University (GWU) for rights to use siRNA targeting Beta2-spectrin in the treatment of human diseases, including hepatocellular carcinoma (HCC). The license covers methods claimed in three US and worldwide patent applications, and also includes use of this approach for treatment of obesity, non-alcoholic fatty liver disease, and non-alcoholic steatohepatitis. This program is currently in the preclinical stage of development. The Company has not yet initiated development activities or IND-enabling studies on this asset; however, the plan is to conduct this work over the next 24 months. All R&D to date on this candidate has been conducted by the licensor of the technology, George Washington University.

Non-alcoholic fatty liver disease (NAFLD) is a condition in which excess lipids, or fat, build up in the liver. This condition, which is more common in people who have obesity and related metabolic diseases including type 2 diabetes, affects as many as 24% of adults in the US and is associated with risk of progression to more serious conditions, including non-alcoholic steatohepatitis (NASH), with associated liver inflammation and fibrosis, and hepatocellular carcinoma (HCC). Evidence in animal models of obesity suggest that a protein called  $\beta$ 2-spectrin may play a key role in lipid accumulation, tissue fibrosis, and liver damage, and targeting expression or activity of this protein may be a useful approach in treating NASH and liver cancer (Rao et al., 2021).

On February 22, 2022, the Company entered into an exclusive, world-wide, royalty-bearing license from Johns Hopkins University (JHU) for the use of an improved formulation of Mebendazole for the treatment of any human cancer or neoplastic disease. This formulation shows potent activity in animal models of different types of cancer, and has been evaluated in a Phase I clinical trial in patients with high-grade glioma (NCT01729260). The trial, an open-label dose-escalation study, assessed the safety of the improved formulation with adjuvant temozolomide in 24 patients with newly diagnosed gliomas. Investigators observed no dose-limiting toxicity in patients receiving all but the highest tested dose (200mg/kg/day). Four of the 15 patients receiving the maximum tested dose of 200mg/kg/day experienced dose-limiting toxicity, all of which were reversed by decreasing or eliminating the dose given. There were no serious adverse events attributed to mebendazole at any dose during the trial. The Company is currently formulating a strategy to find a partner to conduct additional clinical trials with this asset to enable evaluation of safety in humans.

We are able to leverage our drug rescue business by leveraging a powerful and proven AI/ML platform (trade name: bfLEAP™) initially derived from technology developed at The Johns Hopkins University Applied Physics Laboratory (JHU-APL). The bfLEAP™ analytics platform is a potentially disruptive tool for analysis of pre-clinical and/or clinical data sets, such as the robust pre-clinical and clinical trial data sets being generated in translational R&D and clinical trial settings. The input data for bfLEAP™ can include raw data (preclinical and/or clinical readouts), categorical data, sociodemographic data of patients, and various other inputs. Thus, the bfLEAP™ platform is capable of capturing the “human experience” of patients in an unbiased manner, and contextualizing it against other disparate data sources from patients (e.g. molecular data, physiological data, etc.) for less biased and more meaningful conclusions (i.e. more ethical AI/ML). It is also uniquely scalable – the bfLEAP™ platform is able to perform analysis on large, high-volume data sets (i.e. ‘big data’) and also able to analyze highly disparate “short and wide” data as well. In terms of visualization, bfLEAP™ is able to integrate with most commonly used visualization tools for graph analytics.

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The combination of a) scalable analytics (i.e., large data or short/wide data), b) state-of-the-art algorithms, c) unsupervised machine learning, and d) streamlined data ingestion/visualization makes bfLEAP™ one of the most flexible and powerful new platforms available on the market.

## Our Platform Technology

We will continue to evolve and improve bfLEAP™, and some of the proceeds from this offering may be used toward that effort either in-house or with development partners like The Johns Hopkins University Applied Physics Lab. The bfLEAP™ platform is based on an exclusive, world-wide license granted by Johns Hopkins University.

We plan to leverage our proprietary AI/ML platform developed over several years at one of the top innovation institutions in the world which has already been successfully applied in multiple sectors. In terms of underlying intellectual property, we have secured a worldwide exclusive license from JHU-APL for the technology – this license covers 3 issued patents, as well as 1 new provisional patent application, non-patent rights to proprietary libraries of algorithms and other trade secrets, and also includes modifications and improvements. In addition, we have a unique business model designed to reduce risk and increase the frequency of cash flow.

The Company has recently licensed new technology from Johns Hopkins University Applied Physics Lab to evolve the bfLEAP platform to bfLEAP 2.0. This new and improved platform will enable more robust analysis of data with faster and higher precision prediction of the most important variables for identifying patient response to a drug.

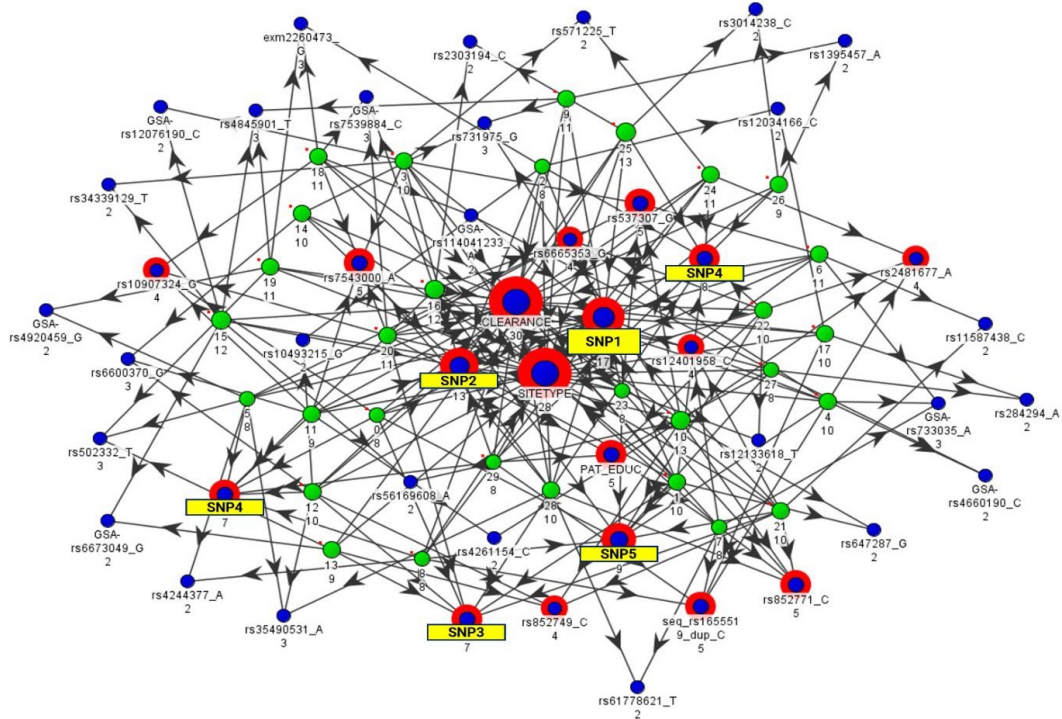
Going forward, the Company will continue to evolve the platform and either develop or acquire new capabilities and technologies. These development efforts may be in house or in collaboration with an existing or new technology partners. The Company plans on hiring talent in data science and software development to bolster its in house capabilities.

### Summary for CATIE Schizophrenia Case Study

BullFrog AI worked with the Lieber Institute for Brain Development to analyze data from the landmark CATIE Trials. The CATIE trials were the largest trials ever conducted for anti-psychotic medications. BullFrog analyzed CATIE data from ~200 schizophrenia patients, with a library of almost 1 million genetic data points for each patient, more than 200 non-genetic attributes per patient, and 4 different medications used in the trial. For each of the four medications used, bfLEAP™ analysis revealed new, previously unknown relationships between individual genetic variants and negative patient symptoms. The genetic loci identified represent potential druggable targets, as well as potential stratifying criteria for future clinical trials in schizophrenia.

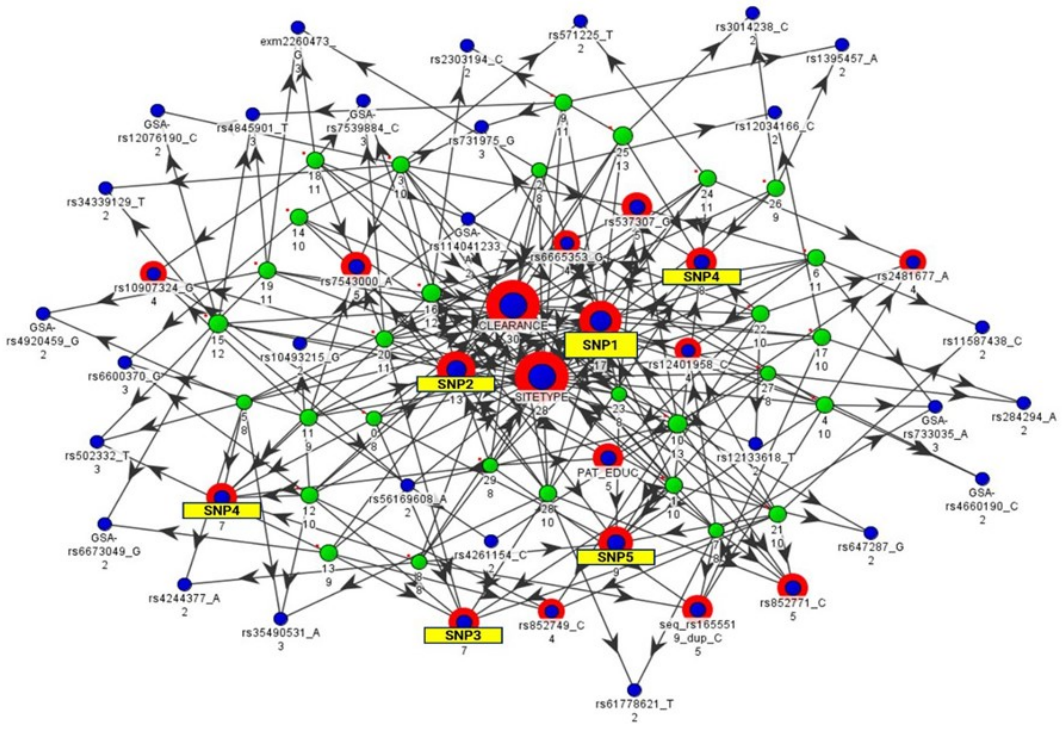
We performed another analysis on the data using our new advanced clustering algorithms bfLEAP 2.0 but focused on one particular drug named Olanzapine. Our bfLEAP™ 2.0 analytical results identified previously unknown, multi-dimensional associations among newly identified genetic variants, drug clearance, clinical trial sites, and clinical outcome variables in schizophrenia patients.

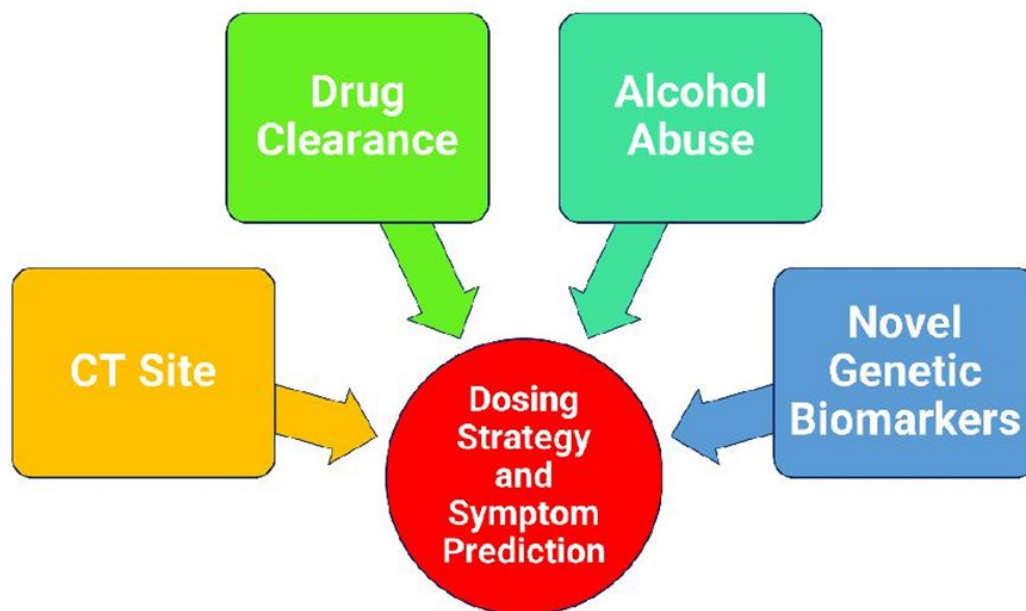
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**FIGURE 1 – bLEAP™ Analytical Map**

Each green node represents a different sampling of the data, and arrows point to attributes (blue nodes) which were found to be key indicators according to that sampling. Attribute importance is determined by how many samplings identify that attribute as an indicator (i.e., number of incoming arrows to each blue node).





Identification of clustered multi-variate associations (e.g., novel genetic variants, drug clearance, substance abuse) could help us 1) identify novel drug targets, 2) predict which patients are most likely to respond, and 3) identify modifiable factors that could contribute to better outcomes.

*Summary for Cardiovascular Case Study*

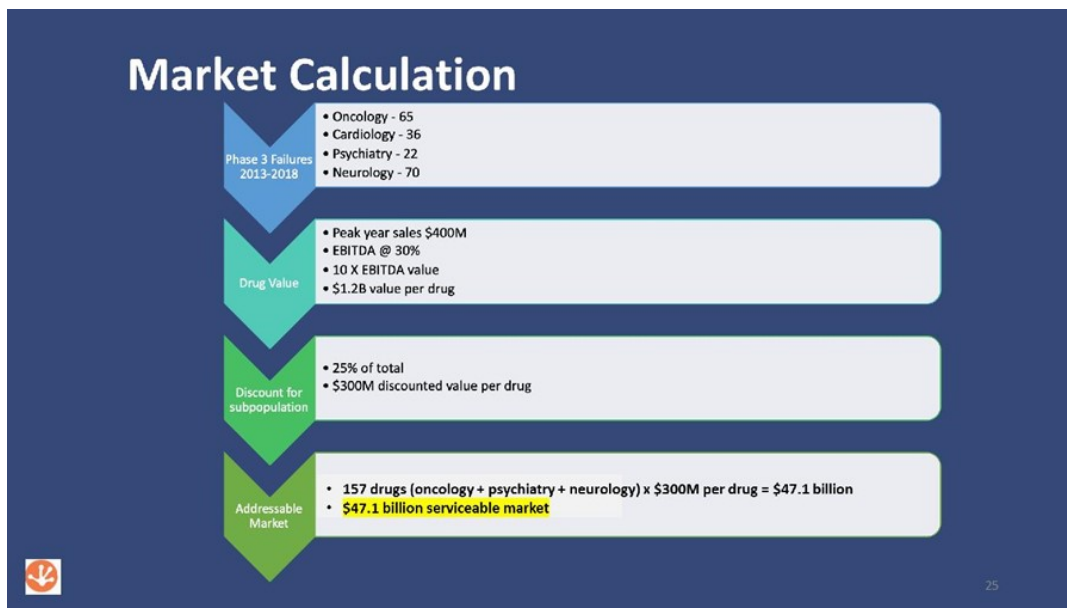
BullFrog AI worked with an international client in cardiovascular devices, to analyze data from an ongoing clinical trial for a new device. BullFrog analyzed data from ~55 patients, with a library of almost 15,000 unique attributes of data for each patient. The data also included adverse events, and key demographic information. For this client, bfLEAP™ analysis was able to provide ground truth for the company - confirming multiple correlations and non-correlations within the data. In terms of actionable output, the analytical results confirmed at least two demographic co-variates for the ongoing trial, and also provided a starting point for deeper physiological and molecular studies.

**Our Supply Chain and Customer Base**

We are preparing to launch our businesses using funds from this offering and through our partnerships and relationships. We have a strategic relationship with FSHD Society, a leading non-governmental organization, for AI/ML analysis of clinical trial data for patients with a rare neuromuscular disorder. We also have several other developing strategic relationships in the project design phase. The Company has executed a joint development deal for a biologics discovery phase opportunity that is directed toward targeted cancer therapeutics. The Company has also obtained exclusive world wide exclusive rights to a phase 2 ready glioblastoma drug and a preclinical hepatocellular carcinoma drug from universities. Since we intend to conduct late-stage clinical trials with rescued therapeutic assets, there will be a requirement of drug product or other significant services to plan and execute our clinical development programs. The success of our clinical development programs will require adequate availability of raw materials and/or drug product for our R&D and clinical trials, and, in some cases, may also require establishment of third-party arrangements to obtain finished drug product that is manufactured appropriately under industry-standard guidelines, and packaged for clinical use or sale. Since we are a digital biopharmaceutical company, our clinical development programs will also require, in some cases, establishment of third-party relationships for execution and completion of clinical trials.

**Our Market Opportunity**

One aim of our business is to “rescue” drugs that have failed in phase 3 clinical trials by using our technology to analyze all available data with the goal of designing a precision medicine clinical trial that will have a better chance of being successful. The graphic below illustrates the estimated market opportunity for these failed drugs. The top arrow shows the number of failed phase 3 trials for several disease categories over a 5 year period. The arrows below provide our assumptions for narrowing or discounting certain parameters associated with the market size calculation. The final arrow shows the math behind the \$47.1B. To date, we have not penetrated the failed drug market, however; we are actively searching for failed drug opportunities.

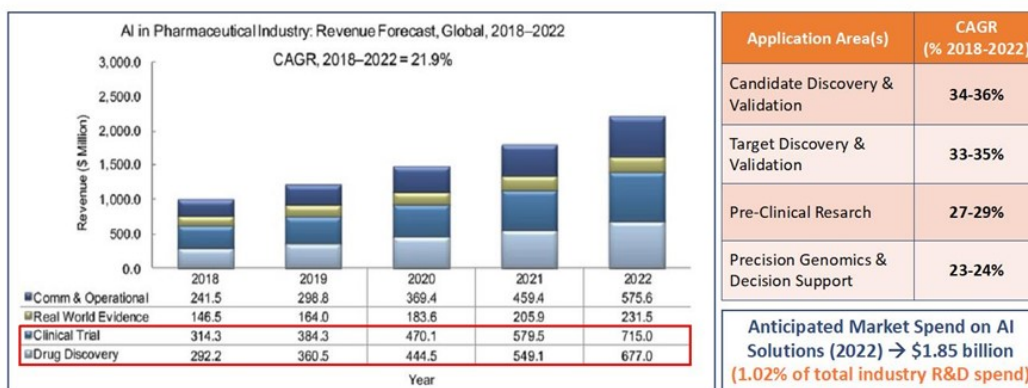


Identification of candidates with potential for rescue may be challenging and require significant resources, and once these assets are identified the Company may find it challenging to license them under favorable terms in order to create value for shareholders. Subsequent development of these assets for clinical testing may require significant effort and resources. Ultimately, these assets must undergo rigorous clinical testing and approval by FDA or comparable regulatory authorities in other countries in order to be marketed. A key part of our strategy is to partner our R&D programs. In addition, we do not intend on commercializing drugs and instead will seek to divest each drug asset to a company that will commercialize the drug.

The following graphic illustrates the global revenue forecast for applying AI in the pharmaceutical industry, as well as the increase in anticipated market spend and annual growth rate for AI solutions per certain application areas.

## Market – AI in the Pharmaceutical Industry

BullFrog is poised to impact multiple **high-growth application areas**



Source: Frost & Sullivan – "Growth Insight – Role of AI in the Pharmaceutical Industry" (Sept. 2019)

### Intellectual Property

#### Patents

We have exclusive worldwide rights to the following patents related to our intellectual property:

Johns Hopkins University Licensed Intellectual Property:

Title	Serial Number	File Date	Application Type	Country	Status	Patent Number	Expiration Date	Assignee
An Improved Formulation of Mebendazole and Drug Combination to Improve Anti-cancer Activity	62/112,706	06 Feb 2015	Provisional	US	Expired			The Johns Hopkins University

An Improved Formulation of Mebendazole and Drug Combination to Improve Anti-cancer Activity	PCT/US2016/016968	08 Feb 2016	PCT	PCT - Parent	Expired		11 Aug 2016	The Johns Hopkins University
MEBENDAZOLE POLYMORPH FOR TREATMENT AND PREVENTION OF TUMORS	15/548,959	04 Aug 2017	PCT	US	GRANTED	11,110,079	08 Feb 2036	The Johns Hopkins University
Mebendazole Polymorph For Treatment And Prevention Of Tumors	16747414.7	08 Feb 2016	PCT	EPO	GRANTED	Pending	08 Feb 2036	The Johns Hopkins University
MEBENDAZOLE POLYMORPH FOR TREATMENT AND PREVENTION OF TUMORS	253854	08 Feb 2016	PCT	Israel	GRANTED	253854	08 Feb 2036	The Johns Hopkins University
An Improved Formulation of Mebendazole and Drug Combination to Improve Anti-cancer Activity	2016800144274	08 Feb 2016	PCT	China	GRANTED	1ZL20168-0014427.4	08 Feb 2036	The Johns Hopkins University
An Improved Formulation of Mebendazole and Drug Combination to Improve Anti-cancer Activity	201717028684	08 Feb 2016	PCT	India	GRANTED	352734	08 Feb 2036	The Johns Hopkins University
Mebendazole Polymorph For Treatment And Prevention Of Tumors	2017-541687	08 Feb 2016	PCT	Japan	GRANTED	6796586	08 Feb 2036	The Johns Hopkins University
CONTINUATION: Mebendazole Polymorph For Treatment And Prevention Of Tumors	17/402,131	13 Aug 2021	CON	United States	PENDING			The Johns Hopkins University

George Washington University Licensed Intellectual Property:

The provisional patent numbers 63/113,745 and 63/147,141 were both converted into a single PCT application (PCT/US2021/059245) with an expiration date of November 12, 2041, as shown in table below.

GWU ID	Title	Serial Number	File Date	Application Type	Country	Status	Patent No.	Expiration Date	Composition, MoU
020-030-Mishra-PRV	B-SPECTRIN (SPTBN1) DEFICIENCY PROTECTS MICE FROM HIGH-FAT DIET-INDUCED LIVER DISEASE AND CANCER DEVELOPMENT	63/113,745	13 Nov 2020	Provisional	US	CONVERTED TO PCT		13 Nov 2021	Both filed
020-030-Mishra-CON	B-SPECTRIN (SPTBN1) DEFICIENCY PROTECTS MICE FROM HIGH-FAT DIET-INDUCED LIVER DISEASE AND CANCER DEVELOPMENT	63/147,141	08 Feb 2021	Provisional-Continuation	US	CONVERTED TO PCT		13 Nov 2021 (PCT filed)	Both filed
020-030-Mishra-PCT	B-SPECTRIN (SPTBN1) DEFICIENCY PROTECTS MICE FROM HIGH-FAT DIET-INDUCED LIVER DISEASE AND CANCER DEVELOPMENT	PCT/US2021/059245	12 Nov 21	PCT	US	PENDING		12 Nov 2041	Both filed

Title	Country	Status	Patent #	Expiration Date
B-Spectrin (SPTBN1) deficiency protects mice from high fat diet-induced liver disease and cancer development	US	Converted to PCT	63/113,745	11/13/21
B-Spectrin (SPTBN1) deficiency protects mice from high fat diet-induced liver disease and cancer development	US	Converted to PCT	63/147,141	11/13/21 PCT Filed
B-Spectrin (SPTBN1) deficiency protects mice from high fat diet-induced liver disease and cancer development	US	Pending	PCT/US2021/059245	Pending

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John Hopkins University Applied Physics Lab Licensed Intellectual Property:

Title	Serial Number	File Date	Country	Status	Expiration Date	Assignee
Apparatus and Method for Distributed Graph Processing	U.S. Patent 10,146,801	7/13/2015	US	Granted	3/2/2037	The Johns Hopkins University
Method and Apparatus for Analysis and Classification of High Dimensional Data Sets	U.S. Patent 10,936,965	10/5/2017	US	Granted	9/25/2038	The Johns Hopkins University
Generalized Low Entropy Mixture Model	U.S. Patent 10,839,256	4/2/2018	US	Granted	12/15/2038	The Johns Hopkins University

#### Licenses

We hold the following licenses related to our intellectual property:

Licensor	Licensee	Description of Rights Granted
Johns Hopkins University Applied Physics Lab	BullFrog AI, Inc.	Worldwide, exclusive rights for therapeutics development and analytical services
George Washington University	BullFrog AI Holdings	Worldwide, exclusive rights for therapeutics development
Johns Hopkins University	BullFrog AI Holdings	Worldwide, exclusive rights for therapeutics development

On February 7, 2018, we entered into a License Agreement (the "License Agreement") with The Johns Hopkins University Applied Physics Laboratory LLC, a Maryland limited liability company ("JHU"). Pursuant to the License Agreement, JHUAPL granted the Company exclusive rights to intellectual property of JHU related to analytical services for applications in biological and chemical derived pharmaceutical therapeutics. The License Agreement provides for the grant of an exclusive, world-wide, royalty-bearing license by JHU to the Company, with the right to sublicense, in order to conduct research using the patent rights and know-how and to develop and commercialize products in the field using the patent rights and know-how. In consideration of the rights granted to the Company under the License Agreement, the Company granted JHU received a warrant equal to five (5%) percent of the then fully diluted equity base of the Company, which shall be diluted following the closing of this offering. Under the terms of the License Agreement, the Company is required to use commercially reasonable efforts to meet certain development milestones and minimum net sales milestones, and JHU will be entitled to eight (8%) percent of net sales for the services provided by the Company in which the JHU license was utilized, as well as fifty (50%) percent of all sublicense revenues received by the Company. In addition, the Company is required to pay JHU an annual maintenance fee of \$1,500. The Company is also obligated to make minimum annual payments. These minimum annual payments to JHU were amended in September 3, 2020 to \$20,000 in calendar year 2022, \$80,000 in calendar year 2023, \$300,000 in calendar year 2024, and \$300,000 in calendar year 2025 and each year thereafter, which may be offset against royalties paid by the Company for the year in which the minimum annual royalty becomes due.

The License Agreement will, unless sooner terminated, continue in each country until the date of expiration of the last to expire patent included within the patent rights in that country, or if no patents issue, then for 10 years. The License Agreement may be terminated by the Company upon 60 days' written notice in its discretion. The License Agreement may also be terminated by JHU if the Company is in material breach of the License Agreement and fails to cure such breach within a 60-day cure period commencing upon notice. A material breach by the Company may include a delinquency with respect to payment or the failure by the Company to timely achieve a specified milestone.

We also have exclusive, worldwide licenses to other intellectual property from JHU that is being held as trade secret related to our algorithm libraries, pattern recognition, shallow-and-wide data sets, and time series correlation. We anticipate that new intellectual property (patents, copyrights, trademarks, trade secrets, etc.) will be generated through the course of executing our strategic development projects, and also through the course of improving, modifying, and scaling our bFLEAP™ platform. In October 2021, we amended the agreement with JHU-APL to include additional advanced AI technology. Currently, the latest patent grant date was in March 2021.

#### George Washington University - Beta2-spectrin siRNA License

On January 14, 2022, the Company entered into an exclusive, world-wide, royalty-bearing license from George Washington University (GWU) for rights to use siRNA targeting Beta2-spectrin in the treatment of human diseases, including hepatocellular carcinoma (HCC). The license covers methods claimed in three US and worldwide patent applications, and also includes use of this approach for treatment of obesity, non-alcoholic fatty liver disease, and non-alcoholic steatohepatitis. This program is currently in the preclinical stage of development. The Company has not yet initiated development activities or IND-enabling studies on this asset; however, the plan is to conduct this work over the next 24 months. All R&D to date on this candidate has been conducted by the licensor of the technology, George Washington University. The term of the agreement began on January 14, 2022 and ends on the expiration date of the last patent to expire or 10 years after the first sale of a licensed product if no patents have issued. The license can be terminated by the licensee upon 60 days' written notice, or by the licensor if the Company is more than 30 days late in paying amounts owed to the licensor and does not make payment upon demand, or in the event of any material breach of the license that is not cured within 45 days.

Non-alcoholic fatty liver disease (NAFLD) is a condition in which excess lipids, or fat, build up in the liver. This condition, which is more common in people who have obesity and related metabolic diseases including type 2 diabetes, affects as many as 24% of adults in the US and is associated with risk of progression to more serious conditions, including non-alcoholic steatohepatitis (NASH), with associated liver inflammation and fibrosis, and hepatocellular carcinoma (HCC). Evidence in animal models of obesity suggest that a protein called  $\beta$ 2-spectrin may play a key role in lipid accumulation, tissue fibrosis, and liver damage, and targeting expression or activity of this protein may be a

In consideration of the rights granted to the Company under the License Agreement, GWU received a \$20,000 License Initiation Fee. Under the terms of the License Agreement, GWU will be entitled to a three percent (3%) royalty on net sales subject to quarterly minimums once the first sale has occurred subsequent to regulatory approval, as well sublicense or assignment fees in the event the Company sublicenses or assigns their rights to use the technology. The Company will also reimburse GWU for previously incurred and ongoing patent costs. The Sublicense and Assignment fee amounts decline as the Company advances the clinical development of the licensed technology. The license agreement also contains milestone payments for clinical development through the approval of an NDA and commercialization.

Aggregate payments made to GWU to date include the \$20,000 License Initiation Fee and an additional \$6,550 to reimburse the licensor for past patent costs. Aggregate future milestone costs could reach \$860,000 if the drug successfully completes clinical trials and is the subject of a New Drug Application (NDA) to the US FDA. Future milestones on sales revenue are limited to \$1M on the first \$20M in net sales.

#### **Johns Hopkins University – Mebendazole License**

On February 22, 2022, the Company entered into an exclusive, world-wide, royalty-bearing license from Johns Hopkins University (JHU) for the use of an improved formulation of Mebendazole for the treatment of any human cancer or neoplastic disease. This formulation shows potent activity in animal models of different types of cancer, and has been evaluated in a Phase I clinical trial in patients with high-grade glioma (NCT01729260). The trial, an open-label dose-escalation study, assessed the safety of the improved formulation with adjuvant temozolomide in 24 patients with newly diagnosed gliomas. Investigators observed no dose-limiting toxicity in patients receiving all but the highest tested dose (200mg/kg/day). Four of the 15 patients receiving the maximum tested dose of 200mg/kg/day experienced dose-limiting toxicity, all of which were reversed by decreasing or eliminating the dose given. There were no serious adverse events attributed to mebendazole at any dose during the trial. The Company is currently formulating a strategy to conduct additional clinical trials with this asset to enable evaluation of safety in humans.

The license covers six (6) issued patents and one (1) pending application, with the term of the agreement beginning on February 22, 2022 and ending on the date of expiration of the last to expire patent. The license can be terminated by the licensee upon 90 days' written notice, or by the licensor in the event of any material breach of the license that is not cured within 30 days. In consideration of the rights granted to the Company under the License Agreement, JHU will receive a staggered Upfront License Fee of \$250,000, with the first \$50,000 payment due within 30 days of the effective date. The Company will also reimburse JHU for previously incurred and ongoing patent costs. Under the terms of the License Agreement, JHU will be entitled to three- and one-half percent (3.5%) royalty on net sales by the Company. In addition, the Company is required to pay JHU minimum annual royalty payments of \$5,000 for 2023, \$10,000 for 2024, \$20,000 for 2025, \$30,000 for 2026 and \$50,000 for 2027 and each year after until the first commercial sale after which the annual minimum royalty shall be \$250,000. The license agreement also contains milestone payments for clinical development steps through the approval of an NDA and commercialization. Aggregate payments made to date include the initial \$50,000 upfront fee and an additional \$79,232.53 to reimburse the licensor for past patent costs. Aggregate future milestone costs could reach \$1,500,000 if the drug successfully completes Phase II and III clinical trials and is approved for sale and marketing by the US FDA. Future milestones on sales revenue are \$1M on the first \$20M in sales revenue, \$2M in the first year cumulative sales revenue exceeds \$100M, \$10M in the first year cumulative sales revenue exceeds \$500M, and \$20M in the first year cumulative sales revenue exceeds \$1B.

#### **JHU – Mebendazole Prodrug License**

On October 13, 2022, the Company entered into an exclusive, world-wide, royalty-bearing license from Johns Hopkins University (JHU) and the Institute of Organic Chemistry and Biochemistry (IOCB) of the Czech Academy of Sciences for rights to commercialize N-substituted prodrugs of mebendazole that demonstrate improved solubility and bioavailability. The license covers prodrug compositions and use for treating disease as claimed in multiple US and worldwide patent applications. The term of the agreement began on October 13, 2022 and continues until the date of expiration of the last to expire patent, or for 20 years from the effective date of the agreement if no patents issue. The license can be terminated by the Company upon 90 days' written notice, or by the licensor in the event of any material breach of the license that is not cured by the Company within 30 days.

In consideration for the rights granted to the Company under the License Agreement JHU and IOCB will receive a staggered upfront license fee of \$100,000. The Company will also reimburse JHU and IOCB for previously incurred patent costs totaling \$33,265 and will be responsible for reimbursing licensors for future patent costs. Under the terms of the License Agreement, the licensors will be entitled to a four percent (4%) royalty on net sales subject to annual minimums upon first commercial sale of a licensed product, as well sublicense or assignment fees in the event the Company sublicenses or assigns their rights to use the technology. The Sublicense fee amount declines as the Company advances the clinical development of the licensed technology. The Company is required to pay minimum annual royalties (MAR) beginning in year 4 of the agreement. The MAR for year 4 will be \$5,000, increasing to \$10,000 in year 5, \$20,000 in year 6, \$30,000 in year 7, and \$50,000 in year 8 and subsequent years. The Company will be responsible for milestone payments for patent issuance of up to \$50,000 and clinical development milestones up to and including approval of an NDA totaling up to \$2.3M. The Company will be required to pay a commercial milestone of \$1M once sales reach \$20M in the US, \$2M when sales in the US reach \$100M, \$10M when US sales reach \$500M, and \$20M when US sales exceed \$1B.

#### **Competition**

The pharmaceutical and biotechnology industries are characterized by rapidly advancing technologies, intense competition, and a strong emphasis on proprietary products. The immuno-oncology, neuroscience, and rare disease segments of the industry in particular are highly competitive. While we believe that our technology, development experience and scientific knowledge provide competitive advantages, we face potential competition from many different sources, including major pharmaceutical, specialty pharmaceutical, and biotechnology companies, academic institutions and governmental agencies, and public and private research institutions.

Many of our competitors may have significantly greater financial resources, and expertise in research and development, manufacturing, preclinical studies, conducting clinical trials, obtaining regulatory approvals, and marketing approved medicines than we do. Mergers and acquisitions in the pharmaceutical, biotechnology, and diagnostic industries may result in even more resources being concentrated among a smaller number of our competitors. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and in establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to or necessary for our programs. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies.

The key competitive factors affecting the success of all of our product candidates, if approved, are likely to be their efficacy, safety, convenience, price, the effectiveness of companion diagnostics in guiding the use of related therapeutics, if any, the level of generic competition and the availability of reimbursement from government and other third-party payors.

Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize medicines that are safer, are more effective, have fewer or less severe side effects, are more convenient or are less expensive than any medicines we may develop. Our competitors also may obtain FDA or other regulatory approval for their medicines more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. In addition, our ability to compete may be affected in many cases by insurers or other third-party payors seeking to encourage the use of generic medicines. There are many generic medicines currently on the market for certain of the indications that we are pursuing, and additional generics are expected to become available over the coming years. If our therapeutic product candidates are approved, we expect that they will be priced at a significant premium over competitive generic medicines.



Any product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future. If the product candidates of our priority programs are approved for the indications for which we are currently planning clinical trials, they will compete with the drugs discussed below and will likely compete with other drugs currently in development.

### *bfLEAP*

The analytics industry and application of AI in healthcare is growing rapidly. Competition exists along the entire continuum of the drug development process from discovery to commercialization and beyond. We believe the weakness of the industry is the quality of the data and we believe bfLEAP provides several competitive advantages, that will position the Company for success. First, bfLEAP is highly scalable and can process data from small to extremely large complex data sets without the need for additional code being developed. Second, it is adept at processing and analyzing incomplete data and making predictions that we do not believe other technologies are capable of doing. Since data quality is a problem that exists in the healthcare industry, we see this as a major differentiator. The ability to make predictions, find relationships and patterns and anomalies in extremely large complex data sets has been demonstrated by the Applied Physics Lab in other applications and sectors. Finally, the algorithms used by bfLEAP are proprietary and protected, having been developed at Johns Hopkins University Applied Physics Lab. Most of the competitors rely on open source algorithms and we believe that we have already demonstrated our superiority via the August 2021 publication in DeepAI.org.

### **Government Regulation**

The FDA does not currently require approval of AI technologies used to aid in therapeutics, but that could change in the future. The FDA will regulate any clinical trials conducted by the Company.

Our clinical development programs will, in some cases, require regulatory review of preclinical and/or clinical data by the FDA or other governing agencies, and subsequent compliance with applicable federal, state, local, and foreign statutes and regulations. The results of the clinical trials that we conduct will be evaluated by the FDA and other regulatory bodies. The comments and approvals that are obtained are expected to lead to milestone payments under the collaborative agreement. Accordingly, our ability to navigate the regulatory process is extremely important to the success of the Company. We believe that we have a competitive advantage in this process due to primarily focusing on drug candidates that already have some level of success in clinical trials. Previous success of a particular candidate in trials combined with our precision medicine approach to clinical trial design using our bfLEAP platform, will de-risk the development process and improve the chances for success.

### ***Government Regulation and Product Approval***

Government authorities in the United States, at the federal, state and local level, and in other countries and jurisdictions extensively regulate, among other things, the research, development, testing, manufacture, quality control, approval, packaging, storage, recordkeeping, labeling, advertising, promotion, distribution, marketing, post-approval monitoring and reporting, and import and export of pharmaceutical products. The processes for obtaining regulatory approvals in the United States and in foreign countries and jurisdictions, along with subsequent compliance with applicable statutes and regulations and other regulatory authorities, require the expenditure of substantial time and financial resources.

### ***FDA Approval Process***

In the United States, pharmaceutical products are subject to extensive regulation by the FDA. The Federal Food, Drug, and Cosmetic Act (FD&C Act) and other federal and state statutes and regulations govern, among other things, the research, development, testing, manufacture, storage, recordkeeping, approval, labeling, promotion and marketing, distribution, post-approval monitoring and reporting, sampling and import and export of pharmaceutical products. Failure to comply with applicable U.S. requirements may subject a company to a variety of administrative or judicial sanctions, such as FDA refusal to approve pending new drug applications (NDAs), warning or untitled letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, civil penalties and criminal prosecution.

Pharmaceutical product development for a new product or certain changes to an approved product in the U.S. typically involves preclinical laboratory and animal tests, the submission to FDA of an investigational new drug application (IND) which must become effective before clinical testing may commence, and adequate and well-controlled clinical trials to establish the safety and effectiveness of the drug for each indication for which FDA approval is sought. Satisfaction of FDA pre-market approval requirements typically takes many years and the actual time required may vary substantially based upon the type, complexity and novelty of the product or disease.

Preclinical tests include laboratory evaluation of product chemistry, formulation and toxicity, as well as animal trials to assess the characteristics and potential safety and efficacy of the product. The conduct of the preclinical tests must comply with federal regulations and requirements, including good laboratory practices. The results of preclinical testing are submitted to FDA as part of an IND along with other information, including information about product chemistry, manufacturing and controls, and a proposed clinical trial protocol. Long-term preclinical tests, such as animal tests of reproductive toxicity and carcinogenicity, may continue after the IND is submitted. A 30-day waiting period after the submission of each IND is required prior to the commencement of clinical testing in humans. If FDA has neither commented on nor questioned the IND within this 30-day period, the clinical trial proposed in the IND may begin. Clinical trials involve the administration of the investigational new drug to healthy volunteers or patients under the supervision of a qualified investigator. Clinical trials must be conducted: (i) in compliance with federal regulations; (ii) in compliance with good clinical practice, or GCP, an international standard meant to protect the rights and health of patients and to define the roles of clinical trial sponsors, administrators and monitors; as well as (iii) under protocols detailing the objectives of the trial, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. Each protocol involving testing on U.S. patients and subsequent protocol amendments must be submitted to FDA as part of the IND.

Clinical trials to support NDAs for marketing approval are typically conducted in three sequential phases, but the phases may overlap. In Phase 1, the initial introduction of the drug into healthy human subjects or patients, the drug is tested to assess metabolism, pharmacokinetics, pharmacological actions, side effects associated with increasing doses, and, if possible, early evidence of effectiveness. Phase 2 usually involves trials in a limited patient population to determine the effectiveness of the drug for a particular indication, dosage tolerance and optimum dosage, and to identify common adverse effects and safety risks. If a drug demonstrates evidence of effectiveness and an acceptable safety profile in Phase 2 evaluations, Phase 3 trials are undertaken to obtain the additional information about clinical efficacy and safety in a larger number of patients, typically at geographically dispersed clinical trial sites, to permit FDA to evaluate the overall benefit-risk relationship of the drug and to provide adequate information for the labeling of the drug. In most cases, FDA requires two adequate and well-controlled Phase 3 clinical trials to demonstrate the efficacy of the drug. A single Phase 3 trial with other confirmatory evidence may be sufficient in rare instances, such as where the study is a large multicenter trial demonstrating internal consistency and a statistically very persuasive finding of a clinically meaningful effect on mortality, irreversible morbidity or prevention of a disease with a potentially serious outcome and confirmation of the result in a second trial would be practically or ethically impossible.

After completion of the required clinical testing, an NDA is prepared and submitted to FDA. FDA approval of the NDA is required before marketing of the product may begin in the U.S. The NDA must include the results of all preclinical, clinical and other testing and a compilation of data relating to the product's pharmacology, chemistry, manufacture and controls. The cost of preparing and submitting an NDA is substantial. The submission of most NDAs is additionally subject to a substantial application user fee, and the applicant under an approved NDA is also subject to an annual program fee for each prescription product. These fees are typically increased annually. Sponsors of applications for drugs granted Orphan Drug Designation are exempt from these user fees.

FDA may also refer applications for novel drug products, or drug products that present difficult questions of safety or efficacy, to an outside advisory committee – typically a panel that includes clinicians and other experts – for review, evaluation and a recommendation as to whether the application should be approved. FDA is not bound by the recommendation of an advisory committee, but it generally follows such recommendations.

Before approving an NDA, FDA will typically inspect one or more clinical sites to assure compliance with GCP. Additionally, FDA will inspect the facility or the facilities at which the drug is manufactured. FDA will not approve the product unless compliance with current good manufacturing practices (cGMPs) is satisfactory and the NDA contains data that provide substantial evidence that the drug is safe and effective in the indication studied.

### ***Fast Track Designation***

FDA is required to facilitate the development, and expedite the review, of drugs that are intended for the treatment of a serious or life-threatening disease or condition for which there is no effective treatment and which demonstrate the potential to address unmet medical needs for the condition. Under the Fast Track program, the sponsor of a new drug candidate may request that FDA designate the drug candidate for a specific indication as a Fast Track drug concurrent with, or after, the filing of the IND for the drug candidate. FDA must determine if the drug candidate qualifies for Fast Track Designation within 60 days of receipt of the sponsor's request.

If a submission is granted Fast Track Designation, the sponsor may engage in more frequent interactions with FDA, and FDA may review sections of the NDA before the application is complete. This rolling review is available if the applicant provides, and FDA approves, a schedule for the submission of the remaining information and the applicant pays applicable user fees. However, FDA's time period goal for reviewing an application does not begin until the last section of the NDA is submitted. While we may seek Fast Track Designation, there is no guarantee that we will be successful in obtaining any such designation. Even if we do obtain such designation, we may not experience a faster development process, review or approval compared to conventional FDA procedures. A Fast Track Designation does not ensure that the product candidate will receive marketing approval or that approval will be granted within any particular timeframe. Additionally, Fast Track Designation may be withdrawn by FDA if FDA believes that the designation is no longer supported by data emerging in the clinical trial process.

### ***Post-Approval Requirements***

Once an NDA is approved, a product will be subject to certain post-approval requirements. For instance, FDA closely regulates the post-approval marketing and promotion of drugs, including standards and regulations for direct-to-consumer advertising, off-label promotion, industry-sponsored scientific and educational activities and promotional activities involving the internet. Drugs may be marketed only for the approved indications and in accordance with the provisions of the approved labeling.

Adverse event reporting and submission of periodic reports are required following FDA approval of an NDA. FDA also may require post-marketing testing, known as Phase 4 testing, REMS and surveillance to monitor the effects of an approved product, or FDA may place conditions on an approval that could restrict the distribution or use of the product. In addition, quality control, drug manufacture, packaging and labeling procedures must continue to conform to cGMPs after approval. Drug manufacturers and certain of their subcontractors are required to register their establishments with FDA and certain state agencies. Registration with FDA subjects entities to periodic unannounced inspections by FDA, during which the Agency inspects manufacturing facilities to assess compliance with cGMPs. Accordingly, manufacturers must continue to expend time, money and effort in the areas of production and quality-control to maintain compliance with cGMPs. Regulatory authorities may withdraw product approvals or request product recalls if a company fails to comply with regulatory standards, if it encounters problems following initial marketing, or if previously unrecognized problems are subsequently discovered.

### ***Generic Competition***

In seeking approval for a drug through an NDA, applicants are required to list with the FDA each patent whose claims cover the applicant's product. Upon approval of a drug, each of the patents listed in the application for the drug is then published in the FDA's Approved Drug Products with Therapeutic Equivalence Evaluations, commonly known as the Orange Book. Drugs listed in the Orange Book can, in turn, be cited by potential generic competitors in support of approval of an abbreviated new drug application (ANDA). An ANDA provides for marketing of a drug product that has the same active ingredients in the same strengths and dosage form as the listed drug and has been shown through bioequivalence testing to be therapeutically equivalent to the listed drug. Other than the requirement for bioequivalence testing, ANDA applicants are not required to conduct, or submit results of, preclinical or clinical tests to prove the safety or effectiveness of their drug product. Drugs approved in this way are commonly referred to as "generic equivalents" to the listed drug and can often be substituted by pharmacists under prescriptions written for the original listed drug.

The ANDA applicant is required to certify to the FDA concerning any patents listed for the approved product in the FDA's Orange Book. Specifically, the applicant must certify that (i) the required patent information has not been filed; (ii) the listed patent has expired; (iii) the listed patent has not expired but will expire on a particular date and approval is sought after patent expiration; or (iv) the listed patent is invalid or will not be infringed by the new product (a Paragraph IV certification). The ANDA applicant may also elect to submit a section viii statement certifying that its proposed ANDA label does not contain (or carve out) any language regarding the patented method-of-use rather than certify to a listed method-of-use patent. If the applicant does not challenge the listed patents or certifies that the listed patents will not be infringed by the new product, the ANDA application will not be approved until all the listed patents claiming the referenced product have expired. If the ANDA applicant has provided a Paragraph IV certification, the NDA and patent holders may then initiate a patent infringement lawsuit in response. The filing of a patent infringement lawsuit within 45 days of the receipt of a such certification automatically prevents the FDA from approving the ANDA until the earlier of 30 months, expiration of the patent, settlement of the lawsuit, or a decision in the infringement case that is favorable to the ANDA applicant.

### ***Exclusivity***

Upon NDA approval of a new chemical entity (NCE) that drug receives five years of marketing exclusivity during which FDA cannot receive any ANDA seeking approval of a generic version of that drug. An ANDA may be submitted one year before NCE exclusivity expires if a Paragraph IV certification is filed. If there is no listed patent in the Orange Book, there may not be a Paragraph IV certification, and, thus, no ANDA may be filed before the expiration of the exclusivity period. Certain changes to a drug, such as the addition of a new indication to the package insert, can be the subject of a three-year period of exclusivity if the application contains reports of new clinical investigations (other than bioavailability studies) conducted or sponsored by the sponsor that were essential to approval of the application. FDA cannot approve an ANDA for a generic drug that includes the change during the period of exclusivity.

### ***Patent Term Extension***

After NDA approval, owners of relevant drug patents may apply for up to a five-year patent extension. The allowable patent term extension is calculated as half of the drug's testing phase (the time between IND application and NDA submission) and all of the review phase (the time between NDA submission and approval up to a maximum of five years). The time can be shortened if FDA determines that the applicant did not pursue approval with due diligence. The total patent term after the extension may not exceed 14 years, and only one patent can be extended. For patents that might expire during the application phase, the patent owner may request an interim patent extension. An interim patent extension increases the patent term by one year and may be renewed up to four times. For each interim patent extension granted, the post-approval patent extension is reduced by one year. The director of the United States Patent and Trademark Office must determine that approval of the drug covered by the patent for which a patent extension is being sought is likely. Interim patent extensions are not available for a drug for which an NDA has not been submitted.

### ***Other Healthcare Laws***

In the United States, biotechnology company activities are subject to regulation by various federal, state and local authorities in addition to the FDA, including but not limited to, the Centers for Medicare & Medicaid Services (CMS), other divisions of the U.S. Department of Health and Human Services (e.g., the Office of Inspector General and the

Office for Civil Rights), the U.S. Department of Justice (DOJ) and individual U.S. Attorney offices within the DOJ, and state and local governments. For example, research, sales, marketing and scientific/educational grant programs have to comply with the anti-fraud and abuse provisions of the Social Security Act, the federal false claims laws, the privacy and security provisions of the Health Insurance Portability and Accountability Act (HIPAA) and similar state laws, each as amended, as applicable.

Also, many states have similar fraud and abuse statutes or regulations that apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor.

Data privacy and security regulations by both the federal government and the states in which business is conducted may also be applicable. HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and its implementing regulations, imposes requirements relating to the privacy, security and transmission of individually identifiable health information. HIPAA requires covered entities to limit the use and disclosure of protected health information to specifically authorized situations and requires covered entities to implement security measures to protect health information that they maintain in electronic form. Among other things, HITECH made HIPAA's security standards directly applicable to business associates, independent contractors or agents of covered entities that receive or obtain protected health information in connection with providing a service on behalf of a covered entity. HITECH also created four new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorneys' fees and costs associated with pursuing federal civil actions. In addition, state laws govern the privacy and security of health information in specified circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

### **Insurance Coverage and Reimbursement**

Significant uncertainty exists as to the insurance coverage and reimbursement status of any products for which we may obtain regulatory approval. In the United States, sales of any product candidates for which regulatory approval for commercial sale is obtained will depend in part on the availability of coverage and adequate reimbursement from third-party payors. Third-party payors include government authorities and health programs in the United States such as Medicare and Medicaid, managed care providers, private health insurers and other organizations. These third-party payors are increasingly reducing reimbursements for medical products and services. The process for determining whether a payor will provide coverage for a drug product may be separate from the process for setting the reimbursement rate that the payor will pay for the drug product. Third-party payors may limit coverage to specific drug products on an approved list, or formulary, which might not include all of FDA-approved drugs for a particular indication. A payor's decision to provide coverage for a drug product does not imply that an adequate reimbursement rate will be approved. Further, coverage and reimbursement for drug products can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance.

### **Employees**

As of January 10, 2023, the Company has 2 full-time employees and consultants, including its Chief Executive Officer Vininder Singh and its Chief Financial Officer, Dane Saglio and 2 part-time employees, advisors, and consultants. None of these employees are covered by a collective bargaining agreement, and we believe our relationship with our employees is good. We also engage consultants on an as-needed basis to supplement existing staff.

### **Properties**

Currently, the Company does not own any real property. All of the Company's employees work virtually.

### **Legal Proceedings**

The Company is not a party to any legal proceedings.

### **Corporate Information**

BullFrog Holdings AI, Inc. was incorporated in the State of Nevada on February 26, 2020. Our principal business address is 325 Ellington Blvd, Unit 317, Gaithersburg, MD 20878. Our website address is [www.bullfrogai.com](http://www.bullfrogai.com). The references to our website in this prospectus are inactive textual references only. The information on our website is neither incorporated by reference into this prospectus nor intended to be used in connection with this offering. All of our operations are currently conducted through BullFrog AI Holdings, Inc.

### **Available Information**

Reports we file with the Securities and Exchange Commission (SEC) pursuant to the Exchange Act, including annual and quarterly reports, and other reports we file, can be inspected and copied at the public reference facilities maintained by the SEC at 100 F Street NE, Washington, D.C. 20549.

## **MANAGEMENT AND BOARD OF DIRECTORS**

### **Executive Officers and Directors**

The following table sets forth the name, age and position of each of our executive officers, key employees and directors.

<b>Name</b>	<b>Age</b>	<b>Position(s)</b>
<b>Executive Officers:</b>		
Vin Singh	53	Chief Executive Officer and Director
Dane Saglio	65	Chief Financial Officer
<b>Non-Executive Directors:</b>		
Don Elsey*	69	Director, Chair Audit Committee
William Enright*	59	Director and Chair of Compensation Committee
Jason Hanson*	53	Director and Chair of Nominating and Corporate Governance Committee

\*Director Nominee

**Vininder (Vin) Singh** is the Founder, Chairman, and CEO of BullFrog AI Holdings, Inc. since its inception in August 2017. Over the past five years, he has built the Company from scratch and during that time he led strategy, built a highly experienced team of leaders, spear headed the acquisition and development of BullFrog's core AI technology and drug assets, secured the first revenue, and raised approximately \$2M in financing. In February of 2020, he formed BullFrog AI Holdings, Inc. and BullFrog AI Inc. became

a wholly owned subsidiary designated as the holder of core intellectual property. Vin is a serial entrepreneur and experienced executive with 25 years of experience in the life sciences and biotechnology industries. He has extensive start-up experience having founded and built several pioneering investor backed companies including BullFrog AI, which uses machine learning/AI to enable drug development, Next Healthcare Inc., a personalized diagnostics and adult cell banking service, and MaxCyte Inc. (MXCT), a cell therapy company. He was also an executive at GlobalStem Inc. and ThermoFisher Scientific, leading their global cell therapy services business. Vin has a BS in Electrical Engineering from Rutgers University, an MS in Biomedical Engineering from Rensselaer Polytechnic Institute, and an MBA from Johns Hopkins University. We believe that Mr. Singh is qualified to serve as a member of our board of directors due to the perspective and experience that he brings as our Founder and Chief Executive Officer, his extensive experience in the science and biotechnology industries and in the management of startup companies.

**Dane Saglio** joined BullFrog Holdings AI, Inc. as Chief Financial Officer in September 2021. Mr. Saglio brings more than 40 years of financial management experience in both public and private companies across a number of business sectors. Previously, Mr. Saglio has served as CFO at Seneca Biopharma, RegeneRx Biopharmaceuticals since 2011, New Generation Biofuels 2010 until 2011, and EntreMed from 2000 until 2008, all public companies in the biotechnology arena. Prior to joining the Company, Mr. Saglio was the CFO of Seneca Biopharma, initially as a consultant in August 2019 and then as an employee in April 2020 until the Company merged with Leading Bio Sciences, forming Palisades Bio, Inc. in April 2021. He previously served as CFO at Celios Corporation from October 2017 until July 2019 and Helomics Corporation, a personalized medicine company in cancer from October 2014 through July 2017. He began his career at Informatics Corp, now Computer Associates International and then at Bressler & Reiner, a DC-based real estate developer and homebuilder. Dane has a BS from the University of Maryland is a licensed CPA in Maryland (inactive).

**R. Don Elsey** will be a director and chair of the Audit Committee of our board. Currently, Mr. Elsey serves as an advisor to the CEO of Lyra Therapeutics, a private company pioneering a new therapeutic approach to treat debilitating ear, nose and throat diseases. Mr. Elsey was the CFO of Lyra until his retirement in December 2020. Previously, from February 2015 to February 2019, Mr. Elsey served as Chief Financial Officer at Senseonics, Inc., a medical device company. From May 2014 until February 2015, Mr. Elsey served as Chief Financial Officer of Regado Biosciences, Inc., a biopharmaceutical company. From December 2012 to February 2014, Mr. Elsey served as Chief Financial Officer of LifeCell Corporation, a privately held regenerative medicine company. Mr. Elsey holds a B.A. in economics and an M.B.A. in finance from Michigan State University. We believe that Mr. Elsey is qualified to serve as a member of our board of directors because of his extensive professional experience in science and biotechnology companies,

**William “Bill” Enright** is a seasoned biotech executive with more than thirty years of experience in building and financing both privately held and publicly held companies and will join the board on the effective date of this registration statement. He is currently the CEO and a Director of Vaccitech plc (NASDAQ: VACC), which he helped to take public in April 2021. Prior to Vaccitech, Bill spent more than ten years at Altimmune (NASDAQ: ALT) as a Director, President & CEO, moving multiple programs into clinical testing, completing several acquisitions, and eventually taking the company public. Prior to joining Altimmune, Bill spent six years with GenVec, Inc. (acquired by Intrexon) with increasing responsibilities, culminating as Head of Business Development.

Bill brings a breadth of experiences in a variety of positions within the life science/biotech industry, including time as a consultant, a bench scientist and 12 years with Life Technologies, Inc. (acquired by Thermo-Fisher), working in various senior level licensing, business management, manufacturing and research roles.

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In addition to Vaccitech, Bill sits on the Board of Gravitas Therapeutics, Inc. and on a Business Advisory Board for Creatv MicroTech, Inc., both privately held companies.

Bill received a Master of Arts in Molecular Biology from SUNY at Buffalo and a Master of Science in Business Management from Johns Hopkins University.

We believe that Mr. Enright is qualified to serve as a member of our board of directors because of his extensive professional experience in life science/biotech companies and in the management of public companies

**Jason Hanson** will become a director on the effective date. He currently serves as President, Chief Executive Officer, and Director at enGene, Inc. (“enGene”), a position he has held since 2018. In this role, he has built “from the ground up” a new scientific, technical and strategic vision for enGene, a Montreal based gene therapy company with a ten plus year history, re-launched the company with new science, personnel and strategy within six months of joining the company. In addition, at enGene, Mr. Hanson continues to build on the new strategy by conceptualized a groundbreaking genetherapy product from ideation stage into a multi-billion dollar clinical stage asset, has assembled senior team experienced in R&D, oncology and gene therapy, and has successfully led efforts at FDA to expand BLA, clinical activities to first line NMIBC (Non-Muscle Invasive Bladder Cancer) effectively doubling addressable market from \$3B to \$6B Previously, Mr. Hanson served as President and Chief Executive Officer of Ohana Biosciences, a biotechnology company based in Cambridge, MA. Mr. Hanson previously served as Executive Vice President and Chief Strategy Officer for NuVasive, Inc. and as Corporate Vice President of General Electric Company and member of the senior executive team of GE Healthcare, a \$20-plus billion dollar global pharmaceutical, medical device and healthcare services business. At GE Healthcare he had global business responsibilities for a range of portfolio management, corporate development, legal, compliance, and government relations activities. Prior to joining GE Healthcare, Mr. Hanson served as company Group Chairman and Executive Vice President at Valeant Pharmaceuticals with responsibility for the company’s Consumer, Ophthalmology, Latin American and Dental businesses, as well as the manufacturing and supply chain, R&D, regulatory and medical affairs teams. Previously, he served as Executive Vice President and Chief Operating Officer at Mediciis Pharmaceutical Corporation, where he led R&D and other critical functions and helped build the pre-eminent pipeline of prescription dermatology and aesthetic medicine products prior to its acquisition by Valeant for \$2.6 billion. Mr. Hanson received a bachelor’s degree from Cornell University and a law degree from Duke University School of Law. We believe that Mr. Hanson is qualified to serve as a member of our board of directors because of his extensive professional experience in life science/biotech companies.

## **Corporate Governance**

### ***Director Independence***

No members of our Board of Directors are independent using the definition of independence under Nasdaq Listing Rule 5605(a)(2) and the standards established by the SEC. Prior to closing the offering we plan to increase the size the Board of Directors to satisfy Nasdaq’s requirement that the majority of the Board of Directors be independent.

### ***Committees of our Board***

***Audit Committee.*** We did not during 2020, and do not currently, have an audit committee. If and when we satisfy the other initial listing standards for listing our common stock on Nasdaq or another national exchange, we intend to establish an audit committee of the Board of Directors. Don Elsey will Chair the Audit Committee.

***Compensation Committee.*** We did not during 2020, and do not currently, have a compensation committee. If and when we satisfy the other initial listing standards for listing our common stock on Nasdaq or another national exchange, we intend to establish a compensation committee of the Board of Directors.

***Nominating Committee.*** We did not during 2020, and do not currently, have a nominating committee. If and when we satisfy the other initial listing standards for listing our common stock on Nasdaq or another national exchange, we intend to establish a nominating committee of the Board of Directors.

### ***Term of office***

All directors hold office until the next annual meeting of the stockholders of the company and until their successors have been duly elected and qualified. Officers are elected by and serve at the discretion of our Board.

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## Code of Business Conduct and Ethics

We have not adopted a Code of Business Conduct and Ethics that applies to our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. We have at this time very limited personnel resources and only one officer. Nevertheless, we intend to work with legal counsel in order to prepare a Code of Business Conduct and Ethics appropriate to the nature of our business and the functions performed by the executive management of the Company. Upon adoption of the Code of Business Conduct and Ethics, we will file it with the SEC and post a copy on our website.

## Family Relationships

There are no family relationships among and between the issuer's directors, officers, persons nominated or chosen by the issuer to become directors or officers, or beneficial owners of more than ten percent of any class of the issuer's equity securities.

## Involvement in Certain Legal Proceedings

From time to time, we may become involved in litigation relating to claims arising out of its operations in the normal course of business. Currently there are no legal proceedings, government actions, administrative actions, investigations or claims are currently pending against us or that involve the Company or any of its affiliates which, in the opinion of the management

## EXECUTIVE AND DIRECTOR COMPENSATION

No compensation was paid to our principal executive officer and our two other most highly compensated executive officers during the past two fiscal years.

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Stock Awards (\$)	Option Awards (\$)	All Other Compensation (\$)	Total Compensation (\$)
<b>Vininder Singh</b>	2022	\$ 179,000-	\$ -	\$ -	\$ -	\$ -	\$ 179,000
<i>Chief Executive Officer and Director</i>	2021	\$ 116,000-	-	-	-	-	116,000
<b>Dane Saglio</b>	2022	\$ 30,000-	\$ -	\$ -	\$ -	\$ -	\$ 30,000
<i>Chief Financial Officer</i>	2021	-	-	17,600-	-	-	17,600

## Employment Agreements

On May 16, 2022, we entered into an employment agreement with Vininder Singh, pursuant to which he will receive received an annual base salary of \$400,000, which is subject to bi-annual review by the Company. Mr. Singh will also be eligible for an annual bonus based on the achievement of certain goals and performance criteria established by the Board. Mr. Singh's target annual bonus for the fiscal years ended 2022 through 2025 will be a minimum of twenty (20%) percent of the current base salary, with a maximum payout of up to one-hundred (100%) percent based on target achievement. For 2022, the criteria to determine Mr. Singh's bonus will include the following: (i) the Company achieves \$500,000 in sales; (ii) the filing of an Investigational New Drug (IND) Application with the FDA for mebandazole; (iii) the Company enters into two (2) strategic partnerships; and (iv) the Company commences partner negotiations with a third party for HSV-1, bf-114 or bf-222. Mr. Singh will also be eligible to participate in the Company's stock incentive plan, subject to Board approval. The agreement with Mr. Singh shall continue until either his resignation, termination for cause by the Company, or death or disability of Mr. Singh.

## Consulting Agreements

We have also entered into a consulting agreement (the "Newman Agreement") with Gerald Newman pursuant to which Mr. Newman will assist the Company with general business consulting, strategic relationships and the recruiting of certain key personnel. The Newman Agreement will terminate on June 23, 2023 and may be renewed upon mutual written agreement by both parties. Pursuant to the Newman Agreement, Newman will receive a monthly fee of \$7,500 per month payable for eight months commencing on the date of this Offering, payable on the last day of each month.

Further, we have entered into an advisory agreement (the "Greentree Agreement") with Greentree Financial Group, Inc. ("Greentree") to render certain professional services to the Company including but not limited to responding to comments from the NASDAQ Listing Qualifications Staff as necessary, assist the Company in preparing a Code of Conduct applicable to directors, officers and employees, and advising on all documents and accounting systems relating to its finances and transactions, with the purpose of bringing such documents and systems into compliance with Generally Accepted Accounting Principles or disclosures required by the SEC. Pursuant to the Greentree Agreement, Greentree received 350,000 shares of the Company's common stock.

## Director Compensation

Mr. Singh has been and is currently our sole director. No compensation has been paid out to the director nominees and any compensation will be subject to closing of this Offering.

## Outstanding Equity Awards at Fiscal Year-End

There are no outstanding equity awards held by the Company's named executive officers or directors as of December 31, 2022.

## 2022 Equity Incentive Plan

Prior to the completion of this offering, we expect our Board of Directors to adopt the 2022 Equity Incentive Plan, or 2022 Plan. We expect our 2022 Plan will become effective on the date of the underwriting agreement related to this offering. Our 2022 Plan will come into existence upon its adoption by our board of directors, but no grants will be made under our 2022 Plan prior to its effectiveness. Once our 2022 Plan becomes effective, no further grants will be made under the Company's existing Incentive Plan.

## CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

### Certain Relationships and Related Party Transactions

On July 8, 2021, the Company entered into a Simple Agreement for Future Equity (SAFE), with a related party, Tivoli Trust, our second largest shareholder (the "Investor"), with an amount of \$150,000, with 0% interest. Under the SAFE agreement, if there is an Equity Financing before the termination of this SAFE, on the initial closing of such Equity Financing, this SAFE will automatically convert into the number of shares of SAFE Preferred Stock equal to the Purchase Amount divided by the Conversion Price, which means either: (1) the Safe Price (the price per share equal to the Post-Money Valuation Cap divided by the Company Capitalization) or (2) the Discount Price (the price

If there is a Liquidity Event before the termination of this SAFE, this SAFE will automatically be entitled (subject to the liquidation priority set forth in Section 1(d) below) to receive a portion of Proceeds, due and payable to the Investor immediately prior to, or concurrent with, the consummation of such Liquidity Event, equal to the greater of (i) the Purchase Amount (the "Cash-Out Amount") or (ii) the amount payable on the number of shares of Common Stock equal to the Purchase Amount divided by the Liquidity Price (the "Conversion Amount"). If any of the Company's securityholders are given a choice as to the form and amount of Proceeds to be received in a Liquidity Event, the Investor will be given the same choice, provided that the Investor may not choose to receive a form of consideration that the Investor would be ineligible to receive as a result of the Investor's failure to satisfy any requirement or limitation generally applicable to the Company's securityholders, or under any applicable laws.

This SAFE will automatically terminate (without relieving the Company of any obligations arising from a prior breach of or non-compliance with this SAFE) immediately following the earliest to occur of: (i) the issuance of Capital Stock to the Investor pursuant to the automatic conversion of this SAFE under agreement; or (ii) the payment, or setting aside for payment, of amounts due the Investor pursuant to the agreement.

As of December 31, 2021, the \$150,000 received from SAFE was recorded at 6% imputed interest. The maturity date of the loan is defined by the SAFE agreement as discussed above.

On August 19, 2021, the company entered into a convertible loan agreement with a related party, with a principal balance of \$99,900 at 9% interest. The noteholder has the right to convert the principal and interest into common shares of the Company. This loan included an original issuance discount of 5% and included 99,900 Warrants at an exercise price of \$1, exercisable for 5 years from the issue date on the face of the Warrant. The maturity date of the loan was February 19, 2022. In May 2022, the Company and the note holder agreed to cancel and void previous warrants and entered into a new agreement for 115,185 warrants with an exercise price of \$2.50. As of September 30, 2022, the \$99,900 principal and the \$4,950 overpayment of the note remained outstanding and had accrued interest of \$10,165. The warrants discussed above were initially discounted against the notes, subsequent to year end December 31, 2021, they were deemed voided and new warrants in accordance with the new terms were issued. We assessed the differences in fair value and determined that they were de minimis and expensed the full value of the new warrants.

On June 15, 2021, the company entered into an unsecured short term loan agreement with the Investor for an aggregate principal balance of \$34,000, with a one-year maturity date, accruing interest at 5% and imputing an additional 1% interest.

On November 19, 2021, the company entered into an unsecured short term loan agreement with the Investor for an aggregate principal balance of \$5,000, with a one-year maturity date, accruing interest at 5% and imputing an additional 1% interest.

On December 13, 2021, the company entered into an unsecured short term loan agreement with the Investor for an aggregate principal balance of \$10,000, with a one-year maturity date, accruing interest at 5% and imputing an additional 1% interest.

On October 5, 2022, the Company entered into an exchange agreement with the Investor whereby all of his common stock, 734,493 shares, were exchanged into shares of Series A Convertible Preferred Stock. The Series A Preferred Stock is the economic equivalent of the common stock but has no voting rights and is subject to a blocker which prohibits the conversion into common stock if it would result in the Investor owning more than 4.99% of the Company's outstanding common stock at such time. For a description of the rights and preferences of the Series A Preferred Stock, see "Description of Securities- Series A Convertible Preferred Stock".

#### **Related Person Transaction Policy**

Prior to this offering, we have not had a formal policy regarding approval of transactions with related parties. We expect to adopt a related person transaction policy that sets forth our procedures for the identification, review, consideration and approval or ratification of related person transactions. For purposes of our policy only, a related person transaction is a transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships, in which we and any related person are, were or will be participants in which the amount involved exceeds the lesser of \$120,000 or 1% of the average of our total assets at year-end. Transactions involving compensation for services provided to us as an employee or director are not covered by this policy. A related person is any executive officer, director or beneficial owner of more than 5% of any class of our voting securities, including any of their immediate family members and any entity owned or controlled by such persons.

Under the policy, if a transaction has been identified as a related person transaction, including any transaction that was not a related person transaction when originally consummated or any transaction that was not initially identified as a related person transaction prior to consummation, our management must present information regarding the related person transaction to our audit committee, or, if audit committee approval would be inappropriate, to another independent body of our Board of Directors, for review, consideration and approval or ratification. The presentation must include a description of, among other things, the material facts, the interests, direct and indirect, of the related persons, the benefits to us of the transaction and whether the transaction is on terms that are comparable to the terms available to or from, as the case may be, an unrelated third party or to or from employees generally. Under the policy, we will collect information that we deem reasonably necessary from each director, executive officer and, to the extent feasible, significant stockholder to enable us to identify any existing or potential related-person transactions and to effectuate the terms of the policy. In addition, under our code of business conduct and ethics, our employees and directors will have an affirmative responsibility to disclose any transaction or relationship that reasonably could be expected to give rise to a conflict of interest. In considering related person transactions, our audit committee, or other independent body of our Board of Directors, will take into account the relevant available facts and circumstances including, but not limited to:

- the risks, costs and benefits to us;
- the impact on a director's independence in the event that the related person is a director, immediate family member of a director or an entity with which a director is affiliated;
- the availability of other sources for comparable services or products; and
- the terms available to or from, as the case may be, unrelated third parties or to or from employees generally.

The policy requires that, in determining whether to approve, ratify or reject a related person transaction, our audit committee, or other independent body of our Board of Directors, must consider, in light of known circumstances, whether the transaction is in, or is not inconsistent with, our best interests and those of our stockholders, as our audit committee, or other independent body of our Board of Directors, determines in the good faith exercise of its discretion.

#### **SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS**

The following table sets forth certain information regarding the beneficial ownership of our common stock as of January 10 2023 by:

- each of our named executive officers;
- each of our directors;
- all of our current directors and executive officers as a group; and
- each stockholder known by us to own beneficially more than five percent of our common stock.

Beneficial ownership is determined in accordance with the rules of the SEC and includes voting or investment power with respect to the securities. Shares of common stock that may be acquired by an individual or group within 60 days of January 10, 2023, pursuant to the exercise of options or warrants and convertible debt are deemed to be outstanding for the purpose of computing the percentage ownership of such individual or group. Percentage of ownership is based on 4,021,935 shares of common stock outstanding on January 10, 2023 and 5,671,881 after giving effect to the sale of 1,317,647 shares in this offering.

Except as indicated in footnotes to this table, we believe that the stockholders named in this table have sole voting and investment power with respect to all shares of common stock shown to be beneficially owned by them, based on information provided to us by such stockholders. Unless otherwise indicated, the address of all listed stockholders is c/o Bullfrog AI Holdings, Inc., 325 Ellington Blvd., Unit 317, Gaithersburg, MD 20878 .

Name of Beneficial Owner	Common Stock Beneficially Owned	Percentage of Common Stock Before Offering	Percentage of Common Stock After Offering <sup>(1)</sup>
<b>Directors and Officers:</b>			
Vininder Singh Chief Executive Officer and Director	2,742,446	68.19%	48.36%
Dane Saglio Chief Financial Officer	57,142	1.42%	1.01%
<b>All officers and directors 2 persons)</b>	<b>2,799,588</b>	<b>69.61%</b>	<b>49.36%</b>
<b>Beneficial owners of more than 5%</b>			
Tivoli Trust (2)	904,391	22.49%	15.95%
Gerald Newman	500,000	12.43%	8.82%
Green tree Financial (3)	575,000	14.30%	10.14%
TEDCO	205,984	5.12%	3.63%
Johns Hopkins University Applied Physics Laboratory, LLC	218,450	5.43%	3.85%

- (1) Assumes (i) no exercise by the underwriter of its option to purchase additional shares of common stock to cover over-allotments, if any; (ii) no exercise of the underwriter's warrants; and (iii) 1,317,647 shares of common stock sold in this offering.
- (2) Comprised of 73,449 shares of non-voting Series A Preferred Stock, 115,185 warrants exercisable at \$2.50 per shares and 54,714 shares related to two convertible debt instruments that convert at a discount to the IPO price Assumes the conversion of all Series A Preferred Stock into common stock in an amount equal to ten shares of common stock for each one share of Series A Preferred Stock.
- (3) Consists of (i) 350,000 shares of common stock and (ii) shares of common stock upon exercise of common stock purchase warrants at an exercise price of \$2.50 per share. Chris Cottone, principal of the GreenTree Financial Group Inc., has the power to vote or dispose of the shares held of record by GreenTree Financial Group Inc. and may be deemed to beneficially own those shares.

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### SHARES ELIGIBLE FOR FUTURE RESALE

Prior to this offering, there has been no market for our common stock. Future sales of substantial amounts of our common stock in the public market or the perception that such sales might occur could adversely affect market prices prevailing from time to time. Furthermore, because only a limited number of shares will be available for sale shortly after this offering due to existing contractual and legal restrictions on resale as described below, there may be sales of substantial amounts of our common stock in the public market after the restrictions lapse. This may adversely affect the prevailing market price of our common stock and our ability to raise equity capital in the future.

After completion of this offering, we will have shares of common stock outstanding (or shares if the underwriters' option to purchase additional shares is exercised in full).

All of the shares of common stock sold in this offering will be freely tradable without restrictions or further registration under the Securities Act, unless the shares are purchased by our "affiliates" as that term is defined in Rule 144 and except certain shares that will be subject to the lock-up period described below after completion of this offering. Any shares owned by our affiliates may not be resold except in compliance with Rule 144 volume limitations, manner of sale and notice requirements, pursuant to another applicable exemption from registration or pursuant to an effective registration statement.

Any of the shares held by our directors, officers and holders of at least 10% of the Company's outstanding securities will be subject to a 12-month lock-up restriction described under "Underwriting" on page 53. Accordingly, there will be a corresponding increase in the number of shares that become eligible for sale after the lock-up period expires. As a result of these agreements, subject to the provisions of Rule 144 or Rule 701, shares will be available for sale in the public market as follows:

- beginning on the date of this prospectus, all of the shares sold in this offering will be immediately available for sale in the public market (except as described above);
- beginning six (6) months after this offering is completed, at the expiration of the lock-up period for our officers, directors and holders of at least 5% of the Company's outstanding securities, 3,145,632 additional shares will become eligible for sale in the public market, all of which shares will be held by affiliates and subject to the volume and other restrictions of Rule 144 and Rule 701 as described below.

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### Rule 144

In general, under Rule 144 as currently in effect, once we have been subject to public company reporting requirements for at least 90 days, a person who is not deemed to have

been one of our affiliates for purposes of the Securities Act at any time during the 90 days preceding a sale and who has beneficially owned the shares proposed to be sold for at least six months, including the holding period of any prior owner other than our affiliates, is entitled to sell those shares without complying with the manner of sale, volume limitation or notice provisions of Rule 144, subject to compliance with the public information requirements of Rule 144. If such a person has beneficially owned the shares proposed to be sold for at least one year, including the holding period of any prior owner other than our affiliates, then that person would be entitled to sell those shares without complying with any of the requirements of Rule 144.

In general, under Rule 144, as currently in effect, our affiliates or persons selling shares on behalf of our affiliates are entitled to sell upon expiration of the lock-up agreements described above, within any three-month period, a number of shares that does not exceed the greater of:

- 1% of the number of shares of our common stock then outstanding, which will equal approximately shares immediately after this offering; or
- the average weekly trading volume of our common stock during the four calendar weeks preceding the filing of a notice on Form 144 with respect to that sale.

Sales under Rule 144 by our affiliates or persons selling shares on behalf of our affiliates are also subject to certain manner of sale provisions and notice requirements and to the availability of current public information about us.

#### Rule 701

Rule 701 generally allows a stockholder who purchased shares of our common stock pursuant to a written compensatory plan or contract and who is not deemed to have been an affiliate of our company during the immediately preceding 90 days to sell these shares in reliance upon Rule 144, but without being required to comply with the public information, holding period, volume limitation or notice provisions of Rule 144. Rule 701 also permits affiliates of our company to sell their Rule 701 shares under Rule 144 without complying with the holding period requirements of Rule 144. All holders of Rule 701 shares, however, are required by that rule to wait until 90 days after the date of this prospectus before selling those shares pursuant to Rule 701 and are subject to the lock-up agreements described above.

### UNDERWRITING

WallachBeth Capital LLC (is acting as the sole book-running manager and the representative of the underwriters of this offering (the “Representative”). Subject to the terms and conditions of the underwriting agreement between us and the Representative, we have agreed to sell to the underwriters and the underwriters have agreed to purchase from us, at the public offering price per share less the underwriting discounts set forth on the cover page of this prospectus, the number of Units listed next to its name in the following table:

Underwriter	Number of Units
WallachBeth Capital LLC	
Kingswood Capital Markets	
<b>Total</b>	

The underwriters are committed to purchase all the Units offered by us other than those covered by the option to purchase additional shares described below, if they purchase any shares. The obligations of the underwriters may be terminated upon the occurrence of certain events specified in the underwriting agreement. Furthermore, pursuant to the underwriting agreement, the underwriters’ obligations are subject to customary conditions, representations and warranties contained in the underwriting agreement, such as receipt by the underwriters of officers’ certificates and legal opinions.

We have agreed to indemnify the underwriters against specified liabilities, including liabilities under the Securities Act, and to contribute to payments the underwriters may be required to make in respect thereof.

The underwriters are offering the Units, subject to prior sale, when, as and if issued to and accepted by them, subject to approval of legal matters by their counsel and other conditions specified in the underwriting agreement. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

#### Over-allotment Option

We have granted the underwriters an option, exercisable on or more times in whole or in part within 45-days after the closing of this offering to purchase up to an additional 197,647 shares of our common stock at a price of \$6.48 per share and/or 197,647 Tradeable Warrants at a price of \$0.01 per Tradeable Warrant, and/or 197,647 Non-tradeable Warrants at price of \$0.01 per Non-tradeable Warrant, in each case, less the underwriting discount, solely for the purpose of cover over-allotments. If this option is exercised in full, the total offering price to the public will be \$9,849,000 and the total net proceeds, before expenses, to us will be \$8,703,000.

#### Discount and Commissions; Expenses

The following table shows the public offering price, underwriting discount and proceeds, before expenses, to us. The information assumes either no exercise or full exercise by the underwriters of their over-allotment option.

	Per Unit	Total Without Over-Allotment Option	Total With Over-Allotment Option
Public offering price	\$	\$	\$
Underwriting discount (8.0%)	\$	\$	\$
Proceeds, before expenses, to us	\$	\$	\$

The underwriters propose to offer the Units offered by us to the public at the public offering price per Units set forth on the cover of this prospectus. In addition, the underwriters may offer some of the shares to other securities dealers at such price less a concession of \$ per Unit. If all of the Units offered by us are not sold at the public offering price per Unit, the underwriters may change the offering price per share and other selling terms by means of a supplement to this prospectus.

We have also agreed to reimburse the underwriters for reasonable out-of-pocket expenses not to exceed \$140,000 in the aggregate whether or not there is a closing of this offering. We estimate that total expenses payable by us in connection with this offering, other than the underwriting discount will be approximately \$260,000. In addition, we have also agreed to pay to the underwriters a non-accountable expense allowance in the amount of 1% of the gross offering amount (including shares purchased upon exercise of the over-allotment option).

The underwriting agreement, however, provides that in the event the offering is terminated, any advance expense deposits paid to the underwriters will be returned to the extent



that offering expenses are not actually incurred in accordance with FINRA Rule 5110(f)(2)(C).

### **Placement Agent Warrants**

In connection with the Company's private placement of its Convertible Bridge Notes, WallachBeth Capital LLC and the Kingswood Capital Markets Affiliate (as defined below), are entitled to receive warrants (the "CBN Warrants") to purchase an aggregate of 18,000 shares of the Company's common stock. The CBN Warrants have a five-year term and an exercise price of 125% of the initial public offering price. See "*Description of Capital Stock- Convertible Bridge Notes and Warrants*"

Pursuant to a Termination Agreement dated as of April 1, 2022, ViewTrade Securities, Inc. ("ViewTrade") and the Company, ViewTrade agreed to terminate its services as a lead managing underwriter and book runner in connection with a proposed initial public offering. In consideration of this termination, the Company issued ViewTrade and its designees five-year warrants (the "Termination Warrants") to purchase 129,032 shares of the Company's common stock at an exercise price of \$0.93. In connection with placement agent services provided to the Company by the Representative in its capacity as a placement agent, ViewTrade directed the Company to issue 50% of the Termination Warrants to the Representative. Additionally, ViewTrade issued 90% of its remaining Termination Warrants to an individual who at the time of such issuance was affiliated with ViewTrade, but is now currently affiliated with Kingswood Capital Markets (the "Kingswood Capital Markets Affiliate"). Prior to the closing of the initial public offering, the number of shares of the Company's common stock underlying the Termination Warrants and the exercise price of the Termination Warrants will be automatically adjusted to 18,433 and \$6.51 per share, respectively, as a result of the completion of the planned 1 for 7 reverse stock-split. As a result at the closing of the Company's initial public offering the Representative will hold 9,216 Termination Warrants and the Kingswood Capital Markets Affiliate will hold 8,295 Termination Warrants for a total of 17,511 Termination Warrants to be held by the underwriters on the closing date of the initial public offering. WallachBeth Capital LLC and the Kingswood Capital Markets Affiliate have further agreed that the exercise price of the Termination Warrants after the reverse stock split will be 125% of the initial public offering price.

In accordance with FINRA Rule 5110(e)(1), WallachBeth Capital LLC and the Kingswood Capital Markets Affiliate have agreed not sell, transfer, assign, pledge, or hypothecate, or be the subject of any hedging, short sale, derivative, put, or call transaction that would result in the effective economic disposition of the CBN Warrants or the Termination Warrants or the shares underlying the CBN Warrants or the Termination Warrants for a period of 180 days beginning on the date of commencement of sales of this initial public offering.

### **Advance**

In connection with a proposed private placement of the Company's securities, the Kingswood Capital Markets Affiliate received an advance from the Company of \$22,500 for expenses. In accordance with FINRA Rule 5110(g)(4)(A), Such persons have agreed to return such advance to the extent such expenses are not actually incurred.

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### **Discretionary Accounts**

The underwriters do not intend to confirm sales of the securities offered hereby to any accounts over which they have discretionary authority.

### **Indemnification**

We have agreed to indemnify the underwriters against specified liabilities, including liabilities under the Securities Act, and to contribute to payments the underwriters may be required to make in respect thereof.

### **Pricing of this Offering**

Prior to this offering, there has not been an active market for our common stock. The public offering price for our common stock will be determined through negotiations between us and the underwriters. Among the factors to be considered in these negotiations will be prevailing market conditions, our financial information, market valuations of other companies that we and the underwriters believe to be comparable to us, estimates of our business potential, the present state of our development and other factors deemed relevant.

We offer no assurances that the public offering price of our common stock will correspond to the price at which our common stock will trade in the public market subsequent to this offering or that an active trading market for our common stock and warrants will develop and continue after this offering.

### **Lock-Up Agreements**

We and each of our officers, directors, and 10% or greater stockholders have agreed, subject to certain exceptions, not to offer, issue, sell, contract to sell, encumber, grant any option for the sale of or otherwise dispose of any shares of our common stock or other securities convertible into or exercisable or exchangeable for shares of our common stock for a period of six months after this offering is completed without the prior written consent of the Representative.

The Representative may in its sole discretion and at any time without notice release some or all of the shares subject to lock-up agreements prior to the expiration of the lock-up period. When determining whether or not to release shares from the lock-up agreements, the representative will consider, among other factors, the security holder's reasons for requesting the release, the number of shares for which the release is being requested and market conditions at the time.

### **Trading; Nasdaq Capital Market Listing**

We intend to apply to list our common stock and Tradeable Warrants offered in the offering on the Nasdaq Capital Market under the symbol "BFRG" and "BFRGW," respectively. No assurance can be given that our listing application will be approved by the Nasdaq Capital Market. The consummation of this offering is conditioned on obtaining Nasdaq approval.

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### **Price Stabilization, Short Positions and Penalty Bids**

In connection with this offering the underwriters may engage in stabilizing transactions, over-allotment transactions, syndicate covering transactions and penalty bids in accordance with Regulation M under the Exchange Act:

- Stabilizing transactions permit bids to purchase securities so long as the stabilizing bids do not exceed a specified maximum.
- Over-allotment involves sales by the underwriters of securities in excess of the number of securities the underwriters are obligated to purchase, which creates a syndicate short position. The short position may be either a covered short position or a naked short position. In a covered short position, the number of securities over-allotted by the underwriters is not greater than the number of securities that they may purchase in the over-allotment option. In a naked short position, the number of securities involved is greater than the number of securities in the over-allotment option. The underwriters may close out any covered short position by either exercising its over-allotment option and/or purchasing securities in the open market.

- Syndicate covering transactions involve purchases of the securities in the open market after the distribution has been completed in order to cover syndicate short positions. In determining the source of securities to close out the short position, the underwriters will consider, among other things, the price of securities available for purchase in the open market as compared to the price at which they may purchase securities through the over-allotment option. A naked short position occurs if the underwriters sell more securities than could be covered by the over-allotment option. This position can only be closed out by buying securities in the open market. A naked short position is more likely to be created if the underwriters are concerned that there could be downward pressure on the price of the securities in the open market after pricing that could adversely affect investors who purchase in this offering.
- Penalty bids permit the underwriters to reclaim a selling concession from a syndicate member when securities originally sold by the syndicate member is purchased in a stabilizing or syndicate covering transaction to cover syndicate short positions.

These stabilizing transactions, syndicate covering transactions and penalty bids may have the effect of raising or maintaining the market price of our securities or preventing or retarding a decline in the market price of the securities. As a result, the price of our shares of common stock and warrants may be higher than the price that might otherwise exist in the open market. These transactions may be discontinued at any time.

Neither we nor the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our shares of common stock and warrants. In addition, neither we nor the underwriters make any representation that the underwriters will engage in these transactions or that any transaction, if commenced, will not be discontinued without notice.

#### **Electronic Offer, Sale and Distribution of Shares**

A prospectus in electronic format may be made available on a website maintained by the Representative and may also be made available on a website maintained by other underwriters. The underwriters may agree to allocate a number of shares to underwriters for sale to their online brokerage account holders. Internet distributions will be allocated by the Representative to underwriters that may make Internet distributions on the same basis as other allocations. In connection with the offering, the underwriters or syndicate members may distribute prospectuses electronically. No forms of electronic prospectus other than prospectuses that are printable as Adobe® PDF will be used in connection with this offering.

The underwriters have informed us that they do not expect to confirm sales of shares offered by this prospectus to accounts over which they exercise discretionary authority.

Other than the prospectus in electronic format, the information on any underwriter's website and any information contained in any other website maintained by an underwriter is not part of the prospectus or the registration statement of which this prospectus forms a part, has not been approved and/or endorsed by us or any underwriter in its capacity as underwriter and should not be relied upon by investors.

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#### **Other**

From time to time, the underwriters and/or their affiliates have provided, and may in the future provide, various investment banking and other financial services for us for which services it has received and, may in the future receive, customary fees. Except for the services provided in connection with this offering and other than as described below, the underwriters have not provided any investment banking or other financial services during the 180-day period preceding the date of this prospectus.

#### **Offers Outside the United States**

Other than in the United States, no action has been taken by us or the underwriters that would permit a public offering of the securities offered by this prospectus in any jurisdiction where action for that purpose is required. The securities offered by this prospectus may not be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sale of any such securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus comes are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any securities offered by this prospectus in any jurisdiction in which such an offer or a solicitation is unlawful.

#### **DETERMINATION OF OFFERING PRICE**

Prior to this offering, there has been no public market for our common stock or Tradeable Warrants. The initial public offering price will be negotiated between the underwriters and us. In determining the initial public offering price of our Units, the underwriters will consider, among other things:

- the prospects for our company and the industry in which we operate;
- our financial information;
- financial and operating information and market valuations of publicly traded companies engaged in activities similar to ours;
- the prevailing conditions of U.S. securities markets at the time of this offering;
- the recent market prices of, and the demand for, publicly traded shares of generally comparable companies;
- our past and present financial and operating performance; and
- other factors deemed relevant by us and the underwriters.

Neither we nor the underwriters can assure investors that an active trading market will develop for our common shares or Tradeable Warrants, or that the shares or Tradeable Warrants will trade in the public market at or above the initial public offering price.

#### **EXPERTS**

The financial statements of Bullfrog AI Holdings, Inc. from February 26, 2020 (Inception) through period ending December 31, 2021 have been audited by M&K CPAs, an independent registered public accounting firm as set forth in its report and are included in reliance upon such report given on the authority of such firm as experts in accounting.

#### **LEGAL MATTERS**

Sichenzia Ross Ference LLP, New York, New York, will pass upon the validity of the shares of our common stock to be sold in this offering. Carmel, Milazzo & Feil LLP, New York, NY, will pass upon certain legal matters for the underwriters.

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## WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the securities we are offering to sell. This prospectus, which constitutes part of the registration statement, does not include all of the information contained in the registration statement and the exhibits, schedules and amendments to the registration statement. For further information with respect to us and our securities, we refer you to the registration statement and to the exhibits and schedules to the registration statement. Statements contained in this prospectus about the contents of any contract, agreement or other document are not necessarily complete, and, in each instance, we refer you to the copy of the contract, agreement or other document filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference.

The SEC maintains a website, which is located at [www.sec.gov](http://www.sec.gov), that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. You may access the registration statement of which this prospectus is a part at the SEC's website.

Upon completion of this offering, we will be subject to the information reporting requirements of the Securities Exchange Act of 1934, and we will file reports, proxy statements and other information with the SEC. All documents filed with the SEC are available for inspection and copying at the public reference room and website of the SEC referred to above. We maintain a website at [www.precisionopinion.com](http://www.precisionopinion.com). You may access our reports, proxy statements and other information free of charge at this website as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC. The information on such website is not incorporated by reference and is not a part of this prospectus.

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### BULLFROG AI HOLDINGS, INC. INDEX TO FINANCIAL STATEMENTS

#### Audited Financial Statements for the Years Ended December 31, 2020 and 2021:

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#### Unaudited Interim Consolidated Financial Statements for the Three and Nine Months Ended September 30, 2021 and

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### BULLFROG AI HOLDINGS, INC. AUDITED FINANCIAL STATEMENTS 2021 and 2020

#### REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and  
Stockholders of Bullfrog AI Holdings, Inc.

#### Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Bullfrog AI Holdings, Inc. (the Company) as of December 31, 2021 and 2020, and the related consolidated statements of operations and comprehensive loss, changes in stockholders' deficit, and cash flows for the years ended December 31, 2021 and 2020, and the related notes (collectively referred to as the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020 and the results of its operations and its cash flows for flows for the two-year period ended December 31, 2021, in conformity with accounting principles generally accepted in the United States of America.

#### Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 2 to the financial statements, the Company has continued to incur net losses from operations and negative cash flows in operations, which raises substantial doubt about its ability to continue as a going concern. Management's plans regarding those matters are also described in Note 2. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

#### Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our

audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

**Critical Audit Matter**

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of a critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing separate opinions on the critical audit matter or on the accounts or disclosures to which they relate.

As discussed in Note 2, the Company had a going concern disclosure due to continued net losses from operations and negative cash flows in operations. Auditing management’s evaluation of a going concern can be a significant judgment given the fact that the Company uses management estimates on future revenues and expenses, which are difficult to substantiate.

We evaluated the appropriateness of the going concern, we examined and evaluated the financial information along with management’s plans to mitigate the going concern and management’s disclosure on going concern.

/s/ M&K CPAS, PLLC

We have served as the Company’s auditor since 2021.  
Houston, Texas  
June 10, 2022

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Bullfrog AI Holdings, Inc.  
Consolidated Balance Sheets

	December 31 2021	December 31 2020
<b>ASSETS</b>		
<b>CURRENT ASSETS:</b>		
Cash	\$ 10,014	\$ 5,019
Total Current Assets	<u>\$ 10,014</u>	<u>\$ 5,019</u>
<b>TOTAL ASSETS</b>	<u>\$ 10,014</u>	<u>\$ 5,019</u>
<b>LIABILITIES AND STOCKHOLDERS’ DEFICIT</b>		
<b>CURRENT LIABILITIES:</b>		
Accounts payable	\$ 68,594	\$ 94,447
Accrued expenses	68,557	41,173
Accrued expenses-related party	285,666	200,000
Deferred revenue	10,000	-
Notes payable	-	9,917
Notes payable-related party	49,000	-
Convertible notes, net of \$12,962 and \$0 debt discount, respectively	284,038	200,000
Convertible notes-related party, not of \$1,584 and \$0 debt discount, respectively	253,266	-
Total Current Liabilities	<u>\$ 1,019,121</u>	<u>\$ 545,537</u>
<b>TOTAL LIABILITIES</b>	<u>\$ 1,019,121</u>	<u>\$ 545,537</u>
<b>STOCKHOLDERS’ DEFICIT:</b>		
Preferred stock, \$0.00001 par value, 10,000,000 shares authorized; no shares are issued and outstanding,	-	-
Common stock, \$0.00001 par value, 100,000,000 shares authorized; 27,259,547 25,223,975 shares are issued and outstanding as of December 31, 2021 and 2020, respectively	272	252
Subscription receivable	-	(100)
Additional paid-in capital	587,189	470,058
Accumulated deficit	(1,596,568)	(1,010,728)
Total BullFrog stockholders’ deficit	<u>\$ (1,009,107)</u>	<u>\$ (540,518)</u>
<b>TOTAL STOCKHOLDERS’ DEFICIT</b>	<u>(1,009,107)</u>	<u>(540,518)</u>
<b>TOTAL LIABILITIES AND STOCKHOLDERS’ DEFICIT</b>	<u>\$ 10,014</u>	<u>\$ 5,019</u>

The accompanying notes are an integral part of these financial statements

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Bullfrog AI Holdings, Inc.  
Consolidated Statements of Operations

December 31  
2021

December 31  
2020

<b>NET REVENUES:</b>		
Revenues, net	\$ -	\$ -
<b>TOTAL NET REVENUES</b>	<b>-</b>	<b>-</b>
<b>COST OF GOODS SOLD:</b>		
Cost of goods sold	-	-
<b>TOTAL COST OF GOODS SOLD</b>	<b>-</b>	<b>-</b>
<b>GROSS PROFIT</b>	<b>-</b>	<b>-</b>
<b>OPERATING EXPENSES:</b>		
General and administrative expenses	253,378	70,617
Payroll and salary-related party	203,033	189,450
Stock based compensation	98,951	87,126
<b>TOTAL OPERATING EXPENSES</b>	<b>555,362</b>	<b>260,067</b>
<b>(LOSS) FROM OPERATIONS</b>	<b>(555,362)</b>	<b>(260,067)</b>
<b>OTHER INCOME (EXPENSE):</b>		
Interest expense, net	(40,395)	(11,767)
Gain on debt forgiveness	9,917	17,270
<b>TOTAL OTHER INCOME (EXPENSE)</b>	<b>(30,478)</b>	<b>(81,623)</b>
<b>NET (LOSS)</b>	<b>(585,840)</b>	<b>(341,690)</b>
<b>NET (LOSS) PER COMMON SHARE:</b>		
Basic and diluted	\$ (0.02)	\$ (0.01)
<b>WEIGHTED AVERAGE NUMBER OF COMMON SHARES OUTSTANDING:</b>		
Basic and diluted	26,145,603	24,803,210

The accompanying notes are an integral part of these financial statements

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Bullfrog AI Holdings, Inc.  
Consolidated Statements of Stockholders' Deficit

	Common Stock		Additional Paid in Capital	Subscription Receivables	Accumulated Deficit	Total
	Shares	Amount				
<b>Balances, December 31, 2018</b>	24,026,050	\$ 240	\$ 238,545	\$ -	\$ (475,238)	\$ (236,453)
Issuance of shares for cash	197,925	2	94,998	-	-	95,000
Equity compensation	-	-	11,544	-	-	11,544
Net Income/(Loss)	-	-	-	-	(193,800)	(193,800)
<b>Balances, December 31, 2019</b>	24,223,975	\$ 242	\$ 345,087	\$ -	\$ (669,038)	\$ (323,709)
Issuance of Shares for cash to be received	1,000,000	10	90	(100)	-	-
Warrant issued for common stocks payable settlement	-	-	37,730	-	-	37,730
Equity compensation	-	-	87,126	-	-	87,126
Capital Contribution	-	-	25	-	-	25
Net Income/(Loss)	-	-	-	-	(341,690)	(341,690)
<b>Balances, December 31, 2020</b>	25,223,975	\$ 252	\$ 470,058	\$ (100)	\$ (1,010,728)	\$ (540,518)
Cash from subscription receivables	-	-	-	100	-	100
Warrant issued with convertible notes	-	-	13,661	-	-	13,661
Imputed Interest	-	-	4,539	-	-	4,539
Equity compensation	-	-	9,385	-	-	9,385
Shares issued for services	2,035,572	20	89,546	-	-	89,566
Net Income/(Loss)	-	-	-	-	(585,840)	(585,840)

<b>Balances, December 31, 2021</b>	27,259,547	\$	272	\$	587,189	\$	-	\$	(1,596,568)	\$	(1,009,107)
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The accompanying notes are an integral part of these financial statements

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Bullfrog AI Holdings, Inc.  
Consolidated Statements of Cash Flows

	December 31	
	2021	2020
<b>CASH FLOWS FROM OPERATING ACTIVITIES:</b>		
Net (loss)	\$ (585,840)	\$ (341,690)
Adjustment to reconcile change in net (loss) to net cash and cash equivalents used in operating activities:		
Gain on debt forgiveness	(9,917)	(17,270)
Stock-based compensation	98,951	87,126
Amortization of debt discount	12,665	-
Imputed Interest	4,539	-
Changes in operating assets and liabilities:		
Accounts payable	(25,853)	60,126
Accrued expenses	27,384	-
Accrued expenses-related party	85,666	-
Deferred revenue	10,000	-
<b>NET CASH USED IN OPERATING ACTIVITIES</b>	<b>(382,405)</b>	<b>(211,708)</b>
<b>CASH FLOWS FROM FINANCING ACTIVITIES:</b>		
Borrowings - Related Party	298,900	200,000
Borrowings on debt	88,400	9,917
Capital contribution	-	25
Proceeds from subscription receivable	100	-
<b>NET CASH FROM FINANCING ACTIVITIES</b>	<b>387,400</b>	<b>209,942</b>
Net increase/(decrease) in cash and cash equivalents	4,995	(1,766)
<b>Cash, beginning of year</b>	<b>5,019</b>	<b>6,785</b>
<b>Cash, end of period</b>	<b>\$ 10,014</b>	<b>\$ 5,019</b>
<b>SUPPLEMENTAL CASH FLOW INFORMATION:</b>		
Cash paid for interest	\$ -	\$ -
Cash paid for taxes	\$ -	\$ -
<b>SUPPLEMENTAL DISCLOSURE of NON-CASH ACTIVITY:</b>		
Warrant issued with convertible notes	\$ 13,661	\$ -
Shares issued to settle Accrued Severance	\$ -	\$ 37,730
Common stocks issued for services	\$ 20	\$ -

The accompanying notes are an integral part of these financial statements

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**BULLFROG AI HOLDINGS, INC.  
NOTES TO FINANCIAL STATEMENTS  
DECEMBER 31, 2021 and 2020**

**NOTE 1 – ORGANIZATION AND NATURE OF BUSINESS**

Bullfrog AI Holdings, Inc. was incorporated in the State of Nevada on February 6, 2020. Bullfrog AI Holdings, Inc. is the parent company of Bullfrog AI, Inc. and Bullfrog AI Management, LLC. which were incorporated in Delaware and Maryland, in 2017 and 2021, respectively. All of our operations are currently conducted through BullFrog AI Holdings, Inc., which began operations on February 6, 2020 We are a digital biopharmaceutical company focused specifically on advanced AI/ML-driven analysis of complex data sets in medicine and healthcare. Our objective is to utilize our platform for precision medicine approach to drug asset enablement through external partnerships and selective internal development.

In June of 2020, BullFrog AI Holdings, Inc. acquired BullFrog AI, Inc. via a 1:1 share exchange. Immediately prior to the share exchange, each authorized common share of BullFrog AI, Inc. was split into 25 shares of common stock. Share amounts in our financial statements for 2021 and 2020 have been adjusted to reflect this forward share split and shares exchange. All of our operations are currently conducted through BullFrog AI Holdings, Inc. BullFrog AI, Inc., is a wholly owned subsidiary, has the sole purpose of housing and protecting all of the organization's intellectual property. BullFrog AI Management, LLC is a wholly owned subsidiary that handles all HR and payroll activities Pursuant to the agreement, 24,223,975 shares of the Company's common stock were issued to the shareholders of BullFrog AI, Inc. in exchange for 100% of the ownership interests of BullFrog AI, Inc. Upon completion of the Exchange, BullFrog AI, Inc. became the Company's wholly-owned subsidiary and the shareholders of BullFrog AI, Inc. own a 100% controlling interest in the Company. As a result, BullFrog AI, Inc. became BullFrog AI Holdings, Inc's wholly owned subsidiary and assumed a total of \$330,442 in net liabilities. All of the entities were controlled both before and after the transactions by the same controlling shareholder. This transaction is being accounted for as a common control transaction and all entities are being presented as if the transactions took place at the beginning of the earliest period presented. Share amounts in our financial statements for 2021 and 2020 have been adjusted to reflect this forward share split and shares exchange. BullFrog AI, Inc was incorporated in 2017 as discussed in the previous

notes. All of our operations are currently conducted through BullFrog AI Holdings, Inc.

Most new therapeutics will fail at some point in preclinical or clinical development. This is the primary driver of the high cost of developing new therapeutics. A major part of the difficulty in developing new therapeutics is efficient integration of complex and highly dimensional data generated at each stage of development to de-risk subsequent stages of the development process. Artificial Intelligence and Machine Learning (AI/ML) has emerged as a digital solution to help address this problem.

We are an artificial intelligence-driven biotech company committed to improving the probability of success and the time and cost involved developing therapeutics. Most current AI/ML platforms still fall short in their ability to synthesize disparate, high-dimensional data for actionable insight. Our platform technology, named, bfLEAP™ is an analytical AI/ML platform developed at The Johns Hopkins University Applied Physics Laboratory (JHU-APL) which is able to surmount the challenges of scalability and flexibility currently hindering researchers and clinicians by providing a more precise, multi-dimensional understanding of their data. We are deploying bfLEAP™ for use at several critical stages of development for internal programs and through strategic partnerships and collaborations with the intention of streamlining data analytics in therapeutics development, decreasing the overall development costs by decreasing failure rates for new therapeutics, and impacting the lives of countless patients that may otherwise not receive the therapies they need.

The bfLEAP™ platform utilizes both supervised and unsupervised machine learning – as such, it is able to reveal real/meaningful connections in the data without the need for an a priori hypothesis. Algorithms used in the bfLEAP™ platform are designed to handle highly imbalanced data sets to successfully identify combinations of factors that are associated with outcomes of interest.

Our primary goal is to improve the odds of success at any stage of pre-clinical and clinical therapeutics development, for in house programs, and our strategic partners and collaborators. Our primary business model is enabling the success of ongoing clinical trials or rescue of late stage failed drugs (i.e., Phase 2 or Phase 3 clinical trial failures) for development and divestiture; although, we will also consider collaborations for earlier stage drugs. We hope to accomplish this through strategic acquisitions of current clinical stage and failed drugs for in-house development, or through strategic partnerships with biopharmaceutical industry companies. We are able to pursue our drug asset enhancement business by leveraging a powerful and proven AI/ML platform (trade name: bfLEAP™) initially developed at JHU-APL. We believe the bfLEAP™ analytics platform is a potentially disruptive tool for analysis of pre-clinical and/or clinical data sets, such as the robust pre-clinical and clinical trial data sets being generated in translational R&D and clinical trial settings.

## **NOTE 2 – GOING CONCERN AND MANAGEMENT'S LIQUIDITY PLANS**

The accompanying financial statements have been prepared on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. As shown in the accompanying financial statements, for the year-ended December 31, 2021, the Company incurred net losses from operations of \$585,840 and used cash in operations of \$382,405. These factors among others raise substantial doubt that the Company will be able to continue as a going concern for a reasonable period of time.

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The Company's primary source of operating funds for the years ended December 31, 2020 and 2021 has been from investors and related parties. The Company has experienced net losses from operations since inception but expects these conditions to improve in 2022 and beyond, as it continues to develop its direct sales and marketing programs; however, no assurance can be provided that the Company will not continue to experience losses in the future. The Company has stockholders' deficiencies at December 31, 2020 and December 31, 2021 and requires additional financing to fund future operations.

A significant component of the Company's plan to secure capital to both establish its operating base and also to execute on its business plan is the intention of the Company to seek to be listed on a national exchange through an initial public offering ("IPO") of its common stock. In this regard, the Company has entered into a number of advisory and consulting agreements with entities and individuals providing services and advice to the Company. The Company has compensated these advisors and consultants using equity instruments issued by Bull Frog AI Holdings, Inc. as will be more thoroughly explained below.

The Company's existence is dependent upon management's ability to develop profitable operations and to obtain additional funding sources, including an IPO. There can be no assurance that the Company's financing efforts will result in profitable operations or the resolution of the Company's liquidity problems. There can be no assurance that the Company will be successful in developing profitable operations or that it will be able to obtain financing on favorable terms, if at all. The accompanying statements do not include any adjustments that might result should the Company be unable to continue as a going concern.

## **NOTE 3 –SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

### Use of Estimates in the Preparation of Financial Statements

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires us to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Estimates include, but are not limited to, revenue recognition, allowances for doubtful accounts, recoverability of deferred tax assets and certain other of our accrued liabilities. Actual results could differ from those estimates.

### Financial Instruments

The carrying value of short-term instruments, including cash and cash equivalents, accounts payable and accrued expenses approximate fair value due to the relatively short period to maturity for these instruments.

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value maximize the use of observable inputs and minimize the use of unobservable inputs. The Company utilizes a three-level valuation hierarchy for disclosures of fair value measurements, defined as follows:

Level 1 - inputs to the valuation methodology are quoted prices (unadjusted) for identical assets or liabilities in active markets.

Level 2 - inputs to the valuation methodology include quoted prices for similar assets and liabilities in active markets, and inputs that are observable for the assets or liability, either directly or indirectly, for substantially the full term of the financial instruments.

Level 3 - inputs to the valuation methodology are unobservable and significant to the fair value.

The Company does not have any assets or liabilities that are required to be measured and recorded at fair value on a recurring basis.

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### Revenue Recognition

For annual reporting periods after December 15, 2017, the Financial Accounting Standards Board ("FASB") made effective ASU 2014-09 "Revenue from Contracts with

Customers,” to supersede previous revenue recognition guidance under current U.S. GAAP. Revenue is now recognized in accordance with FASB ASC Topic 606, Revenue Recognition. The objective of the guidance is to establish the principles that an entity shall apply to report useful information to users of financial statements about the nature, amount, timing, and uncertainty of revenue and cash flows arising from a contract with a customer. The core principle is to recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the Company expects to be entitled in exchange for those goods or services. Two options were made available for implementation of the standard: the full retrospective approach or modified retrospective approach. The guidance became effective for annual reporting periods beginning after December 15, 2017, including interim periods within that reporting period, with early adoption permitted. We have adopted FASB ASC Topic 606 for our reporting period as of the year-ended December 31, 2019. As of December 31, 2021 and December 31, 2020, we have had no revenue. For the year-ended December 31, 2021 and December 31, 2020, there were no incomplete contracts although we did receive a customer down payment in late 2021 which is reflected on the balance sheet as of December 31, 2021 as unearned revenue in the amount of \$10,000. As is more fully discussed below, we are of the opinion that none of our contracts for products contain significant financing components that require revenue adjustment under FASB ASC Topic 606. Under ASC 606, the Company recognizes revenue from the commercial sales of products, licensing agreements and contracts to perform pilot studies by applying the following steps: (1) identifying the contract with a customer; (2) identify the performance obligations in the contract; (3) determine the transaction price; (4) allocate the transaction price to each performance obligation in the contract; and (5) recognize revenue when each performance obligation is satisfied.

The five step model provides:

- **Identification of the contract with a customer**

Contracts included in our application of FASB ASC Topic 606, consist completely of sales/service contracts between us and our customers that create enforceable rights and obligations. Contracts are initiated by entering into Master Services Agreements, which establishes the contractual elements of the relationship between the Company and its customers. Services to be provided under each MSA will be contracted under a Statement of Work which describes the services to be performed, the time frame in which services will be performed, and establishes the customer payment obligations.

- **Identification of the performance obligations in the contract**

In analyzing our sales contracts, our policy is to identify the distinct performance obligations in a services contract arrangement. SOWs constitute the company’s performance obligation(s) and Terms and conditions of services, which are explicitly outlined. Current contract(s) contain a single performance obligation; the analysis of data received from our customer and delivery of the analysis report.

- **Determination of the transaction price**

The service fee in our SOW is the amount of consideration we expect to be entitled to for providing the promised services. Transaction price is determined by current market conditions and costs of delivering our obligations.

- **Allocation of the transaction price to the performance obligations in the contract**

Our SOWs require the fulfillment of a single performance obligation. As such, we allocate the full transaction price to the single performance obligation.

- **Recognition of revenue when, or as, the Company satisfies a performance obligation**

In accordance with ASC 606, we recognize revenue once final analysis reports are completed and delivered to customers. Upon delivery of analysis reports, control of the good is deemed transferred and the company’s performance obligation is determined satisfied.

*Contract Services*

The Company anticipates that the majority of revenues to be recognized in the near future will result from our fee for service partnership offering, designed for biopharmaceutical companies, as well as other organizations, of all sizes that have challenges analyzing data throughout the drug development process. The Company provides the customer with an analysis of large complex data sets using the Company’s proprietary Artificial Intelligence / Machine Learning platform called bfLEAP™. This platform is designed to predict targets of interest, patterns, relationships, and anomalies. The Company believes that there will be additional on-going work requested from partners therefore the service model utilizes a master services agreement with work or task orders issued for discrete analysis performed at the discovery, preclinical, or clinical stages of drug development. The Company receives a cash fee and in some instances the potential for rights to new intellectual property generated from the analysis.

*Collaborative Arrangements*

The Company also intends to enter collaborative arrangements with pharmaceutical companies who have drugs that have failed late Phase 2 or Phase 3 trials. These arrangements could take several forms including true partnerships where BullFrog contributes data analysis using the bfLEAP™ platform with the partner contributing the drug candidate and other resources needed to continue development towards commercialization with BullFrog receiving an equity or royalty right in the commercialized product. In other arrangements the Company may earn cash payments based on achieving certain milestones as determined under each specific arrangement.

*Acquisition of Rights to Certain Drugs*

In certain circumstances, we may also acquire rights to drugs that are in early-stage clinical trials, use our technology to sponsor and support a successful later stage precision medicine trial, and divest the asset. The same process may apply to the discovery of new drugs. In these instances, divestiture may be in the form of an outright sale of all rights or possibly a license to develop and commercialize enhanced development candidates. License agreements could include developmental and commercial milestones in addition to royalties.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Significant estimates include the fair value of the Company’s stock, stock-based compensation, fair values relating to derivative liabilities, debt discounts and the valuation allowance related to deferred tax assets. Actual results may differ from these estimates.

Cash

The Company considers cash to consist of cash on hand and temporary investments having an original maturity of 90 days or less that are readily convertible into cash. As of December 31, 2021 and December 31, 2020, cash balances were \$10,014 and \$5,019, respectively.

Concentrations of Credit Risk

The Company’s financial instruments that are exposed to a concentration of credit risk are cash and accounts receivable. Occasionally, the Company’s cash in interest-bearing



accounts may exceed FDIC insurance limits. The financial stability of these institutions is periodically reviewed by senior management.

#### Accounts Receivable

Trade receivables are carried at their estimated collectible amounts. Trade credit is generally extended on a short-term basis. Thus, trade receivables do not bear interest. Trade accounts receivable are periodically evaluated for collectability based on past credit history with customers and their current financial condition.

#### Allowance for Doubtful Accounts

Any charges to the allowance for doubtful accounts on accounts receivable are charged to operations in amounts sufficient to maintain the allowance for uncollectible accounts at a level management believes is adequate to cover any probable losses. Management determines the adequacy of the allowance based on historical write-off percentages and the current status of accounts receivable. Accounts receivables are charged off against the allowance when collectability is determined to be permanently impaired. As of December 31, 2021 and 2020, allowance for doubtful accounts was \$0.

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#### Inventories

The Company does not have inventory and does not plan to have inventory in the near future.

#### Cost of Sales

Cost of sales is comprised of cost of outsourced services provided to the Company related to customer service contracts.

#### Property and Equipment

Property and equipment are stated at cost. When retired or otherwise disposed, the related carrying value and accumulated depreciation are removed from the respective accounts and the net difference less any amount realized from disposition, is reflected in earnings. For financial statement purposes, property and equipment are recorded at cost and depreciated using the straight-line method over their estimated useful lives.

#### Advertising

The Company follows the policy of charging the costs of advertising to expense as incurred.

#### Income Taxes

Deferred income tax assets and liabilities are determined based on the estimated future tax effects of net operating loss and credit carry forwards and temporary differences between the tax basis of assets and liabilities and their respective financial reporting amounts measured at the current enacted tax rates. The Company records an estimated valuation allowance on its deferred income tax assets if it is not more likely than not that these deferred income tax assets will be realized.

The Company recognizes a tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by taxing authorities, based on the technical merits of the position. The tax benefits recognized in the condensed consolidated financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement. As of December 31, 2021 and 2020, the Company has not recorded any unrecognized tax benefits.

#### Stock-Based Compensation

Employee and non-employee share-based compensation is measured at the grant date, based on the fair value of the award, and is recognized as an expense over the requisite service period.

#### Net Loss per Share

We report both basic and diluted loss per share. Loss earnings per share is calculated based on the weighted average number of shares of common stock outstanding and excludes the dilutive effect of warrants, stock options or any other type of convertible securities. Diluted loss per share is calculated based on the weighted average number of shares of common stock outstanding and the dilutive effect of stock options, warrants and other types of convertible securities are included in the calculation. Dilutive securities are excluded from the diluted earnings per share calculation because their effect is anti-dilutive. As of December 31, 2021 and 2020, the Company's potentially dilutive shares and options, which were not included in the calculation of net loss per share, included options and warrants for 9,354,328 and 4,983,206 common shares, respectively.

#### Recent Accounting Pronouncements

In February 2016, the FASB issued ASU 2016-02, Leases (Topic 842). This ASU requires lessees to recognize a lease liability, on a discounted basis, and a right-of-use asset for substantially all leases, as well as additional disclosures regarding leasing arrangements. In July 2018, the FASB issued ASU 2018-11, Leases (Topic 842), which provides an optional transition method of applying the new lease standard. Topic 842 can be applied using either a modified retrospective approach at the beginning of the earliest period presented, or as permitted by ASU 2018-11, at the beginning of the period in which it is adopted.

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We adopted this standard using a modified retrospective approach since inception of the company. The modified retrospective approach includes a number of optional practical expedients relating to the identification and classification of leases that commenced as of the inception of the company; initial direct costs for leases that commenced as of inception of the company; and, the ability to use hindsight in evaluating lessee options to extend or terminate a lease or to purchase the underlying asset.

The Company elected the package of practical expedients permitted under ASC 842 allowing it to account for its prior operating lease that commenced before the adoption date as an operating lease under the new guidance without reassessing (i) whether the contract contains a lease; (ii) the classification of the lease; or (iii) the accounting for indirect costs as defined in ASC 842.

All staff are working remotely; therefore, the Company does not currently have a lease or rent office space.

Consistent with ASC 842-20-50-4, for the Company's quarterly financial statements for the years ended December 31, 2020 and 2021, the Company does not have a monthly rent obligation. The Company had no cash flows arising from a lease, no finance lease cost, short term lease cost, or variable lease costs. The Company does not produce any sublease income or any net gain or loss recognized from sale and leaseback transactions. As a result, the Company did not need to segregate amounts between finance and operating leases for cash paid for amounts included in the measurement of lease liabilities, segregated between operating and financing cash flows; supplemental non-cash

information on lease liabilities arising from obtaining right-of-use assets; weighted-average calculations for the remaining lease term; or the weighted-average discount rate.

The adoption of this guidance resulted in no significant impact to the Company's results of operations or cash flows.

In December 2019, the FASB issued ASU No. 2019-12 - Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes ("ASU 2019-12"). ASU 2019-12 is part of the FASB's overall simplification initiative and seeks to simplify the accounting for income taxes by updating certain guidance and removing certain exceptions. The updated guidance is effective for fiscal years beginning after December 15, 2020 and interim periods within those fiscal years. Early adoption is permitted. The adoption of this update did not have a material effect on the Company's financial statements.

In August 2020, the FASB issued ASU 2020-06, Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging - Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity ("ASU 2020-06"), which simplifies the accounting for certain financial instruments with characteristics of liabilities and equity. This ASU (1) simplifies the accounting for convertible debt instruments and convertible preferred stock by removing the existing guidance in ASC 470-20, Debt: Debt with Conversion and Other Options, that requires entities to account for beneficial conversion features and cash conversion features in equity, separately from the host convertible debt or preferred stock; (2) revises the scope exception from derivative accounting in ASC 815-40 for freestanding financial instruments and embedded features that are both indexed to the issuer's own stock and classified in stockholders' equity, by removing certain criteria required for equity classification; and (3) revises the guidance in ASC 260, Earnings Per Share, to require entities to calculate diluted earnings per share (EPS) for convertible instruments by using the if-converted method. In addition, entities must presume share settlement for purposes of calculating diluted EPS when an instrument may be settled in cash or shares. For SEC filers, excluding smaller reporting companies, ASU 2020-06 is effective for fiscal years beginning after December 15, 2021 including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020. For all other entities, ASU 2020-06 is effective for fiscal years beginning after December 15, 2023, including interim periods within those fiscal years. Entities should adopt the guidance as of the beginning of the fiscal year of adoption and cannot adopt the guidance in an interim reporting period. The Company elected early adoption, effective January 1, 2021. Considering that the Common shares of the Company were not publicly traded as of December 31, 2021, the convertible options are not considered to be readily convertible to cash. In addition, the beneficial conversion feature was eliminated under ASU 2020-06. Therefore, no derivative liabilities will be triggered from these convertible notes.

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In October 2020, the FASB issued ASU 2020-10, Codification Improvements, which updates various codification topics by clarifying or improving disclosure requirements to align with the SEC's regulations. The Company adopted ASU 2020-10 as of the reporting period beginning January 1, 2021. The adoption of this update did not have a material effect on the Company's financial statements.

The Company does not believe that any other recently issued effective pronouncements, or pronouncements issued but not yet effective, if adopted, would have a material effect on the accompanying financial statements.

#### COVID-19 – Going Concern

In March 2020, the World Health Organization declared the global emergence of the COVID-19 pandemic. The impact of COVID-19 on the Company's business is currently unknown. The Company will continue to monitor guidance and orders issued by federal, state, and local authorities with respect to COVID-19. As a result, the Company may take actions that alter its business operations as may be required by such guidance and orders or take other steps that the Company determines are in the best interest of its employees, customers, partners, suppliers and stockholders.

Any such alterations or modifications could cause substantial interruption to the Company's business and could have a material adverse effect on the Company's business, operating results, financial condition, and the trading price of the Company's common stock, and could include temporary closures of one or more of the Company's facilities; temporary or long-term labor shortages; temporary or long-term adverse impacts on the Company's supply chain and distribution channels; and the potential of increased network vulnerability and risk of data loss resulting from increased use of remote access and removal of data from the Company's facilities. In addition, COVID-19 could negatively impact capital expenditures and overall economic activity in the impacted regions or depending on the severity, globally, which could impact the demand for the Company's products and services.

It is unknown whether and how the Company may be impacted if the COVID-19 pandemic persists for an extended period of time or if there are increases in its breadth or in its severity, including as a result of the waiver of regulatory requirements or the implementation of emergency regulations to which the Company is subject. The COVID-19 pandemic poses a risk that the Company or its employees, contractors, suppliers, and other partners may be prevented from conducting business activities for an indefinite period.

The Company may incur expenses or delays relating to such events outside of its control, which could have a material adverse impact on its business, operating results, financial condition and the trading price of its common stock.

#### **NOTE 4 – ACCOUNTS PAYABLE AND ACCRUED EXPENSES**

As of December 31, 2021 and December 31, 2020, the Company had accounts payable and accrued expenses totaling \$432,817 and \$335,620, respectively.

#### **NOTE 5 – NOTES PAYABLE**

On May 5, 2020 the Company received an SBA PPP loan in the amount of \$9,917, at 1% interest. The loan was forgiven on May 1, 2021.

On December 20, 2021, the company entered into a loan agreement with an unrelated party, with a principal balance of \$25,000 at 6% interest. The maturity date of the loan is December 19, 2022. As of December 31, 2021, the loan remained outstanding had accrued interest of \$42. The holder will also be issued warrants equal to 50% of the shares issued upon conversion. The warrant exercise price will be the IPO price.

#### **NOTE 6 – NOTES PAYABLE RELATED PARTY**

On June 15, 2021, the company entered into a unsecured short term loan agreement with a related party for an aggregate principal balance of \$34,000, with a one-year maturity date, accruing interest at 5% and imputing an additional 1% interest.

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On November 19, 2021, the company entered into an unsecured short term loan agreement with a related party for an aggregate principal balance of \$5,000, with a one-year maturity date, accruing interest at 5% and imputing an additional 1% interest.

On December 13, 2021, the company entered into an unsecured short term loan agreement with a related party for an aggregate principal balance of \$10,000, with a one-year maturity date, accruing interest at 5% and imputing an additional 1% interest.

As of December 31, 2021, the loan remained outstanding and had accrued interest of \$994 and imputed interest expense of \$4,539, respectively.

## NOTE 7 – CONVERTIBLE NOTES PAYABLE

On March 27, 2020, the company entered into a convertible loan agreement with the Maryland Technology Development Corporation with a principal balance of \$200,000 at 6% interest. The maturity date of the loan was September 27, 2021. As of December 31, 2021, the loan remained outstanding had accrued interest of \$21,173. The Company understands that the holder intends to convert the loan into equity prior to the Company becoming a public reporting company.

On December 20, 2021, the company entered into a loan agreement with an unrelated party, with a principal balance of \$25,000 at 6% interest. The maturity date of the loan is December 19, 2022. As of December 31, 2021, the loan remained outstanding had accrued interest of \$42. Should the Company complete an IPO prior to the maturity date, the note will automatically convert into the Company's common stock, at a 20% discount to the IPO price. The holder will also be issued warrants equal to 50% of the shares issued upon conversion. The warrant exercise price will be the IPO price.

On August 9, 2021, the company entered into a convertible loan agreement an unrelated party to loan up to \$195,000 at 9% interest, with a principal balance of \$72,000, as of December 31, 2021. This loan included an original issuance discount of 5% and included 195,000 Warrants at an exercise price of \$1, exercisable for 5 years from the issue date on the face of the Warrant. The noteholder has the right to convert the principal and interest into common shares of the Company. The maturity date of the loan was amended to February 9, 2023. As of December 31, 2021, the loan remained outstanding and had accrued interest of \$2,232.

In August 2020, the FASB issued ASU 2020-06, Debt - Debt with Conversion and Other Options (Subtopic 470- 20) and Derivatives and Hedging - Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity ("ASU 2020-06"), which simplifies the accounting for certain financial instruments with characteristics of liabilities and equity. The Company specified that an entity should adopt the guidance as of the beginning of its annual fiscal year. After adoption of ASU 2020-06, if the equity securities underlying the conversion option are not readily convertible to cash, and the conversion option requires gross physical settlement of the underlying shares, the embedded conversion option may not meet the net settlement criterion, and therefore would not meet the definition of a derivative. Considering that the Common shares of the Company were not publicly traded as of December 31, 2021, the convertible options are not considered to be readily convertible to cash. In addition, the beneficial conversion feature was eliminated under ASU 2020-06. Therefore, no derivative liabilities will be triggered from these convertible notes.

## NOTE 8 – CONVERTIBLE NOTES PAYABLE RELATED PARTY

On July 8, 2021, the company entered into a Simple Agreement for Future Equity (SAFE), with a related party, with an amount of \$150,000, with 0% interest. Under the SAFE agreement, if there is an Equity Financing before the termination of this SAFE, on the initial closing of such Equity Financing, this SAFE will automatically convert into the number of shares of SAFE Preferred Stock equal to the Purchase Amount divided by the Conversion Price, which means either: (1) the Safe Price (the price per share equal to the Post-Money Valuation Cap divided by the Company Capitalization) or (2) the Discount Price (the price per share of the Standard Preferred Stock sold in the Equity Financing multiplied by the Discount Rate), whichever calculation results in a greater number of shares of Safe Preferred Stock

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If there is a Liquidity Event before the termination of this SAFE, this SAFE will automatically be entitled (subject to the liquidation priority set forth in Section 1(d) below) to receive a portion of Proceeds, due and payable to the Investor immediately prior to, or concurrent with, the consummation of such Liquidity Event, equal to the greater of (i) the Purchase Amount (the "Cash-Out Amount") or (ii) the amount payable on the number of shares of Common Stock equal to the Purchase Amount divided by the Liquidity Price (the "Conversion Amount"). If any of the Company's securityholders are given a choice as to the form and amount of Proceeds to be received in a Liquidity Event, the Investor will be given the same choice, provided that the Investor may not choose to receive a form of consideration that the Investor would be ineligible to receive as a result of the Investor's failure to satisfy any requirement or limitation generally applicable to the Company's securityholders, or under any applicable laws.

This SAFE will automatically terminate (without relieving the Company of any obligations arising from a prior breach of or non-compliance with this SAFE) immediately following the earliest to occur of: (i) the issuance of Capital Stock to the Investor pursuant to the automatic conversion of this SAFE under agreement; or (ii) the payment, or setting aside for payment, of amounts due the Investor pursuant to the agreement.

As of December 31, 2021, the \$150,000 received from SAFE was recorded at 6% imputed interest. The maturity date of the loan is defined by the SAFE agreement as discussed above.

On August 19, 2021, the company entered into a convertible loan agreement with a related party, with a principal balance of \$99,900 at 9% interest. The noteholder has the right to convert the principal and interest into common shares of the Company. This loan included an original issuance discount of 5% and included 99,900 Warrants at an exercise price of \$1, exercisable for 5 years from the issue date on the face of the Warrant. The maturity date of the loan was February 19, 2022. As of December 31, 2021, the \$99,900 principal and the \$4,950 overpayment of the note remained outstanding and had accrued interest of \$3,347.

The Company specified that an entity should adopt ASU 2020-06 as of the beginning of its annual fiscal year. After adoption of ASU 2020-06, no derivative liabilities will be triggered from these convertible notes. See Note 7 for details.

## NOTE 9 – RELATED PARTY

During the year-ended December 31, 2020, there were 1,000,000 common shares issued to CEO Vin Singh, for a subscription payable.

During the year-ended December 31, 2021, there were 400,000 common shares issued to CFO Dane Saglio, for services rendered.

As of December 31, 2021 and 2020, the accrued salary for related parties were \$276,666 and \$200,000, respectively.

During the year ended December 31, 2021, the Company entered into loans with related parties, with total principal balance of \$303,850 and accrued and imputed interest of \$7,687. There were also 99,900 warrants attached to the loans. See Note 6 and Note 8 for details.

During the year ended December 31, 2021, the Company issued totaling 205,000 shares of options to related party for services rendered. The options have an original life of ten years and vest at different rates over as much as 24 months. During the years ended December 31, 2021, the Company recognized \$157 of stock-based compensation related to outstanding stock options, respectively.

## NOTE 10 – SHAREHOLDER'S EQUITY

### *Preferred Stock*

The Company has 10,000,000 shares of preferred stock authorized at a par value of \$0.00001. As of December 31, 2020 and 2021, there were no preferred shares issued.

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In June of 2020, BullFrog AI Holdings, Inc. acquired BullFrog AI, Inc. via a 1:1 share exchange. Immediately prior to the share exchange, each authorized common share of BullFrog AI, Inc. was split into 25 shares of common stock. Share amounts in our financial statements for 2021 and 2020 have been adjusted to reflect this forward share split and shares exchange. All of our operations are currently conducted through BullFrog AI Holdings, Inc. BullFrog AI, Inc., is a wholly owned subsidiary, has the sole purpose of housing and protecting all of the organization's intellectual property. BullFrog AI Management, LLC is a wholly owned subsidiary that handles all HR and payroll activities. Immediately prior to the share exchange, each authorized common share of BullFrog AI, Inc. was split into 25 shares of common stock. Share amounts in our financial statements for 2021 and 2020 have been adjusted to reflect this forward share split and shares exchange. All of our operations are currently conducted through BullFrog AI Holdings, Inc. BullFrog AI, Inc., is a wholly owned subsidiary, has the sole purpose of housing and protecting all of the organization's intellectual property. BullFrog AI Management, LLC is a wholly owned subsidiary that handles all HR and payroll activities Pursuant to the agreement, 24,223,975 shares of the Company's common stock were issued to the shareholders of BullFrog AI, Inc. in exchange for 100% of the ownership interests of BullFrog AI, Inc. Upon completion of the Exchange, BullFrog AI, Inc. became the Company's wholly-owned subsidiary and the shareholders of BullFrog AI, Inc. own a 100% controlling interest in the Company. As a result, BullFrog AI, Inc. became BullFrog AI Holdings, Inc's wholly owned subsidiary and assumed a total of \$330,442 in net liabilities. All of the entities were controlled both before and after the transactions by the same controlling shareholder. This transaction is being accounted for as a common control transaction and all entities are being presented as if the transactions took place at the beginning of the earliest period presented. Share amounts in our financial statements for 2021 and 2020 have been adjusted to reflect this forward share split and shares exchange. BullFrog AI, Inc was incorporated in 2017 as discussed in the previous notes. All of our operations are currently conducted through BullFrog AI Holdings, Inc.

The Company has 100,000,000 shares of common stock authorized at a par value of \$0.00001. As of December 31, 2020 and 2021, there are 25,223,975 and 27,259,547 shares outstanding, respectively.

During the year-ended December 31, 2020, there were 1,000,000 common shares issued to CEO Vin Singh.

During the year-ended December 31, 2021, there were 400,000 shares issued to CFO Dane Saglio for services rendered to the Company.

In June of 2021 the Company entered into two advisory agreements with entities engaged specifically to assist the Company in becoming a publicly listed NASDAQ company. Under the fee provisions of these agreements the Company issued a total of 1,635,572 shares of common stock to the advisors as well as warrants to purchase additional common shares. In addition, the Company entered into a convertible note with one of the advisors. The proceeds from the note are to be and have been used to cover a percentage of agreed upon pre IPO expenses. In November 2021 the Company issued 400,000 shares of common stock to a consultant who has been engaged to provide financial and accounting services to the Company. Three Percent (3%) of the fully diluted equity of the company as measured by the capital equity table immediately prior to listing on NASDAQ or any other Exchange, with a 'true-up' amount to be delivered within thirty days prior to its expected listing day.

### Stock Options

During the year ended December 31, 2021, the Company granted a total of 205,000 shares of options to employee of the Company for services rendered. The options have an original life of ten years and vest at different rates over as much as 48 months. During the years ended December 31, 2021, the Company vested 9,167 of these options and recognized \$157 of stock-based compensation related to outstanding stock options.

During the year ended December 31, 2020, no options are granted and vested.

The following tables summarizes the stock options activity for the years ended December 31, 2021 and 2020:

	Options
Granted and outstanding, December 31, 2019	6,193,750
Granted	-
Exercised	-
Forfeited	-
Expired	-
Granted and outstanding, December 31, 2020	6,193,750
Granted during 2021	205,000
Exercised	-
Forfeited	-
Expired during 2021	(3,118,750)
Vested and outstanding, December 31, 2021	3,280,000

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	Options	Intrinsic Value of Vested Options	Weight Averaged exercise Price
Vested and outstanding, December 31, 2019	733,567	12,706	0.48
Granted	-	-	-
Exercised	-	-	-
Forfeited	-	-	-
Expired	-	-	-
Vested and outstanding, December 31, 2020	733,567	12,706	0.48
Granted	9,167	157	0.38
Exercised	-	-	-
Forfeited	-	-	-
Expired	(465,669)	(7,922)	(0.48)
Vested and outstanding, December 31, 2021	277,065	4,941	0.48

As of December 31, 2021 and 2020, 9,167 and 0 options are vested, 465,669 options are expired and the outstanding stock options have a weighted average remaining life 7.38 years and 3.33 years, respectively.

As of December 31, 2021 and 2020, the aggregate intrinsic value of options vested and outstanding was \$157 and \$0. The aggregate fair value of the options measured during the years ended December 31, 2021 was calculated using the Black-Scholes option pricing model based on the following assumption:

	December 31, 2021
Fair Value of Common Stock on measurement date	\$ 0.044
Risk free interest rate	From 1.26% to 1.33%
Volatility	93%
Dividend Yield	0%

- (1) The risk-free interest rate was determined by management using the market yield on U.S. Treasury securities with comparable terms as of the measurement date.
- (2) The trading volatility was determined by calculating the volatility of the Company's peer group.
- (3) The Company does not expect to pay a dividend in the foreseeable future.

### Warrants

During the year ended December 31, 2021, the Company granted a total of 3,021,614 warrants. Of this amount 1,400,000 warrants, with an intrinsic value of \$12,462, were granted to advisors related to the Company's IPO objective. The warrants have an original life of five years and vest 30 days before the intended IPO. During the year ended December 31, 2021, 0 shares of these warrants are vested.

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972,500 warrants, with an intrinsic value of \$28,683, are issued for services rendered. The warrants have an original life of ten years and vest at different rates over as much as 36 months. During the year ended December 31, 2021, 220,000 shares of these warrants are vested, with an intrinsic value of \$6,567.

In addition, the Company granted and vested 649,114 warrants, with an intrinsic value of \$12,908, in connection with convertible bridge debt agreements with multiple parties including a related party and the advisors engaged to assist with the IPO. The warrants have an original life of five years and vest at different rates immediately.

During the year ended December 31, 2020, the Company granted a total of 3,170,000 shares of warrants. Of this amount 1,250,000 warrants are granted and vested to settle the \$55,000 common stock payable. The warrants have an original life of ten years and vested immediately. The aggregate intrinsic value of the 1,250,000 warrants was \$37,730. And therefore, the Company recorded a \$17,270 gain on liability settlement as of December 31, 2020.

1,920,000 warrants are issued to consultants of the Company for services rendered. The warrants have an original life of ten years and vest immediately. The Company recognized \$84,344 warrant expense during December 31, 2020 year ended.

During the years ended December 31, 2019 and 2018, the Company granted a total of 300,000 warrants for services rendered. The warrants have an original life of ten years and vest at 36 months. During the years ended December 31, 2021 and 2020, 93,750 shares of warrants with an intrinsic value of \$2,661, and 97,916 shares of warrants with an intrinsic value of \$2,782 are vested and were recognized, respectively.

The following tables summarize the warrants activity for the years ended December 31, 2021 and December 31, 2020:

	Warrants
Granted and outstanding, December 31, 2019	300,000
Granted	3,170,000
Exercised	-
Forfeited	-
Expired	-
Granted and outstanding, December 31, 2020	3,470,000
Granted during 2021	3,021,614
Exercised	-
Forfeited	-
Expired during 2021	-
Granted and outstanding, December 31, 2021	6,491,614

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	Warrants	Intrinsic Value of Vested Warrants	Weight Averaged exercise Price
Vested and outstanding, December 31, 2019	91,667	2,624	0.48
Granted	3,267,916	124,856	0.13
Exercised	-	-	-
Forfeited	-	-	-
Expired	-	-	-
Vested and outstanding, December 31, 2020	3,359,583	127,480	0.14
Granted and Vested	962,864	22,208	0.45
Exercised	-	-	-
Forfeited	-	-	-
Expired	-	-	-
Vested and outstanding, December 31, 2021	4,322,447	149,687	0.21

As of December 31, 2021, 6,491,614 warrants are outstanding, and 4,322,447 warrants are vested, and the vested stock warrants have a weighted average remaining life of 7.73 years.

As of December 31, 2021, the aggregate intrinsic value of warrants vested was \$149,687. The aggregate fair value of the warrants measured during the year-ended December 31, 2021 was calculated using the Black-Scholes option pricing model.

As of December 31, 2020, 3,267,917 warrants are vested, and the outstanding stock warrants have a weighted average remaining life of 9.19 years.

As of December 31, 2020, the aggregate intrinsic value of warrants vested was \$127,480. The aggregate fair value of the warrants measured during the year-ended December 31, 2020 was calculated using the Black-Scholes option pricing model based on the assumptions below:

	December 31, 2021	December 31, 2020
Fair Value of Common Stock on measurement date	\$ 0.044	\$ 0.044
Risk free interest rate	From 0.78% to 1.63%	From 0.68% to 1.59%
Volatility	93%	93%
Dividend Yield	0%	0%

- (1) The risk-free interest rate was determined by management using the market yield on U.S. Treasury securities with comparable terms as of the measurement date.
- (2) The trading volatility was determined by calculating the volatility of the Company's peer group.
- (3) The Company does not expect to pay a dividend in the foreseeable future.

**NOTE 11 – INCOME TAXES**

As of December 31, 2021, the Company has available for federal income tax purposes a net operating loss carry forward of approximately \$1,614,386, that do not expire, that may be used to offset future taxable income, but could be limited under Section 382. The Company has provided a valuation reserve against the full amount of the net operating loss benefit, since in the opinion of management based upon the earnings history of the Company; it is more likely than not that the benefits will not be realized. Due to possible significant changes in the Company's ownership, the future use of its existing net operating losses may be limited. All or portion of the remaining valuation allowance may be reduced in future years based on an assessment of earnings sufficient to fully utilize these potential tax benefits.

We have adopted the provisions of ASC 740-10-25, which provides recognition criteria and a related measurement model for uncertain tax positions taken or expected to be taken in income tax returns. ASC 740-10-25 requires that a position taken or expected to be taken in a tax return be recognized in the financial statements when it is more likely than not that the position would be sustained upon examination by tax authorities.

Tax position that meets the more likely than not threshold is then measured using a probability weighted approach recognizing the largest amount of tax benefit that is greater than 50% likely of being realized upon ultimate settlement. The Company had no tax positions relating to open income tax returns that were considered to be uncertain. We file income tax returns in the U.S. and in the state of California and Utah with varying statutes of limitations.

The Company's deferred taxes as of December 31, 2020 and 2021 consist of the following:

	2021	2020
Non-Current deferred tax asset:		
Net operating loss carryforwards	\$ 339,000	\$ 212,000
Valuation allowance	(339,000)	(212,000)
Net non-current deferred tax asset	<u>\$ —</u>	<u>\$ —</u>

**NOTE 12 – MATERIAL AGREEMENTS****JHU-APL Technology License**

On February 7, 2018, the Company entered into an exclusive, world-wide, royalty-bearing license from JHU-APL for the technology. The license covers three (3) issued patents, 1 new provisional patent application, non-patent rights to proprietary libraries of algorithms and other trade secrets, the license also includes modifications and improvements. In October of 2021, the Company executed an Amendment to the original license which represents improvements and new advanced analytics capabilities. In consideration of the rights granted to the Company under the License Agreement JHU received a warrant equal to five (5%) percent of the then fully diluted equity base of the Company, which shall be diluted following the closing of this offering. Under the terms of the License Agreement, JHU will be entitled to eight (8%) percent royalty on net sales for the services provided by the Company in which the JHU licensed technology was utilized, as well as fifty (50%) percent of all sublicense revenues received by the Company. In addition, the Company is required to pay JHU an annual maintenance fee of \$1,500. Minimum annual royalty payments are \$20,000 for 2022, \$80,000 for 2023, and \$300,000 for 2024 and beyond, if cumulative annual royalty payments do not reach these levels, the amount due to JHU to reach the annual minimum is due by January 31<sup>st</sup> of the following year. Failure to make annual royalty payments is considered a material breach under the agreement and upon notice from JHU of a material breach, the Company shall have 60 days to cure the material breach.

See Note 10 for details on warrants issued related to this agreement.

**NOTE 13 – COMMITMENTS AND CONTINGENCIES**

The Company follows ASC 450, Contingencies, which requires the Company to assess the likelihood that a loss will be incurred from the occurrence or non-occurrence of one or more future events. Such assessment inherently involves an exercise of judgment. In assessing possible loss contingencies from legal proceedings or unasserted claims, the Company evaluates the perceived merits of such proceedings or claims, and of the relief sought or expected to be sought.

If the assessment of a contingency indicates that it is probable that a material loss will be incurred and the amount of the liability can be estimated, then the estimated liability would be accrued in the Company's financial statements. If the assessment indicates that a potentially material loss contingency is not probable but is reasonably possible, or is probable but cannot be estimated, then the nature of the contingent liability, and an estimate of the range of possible losses, if determinable and material, would be disclosed. Loss contingencies considered remote are generally not disclosed unless they involve guarantees, in which case the guarantees would be disclosed.

While not assured, management does not believe, based upon information available at this time, that a loss contingency will have material adverse effect on the Company's financial position, results of operations or cash flows.

**NOTE 14 – SUBSEQUENT EVENTS**

In furthering its business objectives, the Company has entered into two license agreements with world renowned universities for the right to license mid and early-stage drug development programs.

**GWU - Beta2-spectrin siRNA License**

On January 14, 2022, the Company entered into an exclusive, world-wide, royalty-bearing license from George Washington University (GWU) for rights to use siRNA targeting Beta2-spectrin in the treatment of human diseases, including hepatocellular carcinoma (HCC). The license covers methods claimed in three US and worldwide patent applications, and also includes use of this approach for treatment of obesity, non-alcoholic fatty liver disease, and non-alcoholic steatohepatitis. This program is currently in the preclinical stage of development. The Company has not yet initiated development activities or IND-enabling studies on this asset; however, the plan is to conduct this work over the next 24 months. All R&D to date on this candidate has been conducted by the licensor of the technology, George Washington University.

In consideration of the rights granted to the Company under the License Agreement GWU received a \$20,000 License Initiation Fee. Under the terms of the License Agreement, GWU will be entitled to a three percent (3%) royalty on net sales subject to quarterly minimums once the first sale has occurred subsequent to regulatory approval, as well

sublicense or assignment fees in the event the Company sublicenses or assigns their rights to use the technology. The Company will also reimburse GWU for previously incurred and ongoing patent costs. The Sublicense and Assignment fee amounts decline as the Company advances the clinical development of the licensed technology. The license agreement also contains milestone payments for clinical development steps totaling \$860,000 through the approval of an NDA and a commercial milestone of \$1M once sales reach \$20M in the US. In addition, the Company is required to pay GWU an annual license maintenance fee of \$10,000 beginning in year 3, increasing to \$20,000 in year 4 and remaining at this level for the term of the license. Failure to make payments under the license agreement is considered a material breach under the agreement and upon notice from GWU of a material breach, the Company shall have 45 days to cure it.

#### JHU – Mebendazole License

On February 22, 2022, the Company entered into an exclusive, world-wide, royalty-bearing license from Johns Hopkins University (JHU) for the use of an improved formulation of Mebendazole for the treatment of any human cancer or neoplastic disease. This formulation shows potent activity in animal models of different types of cancer, and has been evaluated in a Phase I clinical trial in patients with high-grade glioma (NCT01729260). The trial, an open-label dose-escalation study, enrolled 24 patients and demonstrated acceptable toxicity of the drug with adjuvant temozolomide in this population.

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The license covers six (6) issued patents and one (1) pending application. In consideration of the rights granted to the Company under the License Agreement JHU will receive an Upfront License Fee of \$250,000. The first \$50,000 of this upfront fee was due within 30 days of the effective date with the remaining amount of \$200,000 due upon the earlier of: (i) completion of an IPO, (ii) the Company raising \$10 million in financing, or (iii) within 9 months of the effective date of the license. The Company will also reimburse JHU for previously incurred and ongoing patent costs. Under the terms of the License Agreement, JHU will be entitled to three- and one-half percent (3.5%) royalty on net sales by the Company. In addition, the Company is required to pay JHU minimum annual royalty payments of \$5,000 for 2023, \$10,000 for 2024, \$20,000 for 2025, \$30,000 for 2026 and \$50,000 for 2027 and each year after until the first commercial sale after which the annual minimum royalty shall be \$250,000. The license agreement also contains milestone payments for clinical development steps totaling up to \$1.5M through the approval of an NDA, and commercial milestones of \$1M once annual sales reach \$20M in the US, \$2M once sales exceed \$100M, \$10M once sales exceed \$500M, and \$20M once sales exceed \$1B. Failure to make payments under the license agreement is considered a material breach under the agreement and upon notice from JHU of a material breach, the Company shall have 30 days to cure it. In addition, JHU shall have the right to participate up to 1% in any private equity financing conducted by the Company.

On April 11, 2022, the Company entered into an Exclusive placement agent and/or underwriter agreement with WallachBeth Capital LLC in connection with a proposed private and/or public offerings by the Company. As discussed in Footnote 2, a significant component of the Company's plan to secure capital is the intention of the Company to seek to be listed on a national exchange through an initial public offering ("IPO") of its common stock. WallachBeth was engaged in this regard and on April 28, 2022, the Company received net proceeds of approximately \$775,000 from the sale of Convertible Bridge Notes and Warrants to several institutional investors as well as several individual accredited investors. In connection with the April 28th note sale, the Company paid approximately \$92,000 in fees and expenses. In addition to the money received on April 28th, the Company also received \$100,000 from the sale of a Convertible Bridge Note and Warrants to a related party earlier in April. The bridge notes were issued with a 10% original issue discount and are convertible at the IPO at a 20% discount to the IPO price and the purchasers will also have a warrant for each share of common stock issued upon conversion. The warrant exercise price will be 110% of the per share IPO price. The Company plans to file an S-1 Registration Statement in the second quarter and seek to conduct an IPO this summer.

In May 2022, the Company and the two entities engaged in June 2021 to assist the Company in becoming a publicly listed NASDAQ company (see footnote 10) amended the advisory agreements, specifically the fee provisions. Under the amended agreements, the advisors are to receive a total of 850,000 shares of common stock that will not be subject to a reverse split of the common shares in the event this is required to achieve the NASDAQ listing. Also, under the amended agreements, the warrant agreements issued under the original advisory agreements have been cancelled.

Also in May of 2022, the Company, and the holders of two convertible promissory notes sold in August 2021, amended the note term to extend the maturity date. As consideration to the note holders, the Company issued additional warrants to each holder and amended the terms of the previous warrants to reflect that all warrants now have an exercise price of \$2.50 and the number of warrant shares will not be subject to a reverse split of the common shares in the event this is required to achieve the NASDAQ listing. One of the note holders is a related party (see footnote 8) and the holder of the second note is one of the advisors mentioned above. (see footnote 10).

Through May of 2022, the Company issued warrants to consultants and advisors who performed services for the Company. The warrants for a total of 495,412 shares, have exercise prices ranging from \$0.38 to \$1 and vest over periods of zero through 24 months. 301,000 were issued to individuals who have been engaged as Company management and advisors, the remaining 194,412 were issued to unrelated individuals or entities.

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### BULLFROG AI HOLDINGS, INC.

#### FINANCIAL STATEMENTS

SEPTEMBER 30, 2022

(unaudited)

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Bullfrog AI Holdings, Inc.  
Consolidated Balance Sheets

	<u>September 30 2022</u>	<u>December 31 2021</u>
	(Unaudited)	(Audited)
<b>ASSETS</b>		
<b>CURRENT ASSETS:</b>		
Cash	\$ 42,216	\$ 10,014
Prepaid expense	15,000	-
Total Current Assets	<u>\$ 57,216</u>	<u>\$ 10,014</u>
<b>NON-CURRENT ASSETS:</b>		
Property and Equipment, net	8,140	-

Total Non-Current Assets	\$ 8,140	-
<b>TOTAL ASSETS</b>	<b>\$ 65,356</b>	<b>\$ 10,014</b>
<b>LIABILITIES AND STOCKHOLDERS' DEFICIT</b>		
<b>CURRENT LIABILITIES:</b>		
Accounts payable	\$ 120,540	\$ 68,594
Accrued expenses	452,301	68,557
Accrued expenses-related party	389,666	285,666
Deferred revenue	32,000	10,000
Notes payable-related party	-	49,000
Convertible notes, net of \$36,531 and \$12,962 debt discount, respectively	1,229,359	284,038
Convertible notes-related party, net of \$0 and \$1,584 debt discount, respectively	254,850	253,266
Total Current Liabilities	<u>\$ 2,478,716</u>	<u>\$ 1,019,121</u>
<b>TOTAL LIABILITIES</b>	<b>\$ 2,478,716</b>	<b>\$ 1,019,121</b>
<b>STOCKHOLDERS' DEFICIT:</b>		
Preferred stock, \$0.00001 par value, 10,000,000 shares authorized; no shares are issued and outstanding,	-	-
Common stock, \$0.00001 par value, 100,000,000 shares authorized; 28,195,022 and 27,259,547 shares are issued and outstanding as of ASeptember 30, 2022 and December 31, 2021, respectively	282	272
Subscription receivable	-	-
Additional paid-in capital	1,289,895	587,189
Accumulated deficit	(3,703,537)	(1,596,568)
Total BullFrog stockholders' deficit	<u>\$ (2,413,360)</u>	<u>\$ (1,009,107)</u>
<b>TOTAL STOCKHOLDERS' DEFICIT</b>	<b>(2,413,360)</b>	<b>(1,009,107)</b>
<b>TOTAL LIABILITIES AND STOCKHOLDERS' DEFICIT</b>	<b>\$ 65,356</b>	<b>\$ 10,014</b>

The accompanying notes are an integral part of these financial statements

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Bullfrog AI Holdings, Inc.  
Consolidated Statements of Operations

	For The Three Months Ended September 30		For The Nine Months Ended September 30	
	2022	2021	2022	2021
<b>NET REVENUES:</b>				
Revenues, net	\$ -	\$ -	\$ -	\$ -
<b>TOTAL NET REVENUES</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>COST OF GOODS SOLD:</b>				
Cost of goods sold	-	-	-	-
<b>TOTAL COST OF GOODS SOLD</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>GROSS PROFIT</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>OPERATING EXPENSES:</b>				
Research and development expenses	39,421	-	448,375	-
General and administrative expenses	406,357	108,961	745,299	184,346
Payroll and salary-related party	143,238	61,476	388,208	155,111
Stock based compensation	51,536	1,306	290,876	74,664
<b>TOTAL OPERATING EXPENSES</b>	<b>640,552</b>	<b>171,743</b>	<b>1,872,758</b>	<b>414,121</b>
<b>(LOSS) FROM OPERATIONS</b>	<b>(640,552)</b>	<b>(171,743)</b>	<b>(1,872,758)</b>	<b>(414,121)</b>
<b>OTHER INCOME (EXPENSE):</b>				
Interest expense	(124,159)	(12,749)	(234,668)	(20,718)
Other (Expense)	18	22	457	10,057
<b>TOTAL OTHER INCOME (EXPENSE)</b>	<b>(124,141)</b>	<b>(12,727)</b>	<b>(234,211)</b>	<b>(10,661)</b>
<b>NET (LOSS)</b>	<b>(764,693)</b>	<b>(184,470)</b>	<b>(2,106,969)</b>	<b>(424,782)</b>
<b>NET (LOSS) PER COMMON SHARE:</b>				
Basic and diluted	\$ (0.03)	\$ (0.01)	\$ (0.08)	\$ (0.02)
<b>WEIGHTED AVERAGE NUMBER OF COMMON SHARES OUTSTANDING:</b>				
Basic and diluted	28,170,747	25,349,788	27,586,200	25,287,229

The accompanying notes are an integral part of these financial statements

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Bullfrog AI Holdings, Inc.  
Consolidated Statements of Stockholders' Deficit

	Common Stock		Additional Paid in Capital	Subscription Receivables	Accumulated Deficit	Total
	Shares	Amount				
<b>Balances, December 31, 2020</b>	25,223,975	\$ 252	\$ 470,058	\$ (100)	\$ (1,010,728)	\$ (540,518)
Cash from subscription receivables	-	-	-	100	-	100
Warrants issued with convertible notes	-	-	2,608	-	-	2,608
Imputed Interest	-	-	2,172	-	-	2,172
Equity compensation	1,635,572	16	74,648	-	-	74,664
Net Income/(Loss)	-	-	-	-	(424,782)	(424,782)
<b>Balances, September 30, 2021</b>	<u>26,859,547</u>	<u>\$ 268</u>	<u>\$ 549,486</u>	<u>-</u>	<u>\$ (1,435,510)</u>	<u>\$ (885,756)</u>
<b>Balances, December 31, 2021</b>	27,259,547	\$ 272	\$ 587,189	-	\$ (1,596,568)	\$ (1,009,107)
Imputed Interest	-	-	6,971	-	-	6,971
Equity compensation	-	-	290,876	-	-	290,876
Conversion of convertible notes	1,441,888	15	226,123	-	-	226,138
Reclassification of warrant	-	-	(11,097)	-	-	(11,097)
Shares cancellation	(785,572)	(8)	8	-	-	-
Shares issuance for license	279,159	3	189,825	-	-	189,828
Net Income/(Loss)	-	-	-	-	(2,106,969)	(2,106,969)
<b>Balances, September 30, 2022</b>	<u>28,195,022</u>	<u>\$ 282</u>	<u>\$ 1,289,895</u>	<u>\$ -</u>	<u>\$ (3,703,537)</u>	<u>\$ (2,413,360)</u>

The accompanying notes are an integral part of these financial statements

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Bullfrog AI Holdings, Inc.  
Consolidated Statements of Cash Flows

	For The Nine Months Ended September 30	
	2022	2021
<b>CASH FLOWS FROM OPERATING ACTIVITIES:</b>		
Net (loss)	\$ (2,106,969)	\$ (424,782)
Adjustment to reconcile change in net (loss) to net cash and cash equivalents used in operating activities:		
Gain on debt forgiveness	-	(9,917)
Depreciation expense	604	-
Shares issuance for license	189,828	-
Stock-based compensation	290,876	74,664
Amorization of debt discount	174,998	4,249
Imputed Interest	6,971	2,172
Changes in operating assets and liabilities:		
Prepaid Expense	(15,000)	-
Accounts payable	51,946	(32,035)
Accrued expenses	409,502	16,936
Accrued expenses-related party	104,000	74,221
Deferred revenue	22,000	-
<b>NET CASH USED IN OPERATING ACTIVITIES</b>	<u>(871,244)</u>	<u>(294,492)</u>
<b>CASH FLOWS FROM INVESTING ACTIVITIES:</b>		
Purchase of Property and Equipment	(8,744)	-
<b>NET CASH FROM INVESTING ACTIVITIES</b>	<u>(8,744)</u>	<u>-</u>
<b>CASH FLOWS FROM FINANCING ACTIVITIES:</b>		
Proceeds from convertible notes payables	961,190	63,400
Proceeds from convertible notes payables-related party	-	225,000
Repayment of note payable and interest-related party	(49,000)	-

Proceeds from notes payables - related party	-	34,000
Proceeds from subscription payable	-	100
<b>NET CASH FROM FINANCING ACTIVITIES</b>	<b>912,190</b>	<b>322,500</b>
Net increase/(decrease) in cash and cash equivalents	32,202	28,008
<b>Cash, beginning of year</b>	<b>10,014</b>	<b>5,019</b>
<b>Cash, end of period</b>	<b>\$ 42,216</b>	<b>\$ 33,027</b>
<b>SUPPLEMENTAL CASH FLOW INFORMATION:</b>		
Cash paid for interest	\$ 4,399	\$ 940
Cash paid for taxes	\$ -	\$ -
<b>SUPPLEMENTAL DISCLOSURE of NON-CASH ACTIVITY:</b>		
Reclassification of warrant	\$ 11,097	\$ -
Conversion of Convertible Note payable	\$ 226,138	\$ -
Cancellation of common stocks	\$ 8	\$ -
Shares issued for license	\$ 3	\$ -
Shares issued for services	\$ -	\$ 16
Warrants issued with convertible notes	\$ -	\$ 2,608

The accompanying notes are an integral part of these financial statements

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**BULLFROG AI HOLDINGS, INC.**  
**NOTES TO FINANCIAL STATEMENTS**  
**September 30, 2022**  
**(unaudited)**

**NOTE 1 – ORGANIZATION AND NATURE OF BUSINESS**

Bullfrog AI Holdings, Inc. was incorporated in the State of Nevada on February 6, 2020. Bullfrog AI Holdings, Inc. is the parent company of Bullfrog AI, Inc. and Bullfrog AI Management, LLC, which were incorporated in Delaware and Maryland, in 2017 and 2021, respectively. All of our operations are currently conducted through Bullfrog AI Holdings, Inc., which began operations on February 6, 2020. We are a company focused specifically on advanced AI/ML-driven analysis of complex data sets in medicine and healthcare. Our objective is to utilize our platform for precision medicine approach to drug asset enablement through external partnerships and selective internal development.

Most new therapeutics will fail at some point in preclinical or clinical development. This is the primary driver of the high cost of developing new therapeutics. A major part of the difficulty in developing new therapeutics is efficient integration of complex and highly dimensional data generated at each stage of development to de-risk subsequent stages of the development process. Artificial Intelligence and Machine Learning (AI/ML) has emerged as a digital solution to help address this problem.

We use artificial intelligence and machine learning to advance medicines for both internal and external projects. Most current AI/ML platforms still fall short in their ability to synthesize disparate, high-dimensional data for actionable insight. Our platform technology, named, bfLEAP™ is an analytical AI/ML platform developed at The Johns Hopkins University Applied Physics Laboratory (JHU-APL) which is able to surmount the challenges of scalability and flexibility currently hindering researchers and clinicians by providing a more precise, multi-dimensional understanding of their data. We are deploying bfLEAP™ for use at several critical stages of development for internal programs and through strategic partnerships and collaborations with the intention of streamlining data analytics in therapeutics development, decreasing the overall development costs by decreasing failure rates for new therapeutics, and impacting the lives of countless patients that may otherwise not receive the therapies they need.

The bfLEAP™ platform utilizes both supervised and unsupervised machine learning – as such, it is able to reveal real/meaningful connections in the data without the need for an a priori hypothesis. Algorithms used in the bfLEAP™ platform are designed to handle highly imbalanced data sets to successfully identify combinations of factors that are associated with outcomes of interest.

Our primary goal is to improve the odds of success at any stage of pre-clinical and clinical therapeutics development, for in house programs, and our strategic partners and collaborators. Our primary business model is enabling the success of ongoing clinical trials or rescue of late stage failed drugs (i.e., Phase 2 or Phase 3 clinical trial failures) for development and divestiture; although, we will also consider collaborations for earlier stage drugs. We hope to accomplish this through strategic acquisitions of current clinical stage and failed drugs for in-house development, or through strategic partnerships with biopharmaceutical industry companies. We are able to pursue our drug asset enhancement business by leveraging a powerful and proven AI/ML platform (trade name: bfLEAP™) initially developed at JHU-APL. We believe the bfLEAP™ analytics platform is a potentially disruptive tool for analysis of pre-clinical and/or clinical data sets, such as the robust pre-clinical and clinical trial data sets being generated in translational R&D and clinical trial settings.

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**NOTE 2 – GOING CONCERN AND MANAGEMENT'S LIQUIDITY PLANS**

The accompanying financial statements have been prepared on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. As shown in the accompanying financial statements, for the nine months ended September 30, 2022 the Company incurred net losses from operations of \$2,106,969 and used cash in operations of \$871,244. These factors among others raise substantial doubt that the Company will be able to continue as a going concern for a reasonable period of time.

The Company's primary source of operating funds for the nine months ended September 30, 2022 and for the year ended December 31, 2021 has been from investors and related parties. The Company has experienced net losses from operations since inception, but expects these conditions to improve in 2023 and beyond, as it continues to develop its direct sales and marketing programs; however, no assurance can be provided that the Company will not continue to experience losses in the future. The Company has stockholders' deficiencies at September 30, 2022 and December 31, 2021 and requires additional financing to fund future operations.

A significant component of the Company's plan to secure capital to both establish its operating base and also to execute on its business plan is the intention of the Company to seek to be listed on a national exchange through an initial public offering ("IPO") of its common stock. In this regard, the Company has entered into a number of advisory and

consulting agreements with entities and individuals providing services and advice to the Company. The Company has compensated these advisors and consultants using equity instruments issued by Bull Frog AI Holdings, Inc. as will be more thoroughly explained below.

The Company's existence is dependent upon management's ability to develop profitable operations and to obtain additional funding sources, including an IPO. There can be no assurance that the Company's financing efforts will result in profitable operations or the resolution of the Company's liquidity problems. There can be no assurance that the Company will be successful in developing profitable operations or that it will be able to obtain financing on favorable terms, if at all. The accompanying statements do not include any adjustments that might result should the Company be unable to continue as a going concern.

### NOTE 3 –SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

#### Use of Estimates in the Preparation of Financial Statements

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires us to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Estimates include, but are not limited to, revenue recognition, allowances for doubtful accounts, recoverability of deferred tax assets and certain other of our accrued liabilities. Actual results could differ from those estimates.

#### Financial Instruments

The carrying value of short-term instruments, including cash and cash equivalents, accounts payable and accrued expenses approximate fair value due to the relatively short period to maturity for these instruments.

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value maximize the use of observable inputs and minimize the use of unobservable inputs. The Company utilizes a three-level valuation hierarchy for disclosures of fair value measurements, defined as follows:

Level 1 - inputs to the valuation methodology are quoted prices (unadjusted) for identical assets or liabilities in active markets.

Level 2 - inputs to the valuation methodology include quoted prices for similar assets and liabilities in active markets, and inputs that are observable for the assets or liability, either directly or indirectly, for substantially the full term of the financial instruments.

Level 3 - inputs to the valuation methodology are unobservable and significant to the fair value.

The Company does not have any assets or liabilities that are required to be measured and recorded at fair value on a recurring basis.

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#### Revenue Recognition

For annual reporting periods after December 15, 2017, the Financial Accounting Standards Board ("FASB") made effective ASU 2014-09 "Revenue from Contracts with Customers," to supersede previous revenue recognition guidance under current U.S. GAAP. Revenue is now recognized in accordance with FASB ASC Topic 606, Revenue Recognition. The objective of the guidance is to establish the principles that an entity shall apply to report useful information to users of financial statements about the nature, amount, timing, and uncertainty of revenue and cash flows arising from a contract with a customer. The core principle is to recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the Company expects to be entitled in exchange for those goods or services. Two options were made available for implementation of the standard: the full retrospective approach or modified retrospective approach. The guidance became effective for annual reporting periods beginning after December 15, 2017, including interim periods within that reporting period, with early adoption permitted. We have adopted FASB ASC Topic 606 for our reporting period as of the year-ended December 31, 2019. As of September 30, 2022 and December 31, 2021, we have had no revenue. For the nine months ended September 30, 2022 and year-ended December 31, 2021, there were no completed contracts therefore the customer down payment received in late 2021 and early 2022 is reflected on the balance sheet as of September 30, 2022 and December 31, 2021 as unearned revenue in the amount of \$32,000 and \$10,000, respectively. As is more fully discussed below, we are of the opinion that none of our contracts for products contain significant financing components that require revenue adjustment under FASB ASC Topic 606.

Revenue is recognized based on the following five step model:

- **Identification of the contract with a customer**

This step outlines the criteria that must be met when establishing a contract with a customer to supply goods or services

- **Identification of the performance obligations in the contract**

This step describes how distinct performance obligations in the contract must be handled

- **Determination of the transaction price**

This step outlines what must be considered when establishing the transaction price, which is the amount the business expects to receive for transferring the goods and services to the customer

- **Allocation of the transaction price to the performance obligations in the contract**

This step outlines guidelines for allocating the transaction price across the contract's separate performance obligations, and is what the customer agrees to pay for the goods and services

- **Recognition of revenue when, or as, the Company satisfies a performance obligation**

Revenue can be recognized as the business meets each performance obligation. This step specifies how that should happen

#### *Contract Services*

The Company anticipates that the majority of revenues to be recognized in the near future will result from our fee for service partnership offering, designed for biopharmaceutical companies, as well as other organizations, of all sizes that have challenges analyzing data throughout the drug development process. The Company provides the customer with an analysis of large complex data sets using the Company's proprietary Artificial Intelligence / Machine Learning platform called bfLEAP™. This platform is designed to predict targets of interest, patterns, relationships, and anomalies. The Company believes that there will be additional on-going work requested from partners therefore the service model utilizes a master services agreement with work or task orders issued for discrete analysis performed at the discovery, preclinical, or clinical stages of drug development. The Company receives a cash fee and in some instances the potential for rights to new intellectual property generated from the analysis.

### Collaborative Arrangements

The Company also intends to enter collaborative arrangements with pharmaceutical companies who have drugs that have failed late Phase 2 or Phase 3 trials. These arrangements could take several forms including true partnerships where BullFrog contributes data analysis using the bfLEAP™ platform with the partner contributing the drug candidate and other resources needed to continue development towards commercialization with BullFrog receiving an equity or royalty right in the commercialized product. In other arrangements the Company may earn cash payments based on achieving certain milestones as determined under each specific arrangement.

### Acquisition of Rights to Certain Drugs

In certain circumstances, we may also acquire rights to drugs that are in early-stage clinical trials, use our technology to sponsor and support a successful later stage precision medicine trial, and divest the asset. The same process may apply to the discovery of new drugs. In these instances, divestiture may be in the form of an outright sale of all rights or possibly a license to develop and commercialize enhanced development candidates. License agreements could include developmental and commercial milestones in addition to royalties.

### Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Significant estimates include the fair value of the Company's stock, stock-based compensation, fair values relating to derivative liabilities, debt discounts and the valuation allowance related to deferred tax assets. Actual results may differ from these estimates.

### Cash

The Company considers cash to consist of cash on hand and temporary investments having an original maturity of 90 days or less that are readily convertible into cash. As of September 30, 2022 and December 31, 2021, cash balances were \$42,216 and \$10,014, respectively.

### Concentrations of Credit Risk

The Company's financial instruments that are exposed to a concentration of credit risk are cash and accounts receivable. Occasionally, the Company's cash in interest-bearing accounts may exceed FDIC insurance limits. The financial stability of these institutions is periodically reviewed by senior management.

### Accounts Receivable

Trade receivables are carried at their estimated collectible amounts. Trade credit is generally extended on a short-term basis. Thus, trade receivables do not bear interest. Trade accounts receivable are periodically evaluated for collectability based on past credit history with customers and their current financial condition.

### Allowance for Doubtful Accounts

Any charges to the allowance for doubtful accounts on accounts receivable are charged to operations in amounts sufficient to maintain the allowance for uncollectible accounts at a level management believes is adequate to cover any probable losses. Management determines the adequacy of the allowance based on historical write-off percentages and the current status of accounts receivable. Accounts receivables are charged off against the allowance when collectability is determined to be permanently impaired. As of September 30, 2022 and December 31, 2021, allowance for doubtful accounts was \$0.

### Inventories

The Company does not have inventory and does not plan to have inventory in the near future.

### Cost of Sales

Cost of sales is comprised of royalties and the cost of outsourced services provided to the Company related to customer service contracts.

### Property and Equipment

Property and equipment are stated at cost. When retired or otherwise disposed, the related carrying value and accumulated depreciation are removed from the respective accounts and the net difference less any amount realized from disposition, is reflected in earnings. For financial statement purposes, property and equipment are recorded at cost and depreciated using the straight-line method over their estimated useful lives.

### Advertising

The Company follows the policy of charging the costs of advertising to expense as incurred.

### Income Taxes

Deferred income tax assets and liabilities are determined based on the estimated future tax effects of net operating loss and credit carry forwards and temporary differences between the tax basis of assets and liabilities and their respective financial reporting amounts measured at the current enacted tax rates. The Company records an estimated valuation allowance on its deferred income tax assets if it is not more likely than not that these deferred income tax assets will be realized.

The Company recognizes a tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by taxing authorities, based on the technical merits of the position. The tax benefits recognized in the condensed consolidated financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement. As of September 30, 2022 and December 31, 2021, the Company has not recorded any unrecognized tax benefits.

### Stock-Based Compensation

Employee and non-employee share-based compensation is measured at the grant date, based on the fair value of the award, and is recognized as an expense over the requisite service period.

## Net Loss per Share

We compute net loss per share in accordance with ASC 260, Earning per Share. We report both basic and diluted loss per share. Loss earnings per share is calculated based on the weighted average number of shares of common stock outstanding and excludes the dilutive effect of warrants, stock options or any other type of convertible securities. Considering that the Common shares of the Company were not publicly traded as of September 30, 2022, the contingently convertible notes and related dilutive shares are not included in the dilutive shares calculation upon the Initial Public Offering (IPO). Diluted loss per share is calculated based on the weighted average number of shares of common stock outstanding and the dilutive effect of stock options, warrants and other types of convertible securities are included in the calculation. Dilutive securities are excluded from the diluted earnings per share calculation because their effect is anti-dilutive. The Company's potentially dilutive shares and equity instruments, which were not included in the calculation of net loss per share, included 6,491,614 and 5,270,617 warrants as of December 31, 2021 and September 30, 2022, respectively. Also included are options for 3,280,000 and 484,525 common shares, respectively.

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## Recent Accounting Pronouncements

In February 2016, the FASB issued ASU 2016-02, Leases (Topic 842). This ASU requires lessees to recognize a lease liability, on a discounted basis, and a right-of-use asset for substantially all leases, as well as additional disclosures regarding leasing arrangements. In July 2018, the FASB issued ASU 2018-11, Leases (Topic 842), which provides an optional transition method of applying the new lease standard. Topic 842 can be applied using either a modified retrospective approach at the beginning of the earliest period presented, or as permitted by ASU 2018-11, at the beginning of the period in which it is adopted.

We adopted this standard using a modified retrospective approach since inception of the company. The modified retrospective approach includes a number of optional practical expedients relating to the identification and classification of leases that commenced as of the inception of the company; initial direct costs for leases that commenced as of inception of the company; and the ability to use hindsight in evaluating lessee options to extend or terminate a lease or to purchase the underlying asset.

The Company elected the package of practical expedients permitted under ASC 842 allowing it to account for its prior operating lease that commenced before the adoption date as an operating lease under the new guidance without reassessing (i) whether the contract contains a lease; (ii) the classification of the lease; or (iii) the accounting for indirect costs as defined in ASC 842.

All staff are working remotely; therefore, the Company does not currently have a lease or rent office space.

Consistent with ASC 842-20-50-4, for the Company's quarterly financial statements for the nine month period ended September 30, 2022 and the year ended December 31, 2021, the Company does not have a monthly rent obligation. The Company had no cash flows arising from a lease, no finance lease cost, short term lease cost, or variable lease costs. The Company does not produce any sublease income or any net gain or loss recognized from sale and leaseback transactions. As a result, the Company did not need to segregate amounts between finance and operating leases for cash paid for amounts included in the measurement of lease liabilities, segregated between operating and financing cash flows; supplemental non-cash information on lease liabilities arising from obtaining right-of-use assets; weighted-average calculations for the remaining lease term; or the weighted-average discount rate.

The adoption of this guidance resulted in no significant impact to the Company's results of operations or cash flows.

In December 2019, the FASB issued ASU No. 2019-12 - Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes ("ASU 2019-12"). ASU 2019-12 is part of the FASB's overall simplification initiative and seeks to simplify the accounting for income taxes by updating certain guidance and removing certain exceptions. The updated guidance is effective for fiscal years beginning after December 15, 2020 and interim periods within those fiscal years. Early adoption is permitted. The adoption of this update did not have a material effect on the Company's financial statements.

In August 2020, the FASB issued ASU 2020-06, Debt - Debt with Conversion and Other Options (Subtopic 470- 20) and Derivatives and Hedging - Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity ("ASU 2020-06"), which simplifies the accounting for certain financial instruments with characteristics of liabilities and equity. This ASU (1) simplifies the accounting for convertible debt instruments and convertible preferred stock by removing the existing guidance in ASC 470-20, Debt: Debt with Conversion and Other Options, that requires entities to account for beneficial conversion features and cash conversion features in equity, separately from the host convertible debt or preferred stock; (2) revises the scope exception from derivative accounting in ASC 815-40 for freestanding financial instruments and embedded features that are both indexed to the issuer's own stock and classified in stockholders' equity, by removing certain criteria required for equity classification; and (3) revises the guidance in ASC 260, Earnings Per Share, to require entities to calculate diluted earnings per share (EPS) for convertible instruments by using the if-converted method. In addition, entities must presume share settlement for purposes of calculating diluted EPS when an instrument may be settled in cash or shares. For SEC filers, excluding smaller reporting companies, ASU 2020-06 is effective for fiscal years beginning after December 15, 2021 including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020. For all other entities, ASU 2020-06 is effective for fiscal years beginning after December 15, 2023, including interim periods within those fiscal years. Entities should adopt the guidance as of the beginning of the fiscal year of adoption and cannot adopt the guidance in an interim reporting period. The Company elected early adoption, effective January 1, 2021. Considering that the Common shares of the Company were not publicly traded as of September 30, 2022, the convertible options are not considered to be readily convertible to cash. In addition, the beneficial conversion feature was eliminated under ASU 2020-06. Therefore, no derivative liabilities will be triggered from these convertible notes.

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In October 2020, the FASB issued ASU 2020-10, Codification Improvements, which updates various codification topics by clarifying or improving disclosure requirements to align with the SEC's regulations. The Company adopted ASU 2020-10 as of the reporting period beginning January 1, 2021. The adoption of this update did not have a material effect on the Company's financial statements.

The Company does not believe that any other recently issued effective pronouncements, or pronouncements issued but not yet effective, if adopted, would have a material effect on the accompanying financial statements.

## COVID-19 – Going Concern

In March 2020, the World Health Organization declared the global emergence of the COVID-19 pandemic. The impact of COVID-19 on the Company's business is currently unknown. The Company will continue to monitor guidance and orders issued by federal, state, and local authorities with respect to COVID-19. As a result, the Company may take actions that alter its business operations as may be required by such guidance and orders or take other steps that the Company determines are in the best interest of its employees, customers, partners, suppliers and stockholders.

Any such alterations or modifications could cause substantial interruption to the Company's business and could have a material adverse effect on the Company's business, operating results, financial condition, and the trading price of the Company's common stock, and could include temporary closures of one or more of the Company's facilities; temporary or long-term labor shortages; temporary or long-term adverse impacts on the Company's supply chain and distribution channels; and the potential of increased network vulnerability and risk of data loss resulting from increased use of remote access and removal of data from the Company's facilities. In addition, COVID-19 could negatively impact capital expenditures and overall economic activity in the impacted regions or depending on the severity, globally, which could impact the demand for the

Company's products and services.

It is unknown whether and how the Company may be impacted if the COVID-19 pandemic persists for an extended period of time or if there are increases in its breadth or in its severity, including as a result of the waiver of regulatory requirements or the implementation of emergency regulations to which the Company is subject. The COVID-19 pandemic poses a risk that the Company or its employees, contractors, suppliers, and other partners may be prevented from conducting business activities for an indefinite period.

The Company may incur expenses or delays relating to such events outside of its control, which could have a material adverse impact on its business, operating results, financial condition and the trading price of its common stock.

#### **NOTE 4 – PROPERTY AND EQUIPMENT**

Property and equipment consisted of the following:

During the nine months ended September 30, 2022, the Company acquired \$8,744 of equipment and has accumulated depreciation of \$604, for a net of \$8,140.

Depreciation expense totaled \$604, and \$0 in the nine months ended September 30, 2022 and September 30, 2021, respectively.

#### **NOTE 5 – ACCOUNTS PAYABLE AND ACCRUED EXPENSES**

As of September 30, 2022 and December 31, 2021, the Company had accounts payable and accrued expenses totaling \$962,507 and \$422,817, respectively.

#### **NOTE 6 – NOTES PAYABLE**

On May 5, 2020 the Company received an SBA PPP loan in the amount of \$9,917, at 1% interest. The loan was forgiven on March 15, 2021.

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#### **NOTE 7 – NOTES PAYABLE RELATED PARTY**

On June 15, 2021, the company entered into an unsecured short term loan agreement with a related party for an aggregate principal balance of \$34,000, with a one-year maturity date, accruing interest at 5% and imputing an additional 1% interest. During the nine months ended September 30, 2022, the full amount of the loan and interest was repaid.

On November 19, 2021, 2021, the company entered into an unsecured short term loan agreement with a related party for an aggregate principal balance of \$5,000, with a one-year maturity date, accruing interest at 5% and imputing an additional 1% interest. During the nine months ended September 30, 2022, the full amount of the loan and interest was repaid.

On December 13, 2021, the company entered into an unsecured short term loan agreement with a related party for an aggregate principal balance of \$10,000, with a one-year maturity date, accruing interest at 5% and imputing an additional 1% interest. During the nine months ended September 30, 2022, the full amount of the loan and interest was repaid.

#### **NOTE 8 – CONVERTIBLE NOTES PAYABLE**

On March 27, 2020, the company entered into a convertible loan agreement with the Maryland Technology Development Corporation with a principal balance of \$200,000 at 6% interest. The maturity date of the loan was September 27, 2021. During the nine months ended September 30, 2022, the full amount of the loan and interest totaling \$226,138 was converted into 1,441,888 shares of common stock of the Company, in accordance with the conversion notice submitted by the noteholder. Pursuant to the note agreement, the number of shares that the note converted into was based on the note balance plus accrued interest divided by \$5,000,000 times the fully diluted equity of the company, excluding convertible securities issued for capital raising purposes. There was no gain or loss due to conversion.

On August 9, 2021, the company entered into a convertible loan agreement with an unrelated party to loan up to \$195,000 at 9% interest, with a principal balance of \$72,000, as of December 31, 2021. This loan included an original issuance discount of 5%, and included 195,000 Warrants at an exercise price of \$1, exercisable for 5 years from the issue date on the face of the Warrant. The noteholder has the right to convert the principal and interest into common shares of the Company. The maturity date of the loan was amended to February 9, 2023. During the nine months ended September 30, 2022, another \$65,000 principal with an additional \$3,250 original issuance discount, was loaned to the Company. In May 2022, the Company and the note holder agreed to cancel and void previous warrants and entered into a new agreement for 225,000 warrants with an exercise price of \$2.50. As of September 30, 2022, the loan was outstanding with a principal balance of \$137,000, accrued interest of \$9,025, amortization of debt discount of \$3,506, and unamortized debt discount of \$1,989. The warrants discussed above were initially discounted against the notes, subsequent to year end December 31, 2021, they were deemed voided and new warrants in accordance with the new terms were issued. We assessed the differences in fair value and determined that they were de minimis and expensed the full value of the new warrants. During the nine months ended September 30, 2022 the Company recorded an expense of \$64,978.

On December 20, 2021, the company entered into a loan agreement with an unrelated party, with a principal balance of \$25,000 at 6% interest. The maturity date of the loan is December 19, 2022. During the nine months ended September 30, 2022, the note principal was increased by \$2,778 representing a 10% original issue discount pursuant to the enhanced terms mentioned below. As of September 30, 2022, the loan remained outstanding had accrued interest of \$1,310. Should the Company complete an IPO prior to the maturity date, the note will automatically convert into the Company's common stock, at a 20% discount to the IPO price. Initially, the loan was estimated to be issued with 355,114 warrants. Subsequent to the entry into the December 20, 2021 the loan agreement, the Company enhanced the terms of the Bridge Note Offering under which the loan was closed and in April 2022 closed on the sale of approximately \$1M in face value of convertible bridge notes, as described in footnote 13. Pursuant to the enhanced terms, the warrants will not be issued until the note converts.

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On April 11, 2022, the Company entered into an Exclusive placement agent and/or underwriter agreement with WallachBeth Capital LLC in connection with a proposed private and/or public offerings by the Company. As discussed in Footnote 2, a significant component of the Company's plan to secure capital is the intention of the Company to seek to be listed on a national exchange through an initial public offering ("IPO") of its common stock. WallachBeth was engaged in this regard and on April 28, 2022, the Company received net proceeds or approximately \$775,000 from the sale of Convertible Bridge Notes and Warrants to several institutional investors as well as several individual accredited investors. In connection with the April 28th note sale, the Company paid approximately \$91,560 in fees and expenses. In addition to the money received on April 28th, the Company also received \$100,000 from the sale of a Convertible Bridge Note and Warrants to a related party earlier in April. In September 2022, the Company sold one additional bridge note to an unrelated party, with a principal balance of \$27,778. The Convertible Bridge Notes were issued with a 10% original issue discount and are convertible at the IPO at a 20% discount to the IPO price. The purchasers will also be issued a warrant for each share of common stock issued upon conversion of the Note at a price equal to 110% of the IPO price or, if the Company fails to complete the IPO before October 22, 2022, 90% of the IPO price. The Convertible Bridge Notes maturity date is October 31, 2022. The Company has amended the Convertible Bridge Notes to extend the maturity date until December 31, 2022. The Company has filed an S-1 Registration Statement and is seeking to conduct an IPO in the fourth quarter of 2022.

As of September 30, 2022, the table below reflects the balances of the Convertible Bridge Notes sold pursuant April 11, 2022 agreement with Wallach Beth. All notes are mandatorily converted at the IPO at a 20% discount to the IPO price and the purchasers will also be issued a warrant for each share of common stock issued upon conversion. The warrant exercise price will be 90% of the per share IPO price. Due to the IPO price not yet being probable, no current accounting for these warrants has been journalized.

Note Date	Purchase Price	Principal Balance	Original Issue Discount	Accrued Interest
04/28/22	\$ 250,000	\$ 277,778	\$ 27,778	\$ 7,176
04/28/22	\$ 250,000	\$ 277,778	\$ 27,778	\$ 7,176
04/28/22	\$ 250,000	\$ 277,778	\$ 27,778	\$ 7,176
04/28/22	\$ 25,000	\$ 27,778	\$ 2,778	\$ 718
04/28/22	\$ 28,000	\$ 31,111	\$ 3,111	\$ 804
04/28/22	\$ 28,000	\$ 31,111	\$ 3,111	\$ 804
04/28/22	\$ 35,000	\$ 38,889	\$ 3,889	\$ 1,005
12/20/21 *	\$ 25,000	\$ 27,778	\$ 2,778	\$ 1,310
04/13/22 *	\$ 100,000	\$ 111,111	\$ 11,111	\$ 3,148
09/09/22	\$ 25,000	\$ 27,778	\$ 2,778	\$ 97
<b>Total</b>	<b>\$ 1,016,000</b>	<b>\$ 1,128,889</b>	<b>\$ 112,889</b>	<b>\$ 29,413</b>

\* Notes sold by Company prior to the April 28, 2022 closing

In August 2020, the FASB issued ASU 2020-06, Debt - Debt with Conversion and Other Options (Subtopic 470- 20) and Derivatives and Hedging - Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity ("ASU 2020-06"), which simplifies the accounting for certain financial instruments with characteristics of liabilities and equity. The Company specified that an entity should adopt the guidance as of the beginning of its annual fiscal year. After adoption of ASU 2020-06, if the equity securities underlying the conversion option are not readily convertible to cash, and the conversion option requires gross physical settlement of the underlying shares, the embedded conversion option may not meet the net settlement criterion, and therefore would not meet the definition of a derivative. Considering that the Common shares of the Company were not publicly traded as of September 30, 2022, the convertible options are not considered to be readily convertible to cash. In addition, the beneficial conversion feature was eliminated under ASU 2020-06. Therefore, no derivative liabilities will be triggered from these convertible notes. All conversions are contingent upon an effective IPO, which not yet considered probable.

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#### NOTE 9 – CONVERTIBLE NOTES PAYABLE RELATED PARTY

On July 8, 2021, the company entered into a Simple Agreement for Future Equity (SAFE), with a related party, with an amount of \$150,000, with 0% interest. Under the SAFE agreement, if there is an Equity Financing before the termination of thisSAFE, on the initial closing of such Equity Financing, thisSAFE will automatically convert into the number of shares of SAFE Preferred Stock equal to the Purchase Amount divided by the Conversion Price, which means either: (1) the Safe Price (the price per share equal to the Post-Money Valuation Cap divided by the Company Capitalization) or (2) the Discount Price (the price per share of the Standard Preferred Stock sold in the Equity Financing multiplied by the Discount Rate), whichever calculation results in a greater number of shares of Safe Preferred Stock

If there is a Liquidity Event before the termination of thisSAFE, this SAFE will automatically be entitled (subject to the liquidation priority set forth in Section 1(d) below) to receive a portion of Proceeds, due and payable to the Investor immediately prior to, or concurrent with, the consummation of such Liquidity Event, equal to the greater of (i) the Purchase Amount (the "Cash-Out Amount") or (ii) the amount payable on the number of shares of Common Stock equal to the Purchase Amount divided by the Liquidity Price (the "Conversion Amount"). If any of the Company's securityholders are given a choice as to the form and amount of Proceeds to be received in a Liquidity Event, the Investor will be given the same choice, provided that the Investor may not choose to receive a form of consideration that the Investor would be ineligible to receive as a result of the Investor's failure to satisfy any requirement or limitation generally applicable to the Company's securityholders, or under any applicable laws.

This SAFE will automatically terminate (without relieving the Company of any obligations arising from a prior breach of or non-compliance with thisSAFE) immediately following the earliest to occur of: (i) the issuance of Capital Stock to the Investor pursuant to the automatic conversion of this SAFE under agreement; or (ii) the payment, or setting aside for payment, of amounts due the Investor pursuant to the agreement.

As of December 31, 2021, the \$150,000 received from SAFE was recorded at 6% imputed interest. The maturity date of the loan is defined by the SAFE agreement as discussed above.

On August 19, 2021, the company entered into a convertible loan agreement with a related party, with a principal balance of \$99,900 at 9% interest. The noteholder has the right to convert the principal and interest into common shares of the Company. This loan included an original issuance discount of 5% and included 99,900 Warrants at an exercise price of \$1, exercisable for 5 years from the issue date on the face of the Warrant. The maturity date of the loan was February 19, 2022. In May 2022, the Company and the note holder agreed to cancel and void previous warrants and entered into a new agreement for 115,185 warrants with an exercise price of \$2.50. As of September 30, 2022, the \$99,900 principal and the \$4,950 overpayment of the note remained outstanding and had accrued interest of \$10,165. The warrants discussed above were initially discounted against the notes, subsequent to year end December 31, 2021, they were deemed voided and new warrants in accordance with the new terms were issued. We assessed the differences in fair value and determined that they were de minimis and expensed the full value of the new warrants.

The Company specified that an entity should adopt ASU 2020-06 as of the beginning of its annual fiscal year. After adoption of ASU 2020-06, no derivative liabilities will be triggered from these convertible notes. See Note 8 for details.

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#### NOTE 10 –RELATED PARTY

During the year-ended December 31, 2021, there were 400,000 common shares issued to CFO Dane Saglio, for services rendered.

As of September 30, 2022 and December 31, 2021, the accrued salary for related parties was \$329,666 and \$285,666, respectively. The increase reflects salaries accrued for employees but not paid in the period ending September 30, 2022.

As of September 30, 2022, the Company accrued consulting fees to related parties of \$60,000 for services provided to the Company.

During the year ended December 31, 2021, the Company issued options totaling 205,000 shares to related party for services rendered. The options have an original life of ten years and vest at different rates over as much as 24 months. During the nine months ended September 30, 2022, the Company did not issue any options and recognized \$1,352 of stock-based compensation related to outstanding stock options.

#### NOTE 11– SHAREHOLDER'S EQUITY

### Preferred Stock

The Company has 10,000,000 shares of preferred stock authorized at a par value of \$0.00001. As of September 30, 2022 and December 31, 2021, there were no preferred shares issued.

### Common Stock

In June of 2020, BullFrog AI Holdings, Inc. acquired BullFrog AI, Inc. via a 1:1 share exchange. Immediately prior to the share exchange, each authorized common share of BullFrog AI, Inc. was split into 25 shares of common stock. Share amounts in our financial statements for 2021 and September 30, 2022 have been adjusted to reflect this forward share split and shares exchange. All of our operations are currently conducted through BullFrog AI Holdings, Inc. BullFrog AI, Inc., is a wholly owned subsidiary, has the sole purpose of housing and protecting all of the organization's intellectual property. BullFrog AI Management, LLC is a wholly owned subsidiary that handles all HR and payroll activities.

The Company has 100,000,000 shares of common stock authorized at a par value of \$0.00001. During the nine months ended September 30, 2022, 1,441,888 common shares were issued for conversion of principal and interest by a noteholder, 785,572 common shares were canceled as the change in number of shares issued as part of the cancellation of the prior agreements and new agreements with advisors, and 279,159 common shares were issued under a license agreement, see Note 12 for further discussion. As of September 30, 2022 and December 31, 2021, there are 28,195,022 and 27,259,547, shares outstanding, respectively.

After the Company signed two licenses for two drug programs from universities in the first half of 2022 it engaged an independent valuation firm to perform an Enterprise-Equity valuation. The results of this engagement resulted in an increase in the value per share of common stock used in the Black Scholes option pricing model employed to value the Company's equity grants and warrant issuances.

### Stock Options

During the first quarter of 2022, 2,795,475 shares of options were forfeited due to the termination of employment.

During the year ended December 31, 2021, the Company granted a total of 205,000 shares of options to employee of the Company for services rendered. The options have an original life of ten years and vest at different rates over as much as 48 months. During the years ended December 31, 2021, the Company vested 9,167 of these options and recognized \$157 of stock-based compensation related to outstanding stock options. During the nine months ended September 30, 2022, 90,377 shares of these options was vested and \$1,559 stock-based compensation was recognized.

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The following tables summarizes the stock options activity for the nine months ended September 30, 2022 and for the year ended December 31, 2021:

	Options
Granted and outstanding, December 31, 2020	6,193,750
Granted during 2021	205,000
Exercised	-
Forfeited	-
Expired during 2021	(3,118,750)
Granted and outstanding, December 31, 2021	3,280,000
Granted during Q1 2022	-
Exercised	-
Forfeited	(2,795,475)
Expired during Q1 2022	-
Granted and outstanding, March 31, 2022	484,525
Granted during Q2 2022	-
Exercised	-
Forfeited	-
Expired during Q2 2022	-
Granted and outstanding, June 30, 2022	484,525
Granted during Q3 2022	-
Exercised	-
Forfeited	-
Expired during Q3 2022	-
Granted and outstanding, September 30, 2022	484,525

	Options	Intrinsic Value of Vested Options	Weight Averaged exercise Price
Vested and outstanding, December 31, 2020	733,567	12,706	0.48
Granted and vested during 2021	9,167	157	0.38
Exercised	-	-	-
Forfeited	-	-	-
Expired	(465,669)	(7,922)	(0.48)
Vested and outstanding, December 31, 2021	277,065	4,941	0.48
Granted and vested during Q1 2022	37,877	658	0.41
Exercised	-	-	-
Forfeited	-	-	-
Expired	-	-	-
Vested and outstanding, March 31, 2022	314,942	5,599	0.47
Granted and vested during Q2 2022	26,250	450	0.46
Exercised	-	-	-
Forfeited	-	-	-
Expired	-	-	-
Vested and outstanding, June 30, 2022	341,192	6,049	0.46
Granted and vested during Q3 2022	26,250	451	0.38
Exercised	-	-	-



Forfeited	-	-	-
Expired	-	-	-
Vested and outstanding, September 30, 2022	<u>367,442</u>	<u>6,500</u>	<u>0.46</u>

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As of September 30, 2022 and December 31, 2021, 90,377 and 9,167 options vested, respectively, 0 and 465,669 options expired and the outstanding stock options have a weighted average remaining life 7.19 and 7.38 years, respectively.

As of December 31, 2021 and 2020, the fair value of options vested and outstanding was \$4,941 and \$12,706, respectively. The aggregate fair value of the options measured during the nine months ended September 30, 2022 and the year ended December 31, 2021 was calculated using the Black-Scholes option pricing model based on the following assumption:

	September 30, 2022		December 31, 2021	
Fair Value of Common Stock on measurement date	\$	0.68	\$	0.044
Risk free interest rate	From 1.86% to 3.01%		From 1.26% to 1.33%	
Volatility	89%		93%	
Dividend Yield	0%		0%	
Expected Term	4-10		10	

- (1) The risk-free interest rate was determined by management using the market yield on U.S. Treasury securities with comparable terms as of the measurement date.
- (2) The trading volatility was determined by calculating the volatility of the Company's peer group.
- (3) The Company does not expect to pay a dividend in the foreseeable future.

### Warrants

During the nine months ended September 30, 2022, the Company granted a total of 865,617 warrants. The warrants have an original life of four to ten years and vest immediately and over 12 months. During the nine months ended September 30, 2022, 1,095,410 shares of warrants were vested and amended with an intrinsic value of \$288,683, 363,589 shares of warrants were reclassified with an intrinsic value of \$11,097, and 294,900 shares of warrants with an intrinsic value of \$1,883 were forfeited.

During the year ended December 31, 2021, the Company granted a total of 3,021,614 warrants. Of this amount 1,400,000 warrants, with a fair value of \$12,462, were granted to advisors related to the Company's IPO objective. The warrants have an original life of five years and vest 30 days before the intended IPO. During the year ended December 31, 2021, 0 shares of these warrants were vested. As of June 30, 2022, the warrants for 1,400,000 shares were cancelled and voided per agreement of the warrant holder and the Company. There was no gain or loss due to cancellation. In 2021, 972,500 warrants, with a fair value of \$28,683, were issued for services rendered. The warrants have an original life of ten years and vest at different rates over as much as 36 months. During the year ended December 31, 2021, 220,000 shares of these warrants are vested, with a fair value of \$6,567. As of September 30, 2022, 419,357 shares of these warrants were vested with a fair value of \$12,427 and 37,500 warrants were forfeited.

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During the year ended December 31, 2021, the Company issued 650,014 warrants with a fair value of \$12,980, in connection with convertible bridge debt agreements with multiple parties including a related party. The warrants had an original life of five years. During the period ending June 30, 2022, the Company determined that 355,144 warrants, with a fair value of \$11,097, should not have been issued as further described in footnote 8. The fair value was reclassified to Additional Paid in Capital. As discussed in Note 8 in May 2022, the Company and the note holders agreed to cancel and void the previous 99,000 warrants and entered into a new agreement for 115,185 and the exercise price increased to \$2.50 from \$1, with a fair value of \$15,412. As discussed in Note 8 in May 2022, the Company and the note holders agreed to cancel and void the previous 195,000 warrants and entered into a new agreement for 225,000 warrants with an exercise price of \$2.50, with a fair value of \$64,978.

The 650,014 warrants discussed above were initially discounted against the notes, subsequent to year end December 31, 2021, they were deemed voided and these individuals were or will be issued new warrants in accordance with the new terms as stated above. We assessed the differences in fair values and determined the values were de minimis and expensed the full value of the new warrants.

The following tables summarize the warrant activity for the nine months ended September 30, 2022 and for the year ended December 31, 2021,

	Warrants
Granted and outstanding, December 31, 2020	<u>3,470,000</u>
Granted during 2021	3,021,614
Exercised	-
Forfeited	-
Expired during 2021	-
Granted and outstanding, December 31, 2021	<u>6,491,614</u>
Granted during Q1 2022	286,000
Exercised	-
Forfeited	-
Reclassification	(391,714)
Expired during Q1 2022	-
Granted and outstanding, March 31, 2022	<u>6,385,900</u>
Granted during Q2 2022	549,617
Exercised	-
Forfeited	-
Reclassification	(1,694,900)
Expired during Q2 2022	-
Granted and outstanding, June 30, 2022	<u>5,240,617</u>
Granted during Q3 2022	30,000
Exercised	-
Forfeited	-
Expired during Q3 2022	-
Granted and outstanding, September 30, 2022	<u>5,270,617</u>

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	Warrants	Intrinsic Value of Warrants	Weight Averaged exercise Price
Vested and outstanding, December 31, 2020	3,359,583	127,480	0.14
Granted and Vested	962,864	22,208	0.45
Exercised	-	-	-
Forfeited	-	-	-
Expired	-	-	-
Vested and outstanding, December 31, 2021	4,322,447	149,688	0.40
Granted and Vested during Q1 2022	199,625	29,359	0.38
Exercised	-	-	-
Forfeited	-	-	-
Reclassification	(363,589)	(11,097)	0.04
Expired	-	-	-
Vested and outstanding, March 31, 2022	4,158,483	167,950	0.43
Granted and Vested during Q2 2022	742,251	208,238	0.68
Amend	-	-	-
Exercised	-	-	-
Forfeited	(294,900)	(1,883)	1.00
Reclassification	-	-	-
Expired	-	-	-
Vested and outstanding, June 30, 2022	4,605,834	374,940	0.27
Granted and Vested during Q3 2022	218,450	51,536	0.44
Exercised	-	-	-
Forfeited	-	-	-
Expired	-	-	-
Vested and outstanding, September 30, 2022	4,824,284	426,476	0.28

As of September 30, 2022, 5,270,617 warrants are outstanding, and 4,824,284 warrants vested, and the vested stock warrants have a weighted average remaining life of 7.34 years.

For the nine months ended September 30, 2022, the aggregate fair value of warrants vested was \$289,768. The aggregate fair value of the warrants measured during the nine months ended September 30, 2022 was calculated using the Black-Scholes option pricing model and recorded as stock-based compensation.

For the year ended December 31, 2021, 6,492,614 warrants are outstanding, 4,322,447 warrants are vested with an intrinsic value of @22,208, and the vested stock warrants have a weighted average remaining life of 7.73 years.

As of December 31, 2021, the aggregate fair value of warrants vested was \$149,688. The aggregate fair value of the warrants measured during the year-ended December 31, 2021 was calculated using the Black-Scholes option pricing model.

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The number of warrants related to the Convertible Bridge Notes discussed Note 8 is not yet determinable, given some of the terms discussed in Note 8 have not been completed. Therefore, the warrants to be issued are not accounted for in our warrants outstanding. Due to the IPO price not yet being probable, no current accounting for these warrants has been journalized.

	September 30, 2022	December 31, 2021
Fair Value of Common Stock on measurement date	\$ 0.68	\$ 0.044
Risk free interest rate	From 1.86% to 1.97%	From 0.78% to 1.63%
Volatility	89%	93%
Dividend Yield	0%	0%
Expected Term	10 years	5-10 years

- (1) The risk-free interest rate was determined by management using the market yield on U.S. Treasury securities with comparable terms as of the measurement date.
- (2) The trading volatility was determined by calculating the volatility of the Company's peer group.
- (3) The Company does not expect to pay a dividend in the foreseeable future.
- (4) After the Company signed two licenses for two drug programs from universities in the first half of 2022 it engaged an independent valuation firm to perform an Enterprise-Equity valuation. The results of this engagement resulted in an increase in the value per share of common stock used in the Black Scholes option pricing model employed to value the Company's equity grants and warrant issuances for all 2022 grant date stock prices.

## NOTE 12 – MATERIAL AGREEMENTS

### JHU-APL Technology License

On February 7, 2018, the Company entered into an exclusive, world-wide, royalty-bearing license from JHU-APL for the technology. The license covers three (3) issued patents, 1 new provisional patent application, non-patent rights to proprietary libraries of algorithms and other trade secrets, the license also includes modifications and improvements. In October of 2021, the Company executed an Amendment to the original license which represents improvements and new advanced analytics capabilities. In consideration of the rights granted to the Company under the License Agreement JHU received a warrant equal to five (5%) percent of the then fully diluted equity base of the Company, which shall be diluted following the closing of this offering. Under the terms of the License Agreement, JHU will be entitled to eight (8%) percent royalty on net sales for the services provided by the Company in which the JHU licensed technology was utilized, as well as fifty (50%) percent of all sublicense revenues received by the Company. In addition, the Company is required to pay JHU an annual maintenance fee of \$1,500. Minimum annual royalty payments are \$20,000 for 2022, \$80,000 for 2023, and \$300,000 for 2024 and beyond, if cumulative annual royalty payments do not reach these levels, the amount due to JHU to reach the annual minimum is due by January 31<sup>st</sup> of the following year. Failure to make annual royalty payments is considered a material breach under the agreement and upon notice from JHU of a material breach, the Company shall have 60 days to cure the material breach. On July 8, 2022, the company entered into an exclusive, world-wide, royalty-bearing license from JHU-APL for the additional technology developed to enhance the bLEAP™ platform. This license provides the Company with new intellectual property and also encompasses most of the intellectual property from the initial February 2018 license. In consideration of the new license, the Company issued 279,159 shares of common stock. (see note 11) Under the terms of the new License Agreement, JHU will be entitled to eight (8%) percent of net sales for the services provided by the Company to other parties and 3% for internally development drug projects in which the JHU license was utilized. The new license also contains tiered sub licensing fees that start at 50% and reduce to 25% based on revenues.

In addition, under the new license agreement, the minimum annual royalty payments are \$30,000 for 2022, \$80,000 for 2023, and \$300,000 for 2024 and beyond. As of September 30, 2022, we have accrued, \$22,500 of the 2022 minimum annual royalty payments. See Note 11 for details on warrants issued related to this agreement.

#### George Washington University - Beta2-spectrin siRNA License

On January 14, 2022, the Company entered into an exclusive, world-wide, royalty-bearing license from George Washington University (GWU) for rights to use siRNA targeting Beta2-spectrin in the treatment of human diseases, including hepatocellular carcinoma (HCC). The license covers methods claimed in three US and worldwide patent applications, and also includes use of this approach for treatment of obesity, non-alcoholic fatty liver disease, and non-alcoholic steatohepatitis.

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In consideration of the rights granted to the Company under the License Agreement GWU received a \$20,000 License Initiation Fee. Under the terms of the License Agreement, GWU will be entitled to a three percent (3%) royalty on net sales subject to quarterly minimums once the first sale has occurred subsequent to regulatory approval, as well sublicense or assignment fees in the event the Company sublicenses or assigns their rights to use the technology. The Company will also reimburse GWU for previously incurred and ongoing patent costs. The Sublicense and Assignment fee amounts decline as the Company advances the clinical development of the licensed technology. The license agreement also contains milestone payments for clinical development through the approval of an NDA and commercialization. As of September 30, 2022, there has been no accrual for royalties, since we have not begun revenue. The Company assessed whether the license should be capitalized and determined that the licensed program is early stage and therefore the Company expensed the license fee and will expense development costs until commercial viability is likely.

#### Johns Hopkins University – Mebendazole License

On February 22, 2022, the Company entered into an exclusive, world-wide, royalty-bearing license from Johns Hopkins University (JHU) for the use of an improved formulation of Mebendazole for the treatment of any human cancer or neoplastic disease. This formulation shows potent activity in animal models of different types of cancer, and has been evaluated in a Phase I clinical trial in patients with high-grade glioma (NCT01729260). The trial, an open-label dose-escalation study, assessed the safety and efficacy of the improved formulation with adjuvant temozolomide in 24 patients with newly diagnosed gliomas. Investigators observed no dose-limiting toxicity in patients receiving all but the highest tested dose (200mg/kg/day). Four of the 15 patients receiving the maximum tested dose of 200mg/kg/day experienced dose-limiting toxicity, all of which were reversed by decreasing or eliminating the dose given. There were no serious adverse events attributed to mebendazole at any dose during the trial. 41.7% of patients who received mebendazole were alive at two years after enrollment, and 25% were alive at four years (Gallia et al., 2021).

The license covers six (6) issued patents and one (1) pending application. In consideration of the rights granted to the Company under the License Agreement JHU will receive a staggered Upfront License Fee of \$250,000. The Company will also reimburse JHU for previously incurred and ongoing patent costs. Under the terms of the License Agreement, JHU will be entitled to three- and one-half percent (3.5%) royalty on net sales by the Company. In addition, the Company is required to pay JHU minimum annual royalty payments of \$5,000 for 2023, \$10,000 for 2024, \$20,000 for 2025, \$30,000 for 2026 and \$50,000 for 2027 and each year after until the first commercial sale after which the annual minimum royalty shall be \$250,000. The license agreement also contains milestone payments for clinical development steps through the approval of an NDA and commercialization. The license covers six (6) issued patents and one (1) pending application. In consideration of the rights granted to the Company under the License Agreement JHU will receive a staggered Upfront License Fee of \$250,000. The initial payment for \$50,000 was paid and the remaining balance is deferred until the earlier of; we complete the IPO, raise \$10 million in financing or until 9 months from the effective date of the license. As of September 30, 2022, the balance of accrued expense related to this license agreement was \$253,921. The Company assessed whether the license should be capitalized and determined that the licensed program is early stage and therefore the Company expensed the license fee and will expense development costs until commercial viability is likely.

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#### NOTE 13 – COMMITMENTS AND CONTINGENCIES

The Company follows ASC 450, Contingencies, which requires the Company to assess the likelihood that a loss will be incurred from the occurrence or non-occurrence of one or more future events. Such assessment inherently involves an exercise of judgment. In assessing possible loss contingencies from legal proceedings or unasserted claims, the Company evaluates the perceived merits of such proceedings or claims, and of the relief sought or expected to be sought.

If the assessment of a contingency indicates that it is probable that a material loss will be incurred and the amount of the liability can be estimated, then the estimated liability would be accrued in the Company's financial statements. If the assessment indicates that a potentially material loss contingency is not probable but is reasonably possible, or is probable but cannot be estimated, then the nature of the contingent liability, and an estimate of the range of possible losses, if determinable and material, would be disclosed. Loss contingencies considered remote are generally not disclosed unless they involve guarantees, in which case the guarantees would be disclosed.

While not assured, management does not believe, based upon information available at this time, that a loss contingency will have material adverse effect on the Company's financial position, results of operations or cash flows.

#### NOTE 14 – SUBSEQUENT EVENTS

On October 5, 2022, the Company entered into an exchange agreement with the Investor whereby all of his common stock, 5,141,450 shares, were exchanged into shares of Series A Convertible Preferred Stock. The Series A Preferred Stock is the economic equivalent of the common stock but has no voting rights and is subject to a blocker which prohibits the conversion into common stock if it would result in the Investor owning more than 4.99% of the Company's outstanding common stock at such time. For a description of the rights and preferences of the Series A Preferred Stock.

On October 13, 2022, the Company entered into an exclusive, world-wide, royalty-bearing license from Johns Hopkins University (JHU) and the Institute of Organic Chemistry and Biochemistry (IOCB) of the Czech Academy of Sciences for rights to commercialize N-substituted prodrugs of mebendazole that demonstrate improved solubility and bioavailability. The license covers prodrug compositions and use for treating disease as claimed in multiple US and worldwide patent applications. In consideration for the rights granted to the Company under the License Agreement JHU and IOCB will receive a staggered upfront license fee of \$100,000. The Company will also reimburse JHU and IOCB for previously incurred patent costs.

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PRELIMINARY PROSPECTUS

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BULLFROG AI HOLDINGS, INC.

Units  
Each Unit Consisting of

**One Share of Common Stock,  
One Warrant to Purchase One share of Common Stock, and  
One Non-tradeable Warrant to Purchase One Share of Common Stock  
(and the shares of Common Stock underlying such Warrants)**

**WALLACHBETH CAPITAL LLC**  
**KINGSWOOD CAPITAL MARKETS**  
division of Kingswood Capital Partners, LLC

, 2023

Through and including \_\_\_\_\_, 2023 (the 25th day after the date of this prospectus), all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

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The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

**PRELIMINARY PROSPECTUS**

**SUBJECT TO COMPLETION**

**DATED JANUARY 10, 2023**

**1,985,373 Shares of  
Common Stock**

BULLFROG AI HOLDINGS, Inc.

This prospectus relates to 1,985,373 shares of common stock Bullfrog AI Holdings, Inc. (the "Company", "we", "us", "our") that may be sold from time to time by the selling stockholders named in this prospectus, which includes:

- 1,207,469 shares of common stock held by selling stockholders;
- 276,452 shares of common stock upon the conversion of convertible notes (the "Convertible Bridge Notes") held by selling stockholders (the "Noteholders") at a conversion price at the lesser of a 20% discount to the IPO price or a \$25 million pre-money valuation; and
- 276,452 shares of common stock upon exercise of currently outstanding warrants held by the Noteholders at an exercise price at the lesser of 90% of the per share IPO price or \$25 million pre-market valuation (the "Noteholder Warrants") and 225,000 shares of common stock upon exercise of common stock purchase warrants.

The selling stockholders must sell their shares at a fixed price per share of \$ \_\_\_\_\_, which is the per share price of the shares being offered in our initial public offering, until such time as our shares are listed on a national securities exchange. Thereafter, the shares offered by this prospectus may be sold by the selling stockholders from time to time in the open market, through privately negotiated transactions or a combination of these methods, at market prices prevailing at the time of sale or at negotiated prices. By separate prospectus (the "IPO Prospectus"), we have registered an aggregate of 1,317,647 Units which we are offering for sale to the public through our underwriters, excluding any shares issuable upon the underwriters' over-allotment option.

The 1,985,373 shares of common stock offered by the selling stockholders is defined herein as the "Resale Shares." For a more detailed description of the Convertible Bridge Notes and the Noteholder Warrants, see "*Description of Capital Stock—Convertible Notes and Warrants.*"

We intend to apply to list our shares of common stock for trading on the Nasdaq Capital Market, subject to official notice of issuance, under the symbol "BFRG." No assurance can be given that our application will be approved. The consummation of this offering is conditioned on obtaining Nasdaq approval.

We are an emerging growth company under the Jumpstart our Business Startups Act of 2012, or JOBS Act, and, as such, may elect to comply with certain reduced public company reporting requirements for future filings. Investing in our common stock involves a high degree of risk.

The distribution of securities offered hereby may be effected in one or more transactions that may take place on The Nasdaq Capital Market, including ordinary brokers' transactions, privately negotiated transactions or through sales to one or more dealers for resale of such securities as principals, at market prices prevailing at the time of sale, at prices related to such prevailing market prices or at negotiated prices. Usual and customary or specifically negotiated brokerage fees or commissions may be paid by the selling stockholders. No sales of the shares covered by this prospectus shall occur until the shares of common stock sold in our initial public offering begin trading on The Nasdaq Capital Market. Currently, there is no public market for our common stock.

**Investing in our securities is highly speculative and involves a significant degree of risk. See "Risk Factors" beginning on page 8 of this prospectus for a discussion of information that should be considered before making a decision to purchase our securities.**

Sales of the shares of our common stock registered in this prospectus and the IPO Prospectus will result in two offerings taking place concurrently which might affect price, demand, and liquidity of our common stock.

You should rely only on the information contained in this prospectus and any prospectus supplement or amendment. We have not authorized anyone to provide you with different information. This prospectus may only be used where it is legal to sell these securities. The information in this prospectus is only accurate on the date of this prospectus, regardless of the time of any sale of securities.

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.**

The date of this prospectus is \_\_\_\_\_, 2023.

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THE OFFERING

EXPLANATORY NOTE

Concurrent with this offering, the Company is registering shares of common stock in connection with an initial public offering of 1317,647 Units through the underwriters. Sales by stockholders that purchased shares in our common stock as a part of the Units from the initial public offering may reduce the price of our common stock, demand for our shares and, as a result, the liquidity of your investment.

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USE OF PROCEEDS

We will not receive any of the proceeds from the sale of the Resale Shares. However, upon any exercise of the Noteholder Warrants, we will receive cash proceeds per share equal to the exercise price of such warrants. The Noteholder Warrants have a per share exercise price equal to the lesser of a 20% discount to the IPO price or a \$25 million pre-money valuation. If all of the Noteholder Warrants are exercised, the aggregate gross proceeds from the warrant exercise prices would be approximately \$ . We cannot predict the number of warrants that will be exercised by the Noteholders.

We have no specific plan for such proceeds except to generate funds for working capital and general corporate purposes. We will have broad discretion in the way that we use these proceeds.

The selling stockholders will pay any underwriting discounts and commissions and expenses incurred by them for brokerage, accounting, tax or legal services or any other expenses incurred by them in disposing of the shares. We will bear all other costs, fees and expenses incurred in effecting the registration of the shares covered by this prospectus, including, without limitation, all registration and filing fees and fees and expenses of our counsel and our accountants.

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SELLING STOCKHOLDERS

This prospectus covers the possible resale by the selling stockholders identified in the table below of up to 1,985,373 shares of our common stock (the “Resale Shares”). The Resale Shares offered by the selling stockholders includes the following: (i) 1,207,469 shares of common stock held by selling stockholders; (ii) 276,452 shares of common stock upon the conversion of Convertible Bridge Notes held by Noteholders at a conversion price that reflects a \$25 million dollar pre IPO value; and (iv) 276,452 shares of common stock upon exercise of currently outstanding Noteholder Warrants at an exercise price of 90% of the initial public offering prices of our initial public offering and 225,000 shares of common stock upon exercise of common stock purchase warrants at an exercise price of \$2.50 per share. The transactions by which the selling stockholders acquired their securities from us were exempt under the registration provisions of the Securities Act.

The selling stockholders may sell some, all, or none of the Resale Shares. We do not know whether any selling stockholder will exercise the Noteholder Warrants, and upon such exercise, how long such selling stockholders will hold the Resale Shares before selling them, and we currently have no agreements, arrangements, or understandings with the selling stockholders regarding the sale of any of the Resale Shares. Unless otherwise indicated in the footnotes to the table below, no selling stockholder has had any material relationship with us or any of our affiliates within the past three years other than as a security holder.

We have prepared the following table based on written representations and information furnished to us by or on behalf of the selling stockholders. Since the date on which the selling stockholders provided this information, the selling stockholders may have sold, transferred, or otherwise disposed of all or a portion of the Convertible Bridge Notes or the Noteholder Warrants in a transaction exempt from the registration requirements of the Securities Act. Unless otherwise indicated in the footnotes to the table below, we believe that (i) none of the selling stockholders are broker-dealers or affiliates of broker-dealers, and (ii) no selling stockholder has direct or indirect agreements or understandings with any person to distribute their Resale Shares. To the extent any selling stockholder identified below is, or is affiliated with, a broker-dealer, it could be deemed, individually, but not severally, to be an “underwriter” within the meaning of the Securities Act. Information about the selling stockholders may change over time.

The table below lists the selling stockholders and other information regarding the beneficial ownership of the shares of common stock by each of the selling stockholders. The second column lists the number of shares of common stock beneficially owned by each selling stockholder, based on its ownership of Resale Shares as of January 10, 2023, assuming the conversion of Convertible Bridge Notes and the exercise of the Noteholder Warrants held by the selling stockholders on that date, without regard to any limitations on conversions and exercises.

The third column lists the shares of common stock being offered by this prospectus by the selling stockholders.

This prospectus generally covers the resale of the sum of the maximum number of shares of common stock issuable upon the conversion of Convertible Bridge Notes and the exercise of all Noteholder Warrants held by the selling stockholders, each as of the trading day immediately preceding the date of this prospectus and all subject to adjustment, without regard to any limitations on the conversion or exercise of these securities. The fourth column assumes the sale of all of the shares offered by the selling stockholders pursuant to this prospectus.

Under the terms of the, Convertible Bridge Notes and the Noteholder Warrants, a selling stockholder may not convert the Convertible Bridge Notes or exercise the Noteholder Warrants to the extent such conversion or exercise would cause such selling stockholder, together with its affiliates, to beneficially own a number of shares of common stock which would exceed 4.99% of our then outstanding common stock following such conversion or exercise. This limitation may be waived (up to a maximum of 9.99%) by the selling stockholder and in its sole discretion, upon not less than sixty-one (61) days’ prior notice to us. The number of shares in the table below do not reflect this limitation. The selling stockholders may sell all, some or none of their shares in this offering. See “Plan of Distribution.”

<u>Selling Stockholder</u>	<u>Number of Shares Beneficially Owned Before Offering</u>	<u>Percentage of Shares Beneficially Owned Before this Offering</u>	<u>Number of Shares Being Offered</u>	<u>Number of Shares Beneficially Owned After Offering</u>	<u>Percentage of Shares Beneficially Owned After Offering (%)<sup>(1)</sup></u>
Abhishake Chhibber	4,464	*			
Bigger Capital Fund, LP (2)	136,022	3.38%			
Brittani Phillips (3)	13,878	*			

Cavalry Investment Fund LP (4)	136,022	3.38%
Christopher Virtue Trust (5)	15,234	*
Dawn Cicone	107,142	2.66%
Dr Barry Ginsberg(6)	19,042	*
Gerald Newman	500,000	12.43%
GreenTree Financial Group Inc. (7)	575,000	14.30%
Indira Virtue Trust (8)	15,234	*
Johns Hopkins University Applied Physics Laboratory, LLC (9)	39,879	*
Shary Moxley (10)	54,538	1.36%
Steve Simon(11)	13,602	*
Walleye Opportunities Master Fund Ltd. (12)	136,022	3.38%
Charles Stevenson (13)	13,310	*
TEDCO(14)	205,984	5.12%

\*Represents beneficial ownership of less than one percent.

- (1) Applicable percentage ownership after to this offering is based on 4,021,935 shares of common stock deemed to be outstanding as of January 10, 2023. As noted above, for purposes of computing percentage ownership after this offering, we have assumed that all Convertible Bridge Notes and the Noteholder Warrants held by the selling stockholders will be converted to common stock and sold in this offering.
- (2) Consists of (i) 68,011 shares of common stock upon the conversion of Convertible Bridge Notes and (ii) 68,011 shares of common stock upon exercise of Noteholder Warrants. Michael Bigger, principal of Bigger Capital Fund, LP, has the power to vote or dispose of the shares held of record by Bigger Capital Fund, LP and may be deemed to beneficially own those shares.
- (3) Consists of (i) 6,939 shares of common stock upon the conversion of Convertible Bridge Notes and (ii) 6,439 shares of common stock upon exercise of Noteholder Warrants.
- (4) Consists of (i) 68,011 shares of common stock upon the conversion of Convertible Bridge Notes and (ii) 68,011 shares of common stock upon exercise of Noteholder Warrants. Thomas Walsh, principal of the Cavalry Investment Fund LP, has the power to vote or dispose of the shares held of record by Cavalry Investment Fund LP and may be deemed to beneficially own those shares.
- (5) Consists of (i) 7,617 shares of common stock upon the conversion of Convertible Bridge Notes and (ii) 7,617 shares of common stock upon exercise of Noteholder Warrants. Christopher Virtue, principal of the Christopher Virtue Trust, has the power to vote or dispose of the shares held of record by Christopher Virtue Trust and may be deemed to beneficially own those shares.
- (6) Consists of (i) 9,521 shares of common stock upon the conversion of Convertible Bridge Notes and (ii) 9,521 shares of common stock upon exercise of Noteholder Warrants.
- (7) Consists of (i) 350,000 shares of common stock and (ii) shares of common stock upon exercise of common stock purchase warrants at an exercise price of \$2.50 per share. The selling stockholder may not exercise the warrants to the extent such conversion or exercise would cause such selling stockholder, together with its affiliates, to beneficially own a number of shares of common stock which would exceed 9.99% of our then outstanding common stock following such conversion or exercise. Chris Cottone, principal of the GreenTree Financial Group Inc., has the power to vote or dispose of the shares held of record by GreenTree Financial Group Inc. and may be deemed to beneficially own those shares.
- (8) Consists of (i) 7,617 shares of common stock upon the conversion of Convertible Bridge Notes and (ii) 7,617 shares of common stock upon exercise of Noteholder Warrants. Indira Virtue, principal of the Indira Virtue Trust, has the power to vote or dispose of the shares held of record by Indira Virtue Trust and may be deemed to beneficially own those shares.
- (9) [\*], principal of the Johns Hopkins University Applied Physics Laboratory, LLC, has the power to vote or dispose of the shares held of record by Johns Hopkins University Applied Physics Laboratory, LLC and may be deemed to beneficially own those shares.
- (10) Consists of (i) 27,269 shares of common stock upon the conversion of Convertible Bridge Notes and (ii) 27,269 shares of common stock upon exercise of Noteholder Warrants.
- (11) Consists of (i) 6,801 shares of common stock upon the conversion of Convertible Bridge Notes and (ii) 6,801 shares of common stock upon exercise of Noteholder Warrants.
- (12) Consists of (i) 68,011 shares of common stock upon the conversion of Convertible Bridge Notes and (ii) 68,011 shares of common stock upon exercise of Noteholder Warrants Pura Vida Investments, LLC (“PVI”) serves as the sub-adviser to Walleye Opportunities Master Fund Ltd. (“WOF”). Efreem Kamen serves as the managing member of PVI. By virtue of these relationships, PVI and Efreem Kamen may be deemed to have shared voting and dispositive power principal of the shares held of record by Walleye Opportunities Master Fund Ltd and may be deemed to beneficially own those shares.
- (13) Consists of (i) 6,655 shares of common stock upon the conversion of Convertible Bridge Notes and (ii) 6,655 shares of common stock upon exercise of Noteholder Warrants.
- (14) Jack Minor, principal of TEDCO, has the power to vote or dispose of the shares held of record by TEDCO and may be deemed to beneficially own those shares.

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**[Alternate Page for Resale Prospectus]**

**PLAN OF DISTRIBUTION**

We are registering the Resale Shares to permit the resale of the Resale Shares by the selling stockholders from time to time after the date of this prospectus. We will not receive any of the proceeds from the sale of the Resale Shares. However, upon any exercise of the Noteholder Warrants held by the selling stockholders, we will receive cash proceeds per share equal to the exercise price of such warrants. We will pay all expenses (other than discounts, commissions, and transfer taxes, if any) relating to the registration of the Resale Shares in the registration statement of which this prospectus forms a part.

The selling stockholders may sell all or a portion of the Resale Shares beneficially owned by them and offered hereby from time to time directly or through one or more underwriters, broker-dealers, or agents. If the Resale Shares are sold through underwriters or broker-dealers, the selling stockholders will be responsible for any underwriter discounts or commissions and any applicable transfer taxes. The Resale Shares may be sold in one or more transactions at fixed prices, at prevailing market prices at the time of

the sale, at varying prices determined at the time of sale, or at negotiated prices. These sales may be effected in transactions, which may involve crosses or block transactions,

- on any national securities exchange or quotation service on which the securities may be listed or quoted at the time of sale;
- in the over-the-counter market;
- in transactions otherwise than on these exchanges or systems or in the over-the-counter market;
- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the securities as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales;
- in transactions through broker-dealers that agree with the selling stockholders to sell a specified number of such securities at a stipulated price per security;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- a combination of any such methods of sale; or
- any other method permitted pursuant to applicable law

The selling stockholders may also sell securities under Rule 144 or any other exemption from registration under the Securities Act, if available, rather than under this prospectus. The selling stockholders may also sell securities under Rule 144 or any other exemption from registration under the Securities Act, if available, rather than under this prospectus.

Broker-dealers engaged by the selling stockholders may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the selling stockholders (or, if any broker-dealer acts as agent for the purchaser of securities, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rule 2121; and in the case of a principal transaction a markup or markdown in compliance with FINRA Rule 2121.

In connection with the sale of the securities or interests therein, the selling stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the securities in the course of hedging the positions they assume. The selling stockholders may also sell securities short and deliver these securities to close out their short positions, or loan or pledge the securities to broker-dealers that in turn may sell these securities. The selling stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or create one or more derivative securities which require the delivery to such broker-dealer or other financial institution of securities offered by this prospectus, which securities such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The selling stockholders and any broker-dealers or agents that are involved in selling the securities may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the securities purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. Each selling stockholder has informed us that it does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the securities.

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[Alternate Page for Resale Prospectus]

#### LEGAL MATTERS

The validity of the common stock covered by this prospectus will be passed upon by Sichenzia Ross Ference LLP.

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#### PRELIMINARY PROSPECTUS

#### PART II — INFORMATION NOT REQUIRED IN PROSPECTUS

##### Item 13. Other Expenses of Issuance and Distribution

The following table sets forth an itemization of the various expenses, all of which we will pay, in connection with the issuance and distribution of the securities being registered. All of the amounts shown are estimated except the SEC Registration Fee and the FINRA filing fee.

SEC registration fee	\$	2,000
FINRA filing fee	\$	5,000
NASDAQ listing fee	\$	50,000
Legal fees and expenses	\$	160,000
Accounting fees and expenses	\$	34,000
Transfer agent and registrar fees		
	\$	5,000
Miscellaneous fees and expenses	\$	4,000
<b>Total</b>	<b>\$</b>	<b>260,000</b>

All amounts are estimated, except the U.S. Securities and Exchange Commission registration fee, the NASDAQ listing fee and the FINRA filing fee.

\*\* To be completed by amendment.

#### Item 14. Indemnification of Directors and Officers

Nevada law provides that a Nevada corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, other than an action by or in the right of the corporation (i.e., a “non-derivative proceeding”), by reason of the fact that he or she is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses, including attorneys’ fees, judgments, fines and amounts paid in settlement actually and reasonably incurred by him in connection with the action, suit or proceeding if he or she:

- Is not liable under Section 78.138 of the Nevada Revised Statutes for breach of his or her fiduciary duties to the corporation; or
- Acted in good faith and in a manner which he or she reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful.

In addition, a Nevada corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor (i.e., a “derivative proceeding”), by reason of the fact that he or she is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against expenses, including amounts paid in settlement and attorneys’ fees actually and reasonably incurred by him or her in connection with the defense or settlement of the action or suit if he:

- Is not liable under Section 78.138 of the Nevada Revised Statute for breach of his or her fiduciary duties to the corporation; or
- Acted in good faith and in a manner which he or she reasonably believed to be in or not opposed to the best interests of the corporation.

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Under Nevada law, indemnification may not be made for any claim, issue or matter as to which such a person has been adjudged by a court of competent jurisdiction, after exhaustion of all appeals therefrom, to be liable to the corporation or for amounts paid in settlement to the corporation, unless and only to the extent that the court in which the action or suit was brought or other court of competent jurisdiction determines upon application that in view of all the circumstances of the case, the person is fairly and reasonably entitled to indemnity for such expenses as the court deems proper.

NRS Section 78.747 provides that except as otherwise provided by specific statute, no director or officer of a corporation is individually liable for a debt or liability of the corporation, unless the director or officer acts as the alter ego of the corporation. The court as a matter of law must determine the question of whether a director or officer acts as the alter ego of a corporation.

To the extent that a director, officer, employee or agent of a corporation has been successful on the merits or otherwise in defense of any non-derivative proceeding or any derivative proceeding, or in defense of any claim, issue or matter therein, the corporation is obligated to indemnify him or her against expenses, including attorneys’ fees, actually and reasonably incurred in connection with the defense.

Further, Nevada law permits a Nevada corporation to purchase and maintain insurance or to make other financial arrangements on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise for any liability asserted against him or her and liability and expenses incurred by him or her in his or her capacity as a director, officer, employee or agent, or arising out of his or her status as such, whether or not the corporation has the authority to indemnify him or her against such liability and expenses.

Inssofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Company pursuant to the foregoing provisions, or otherwise, we have been advised that in the opinion of the SEC this indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

The Company plans to enter into an underwriting agreement in connection with this offering that provides that the underwriter is obligated, under some circumstances, to indemnify the Company’s directors, officers and controlling persons against specified liabilities, including liabilities under the Securities Act.

#### Item 15. Recent Issuances of Unregistered Securities

In the three years preceding the filing of this registration statement, we have issued the following securities that were not registered under the Securities Act. The information provided below does not give effect to the proposed reverse stock split described in the accompanying prospectus.

In 2019, BullFrog AI, Inc. sold a total of 7,917 shares of common stock to Tivoli Trust, an affiliate, for \$12 per share and raised a total of \$95,000. The sales occurred monthly throughout the year.

In March of 2020, BullFrog AI, Inc. received an investment from TEDCO - the Technology Development Corporation of Maryland, a State of Maryland Investment Fund – pursuant to the issuance of a \$200,000 convertible note with an 18-month term, 6% annual interest rate, and a 20% discount.

In June 2020 BullFrog Holdings AI, Holdings, Inc. acquired BullFrog AI, Inc. via a 1:1 share exchange. Prior to completing the share exchange, BullFrog AI, Inc. shares of common stock were forward split at a 25:1 ratio. Approximately 23 million shares of BullFrog AI Holdings, Inc. common stock were issued in the 1:1 share exchange. In addition, 1,000,000 shares were purchased by Vin Singh, the CEO, for \$100 and 1,250,000 warrants exercisable for \$0.30 were issued to JHU-APL pursuant to the 2018 licensing agreement for the bLEAP™ technology. (do we need to say anything about the 960,000 penny warrants issued each to Haber and Themis?)

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On June 23, 2021, the Company signed two consulting/advisor agreements with entities engaged to facilitate the Company’s objective of seeking a public listing of its securities. Under these agreements, each advisor was to receive: (i) three (3%) percent of the fully diluted equity of the Company as measured by the equity table immediately prior to listing on NASDAQ or any other national securities exchange, with a true-up amount to be delivered within thirty (30) days prior to its expected listing day; and (ii) warrants with a term of five years to purchase 1,000,000 (in one case) and 400,000 shares of the Company’s Common Stock at \$1.00 per share, which warrants will vest thirty (30) days prior to an expected going public transaction. Pursuant to these agreements, 817,786 shares of common stock were issued to each consultant as well as the above-mentioned warrants. In May 2022, these agreements were each amended so that one consultant (Newman) received 500,000 shares and the other advisor received 350,000 shares of common stock. All warrants were cancelled.

In July 2021, the Company entered into a SAFE note agreement \$150,000 with a related party. In August the Company entered into two bridge note agreements, one, in the amount of \$99,900 with the same related party as the SAFE and the second with an unrelated party for \$195,000. The notes were issued with a 5% original issuance discount



and the purchasers received 115,185 and 225,000 warrant, respectively.

In November 2021, 400,000 shares of common stock were issued under a consulting agreement with Dane Saglio, for services consistent with the responsibilities of a Chief Financial Officer. In addition, a total of 972,500 warrants with exercises prices of \$0.30-\$0.38 were issued to consultants who have been engaged as Company management and advisors. These warrant agreements have vesting terms that range for 12 to 36 months. In addition, the Company issued 205,000 options to employees with an exercise price of \$0.38 with vesting terms that range from 12 -24 months.

In December 2021, the Company initiated a placement of Bridge Notes seeking \$1.5M in operating capital to ensure the Company had operating capital while it finished the audit of its financial statements and prepared the S-1 registration statement related to the IPO. In December, the Company sold a convertible promissory note to an unrelated party for \$25,000. On April 11, 2022, the Company entered into an Exclusive placement agent and/or underwriter agreement with WallachBeth Capital LLC in connection with a proposed private and/or public offerings by the Company. As discussed in Footnote 2, a significant component of the Company's plan to secure capital is the intention of the Company to seek to be listed on a national exchange through an initial public offering ("IPO") of its common stock. WallachBeth was engaged in this regard and on April 28, 2022 the Company received net proceeds or approximately \$775,000 from the sale of Convertible Bridge Notes and Warrants to several institutional investors as well as several individual accredited investors. In addition to the money received on April 28th, the Company also received \$100,000 from the sale of a Convertible Bridge Note and Warrants to a related party in early April. The Company also received net proceeds of \$20,000 from the sale of one additional Convertible Bridge Note in September 2022. The bridge notes are convertible at the IPO at a 20% discount to the IPO price and the purchasers will also a warrant for each share of common stock issued upon conversion. The warrant exercise price will be 90% of the per share IPO price.

#### Item 16. Exhibits and Financial Statement Schedules

The following exhibits to this registration statement included in the Index to Exhibits are incorporated by reference.

<u>Exhibit No.</u>	<u>Description</u>
1.1**	<a href="#">Form of Underwriting Agreement</a>
3.1*	<a href="#">Amended and Restated Articles of Incorporation of Bullfrog AI Holdings, Inc</a>
3.2*	<a href="#">Bylaws of Bullfrog AI Holdings Inc.</a>
4.1*	<a href="#">Form of Registrant's Common Stock certificate</a>
4.3*	<a href="#">Form of Common Stock Purchase Warrant to be issued to Holders of the Registrant's Convertible Promissory Notes.</a>
4.4**	<a href="#">Form of Warrant Agent Agreement for the Warrants to be issued as part of the Units to be sold in the Offering.</a>
4.5**	<a href="#">Form of (Tradeable) Common Stock Purchase Warrant to be issued as part of the Units to be sold in the Offering pursuant to the Warrant Agent Agreement (contained in form of warrant agent agreement filed as Exhibit 4.4).</a>
4.6*	<a href="#">Form of Securities Purchase Agreement</a>
4.7**	<a href="#">Form of Convertible Promissory Note</a>
4.8**	<a href="#">Form of (Non-tradeable) Common Stock Purchase Warrant to be issued as part of the Units to be sold in the Offering pursuant to the Warrant Agent Agreement.</a>
5.1**	<a href="#">Opinion of Sichenzia Ross Ference LLP</a>
10.1*	<a href="#">Acquisition Agreement with Bullfrog AI, Inc.</a>
10.2*	<a href="#">Advisor Agreement between the Company and Greentree Financial Group, Inc.</a>
10.3*	<a href="#">Consulting Agreement between the Company and Garrett Newman</a>
10.4*	<a href="#">Employment Agreement</a>
10.5*	<a href="#">Exclusive License Agreement between the Company and Johns Hopkins University, dated February 7, 2018</a>
10.6*	<a href="#">Patent License Agreement between the Company and George Washington University, dated January 14, 2022</a>
10.7*	<a href="#">Exclusive License Agreement between the Company and Johns Hopkins University, dated February 22, 2022</a>
10.8*	<a href="#">License Agreement between the Company and Johns Hopkins Applied Physics Laboratory LLC, dated July 8, 2022</a>
10.9*	<a href="#">Exclusive License Agreement between the Company and Johns Hopkins University, dated October 13, 2022</a>
14.1*	<a href="#">Code of Ethics</a>
21.1*	<a href="#">List of significant subsidiaries of Bullfrog AI Holdings, Inc.</a>
23.1**	<a href="#">Consent of M&amp;K CPAS PLLC, an independent registered public accounting firm</a>
23.2**	<a href="#">Consent of Sichenzia Ross Ference LLP (contained in its form of opinion filed as Exhibit 5.1 hereto)</a>
99.1*	<a href="#">Charter of Audit Committee</a>
99.2*	<a href="#">Charter of Compensation Committee</a>
99.3*	<a href="#">Consent of Don Elsey</a>
99.4*	<a href="#">Consent of William Enright</a>
99.5*	<a href="#">Consent of Jason Hanson</a>
107**	<a href="#">Registration Fee Table</a>
	XRBL

\* Previously Filed.

\*\* Filed herewith

#### Item 17. Undertakings

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

- (2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.
- (5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:
- (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
  - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
  - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
  - (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.
- (b) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

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#### SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this registration statement on Form S-1 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of New York, State of New York on the 10th day of January 2023.

**BULLFROG AI HOLDINGS, INC.**  
(Registrant)

By: /s/ Vininder Singh  
Name: Vininder Singh  
Title: Chief Executive Officer (Principal Executive Officer)

Pursuant to the requirements of the Securities Act of 1933, this registration statement on Form S-1 has been signed by the following persons in the capacities and on the dates indicated.

Name	Title	Date
<u>/s/ Vininder Singh</u>	Chief Executive Officer (Principal Executive Officer) and Director	January 10, 2023
<u>/s/ Dane Saglio</u>	Chief Financial Officer (Principal Financial Officer)	January 10, 2023

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**BULLFROG AI HOLDINGS, INC.**  
**UNDERWRITING AGREEMENT**  
**1,317,647 Units,**  
**Each Consisting of**  
**One Share of Common Stock,**  
**One Warrant to Purchase One Share of Common Stock, and**  
**One Non-tradeable Warrant to Purchase One Share of Common Stock**

January \_\_, 2023

WallachBeth Capital LLC  
 Harborside Financial Center Plaza 5  
 185 Hudson Street, Ste 1410  
 Jersey City, NJ 07311

*As Representative of the Several Underwriters Named on Schedule I hereto*

Ladies and Gentlemen:

BULLFROG AI HOLDINGS, INC., a Delaware corporation (the "Company"), proposes, subject to the terms and conditions stated herein, to issue and sell to the underwriters named in **Schedule I** hereto (the "Underwriters," or each, an "Underwriter"), for whom WallachBeth Capital, LLC is acting as Representative (the "Representative"), an aggregate of 1,317,647 Units (the "Firm Units"), each Firm Unit consisting of: (i) one share of the Company's common stock, \$0.00001 par value per share (the "Common Stock"); (ii) one tradeable warrant to purchase one share of Common Stock (the "Firm Tradeable Warrants"); and, one non-tradeable warrant the "Firm Non-tradeable Warrants" and together with the Firm Tradeable Warrants, the "Firm Warrants"). The 1,317,647 shares of Common Stock referred to in this Section are hereinafter referred to as the "Firm Shares" together with the Firm Units and the Firm Warrants, the "Firm Securities." The Firm Warrants shall be issued pursuant to and shall have the rights and privileges set forth in, a warrant agent agreement, dated on or before the Closing Date, between the Company and Vstock Transfer, LLC, as warrant agent (the "Warrant Agreement"). The Company also proposes to grant to the Underwriters, upon the terms and conditions set forth in Section 4 hereof, an option (the "Over-allotment Option") to purchase up to an additional 197,647 shares of Common Stock, representing up to fifteen percent (15%) of the Firm Shares sold in the offering (the "Option Shares"), and/or 197,647 Tradeable Warrants at a price of \$0.01 per Tradeable Warrant (the "Option Tradeable Warrants"), and/or 197,647 Non-tradeable Warrants at \$0.01 per Non-tradeable Warrant (the "Option Non-tradeable Warrants" and together with the Option Tradeable Warrants, the "Option Warrants"), or any combination thereof, in each case for the purpose of covering over-allotments of such securities, if any. The Over-allotment Option is, at the Underwriters' sole discretion, for Option Shares and Option Warrants together, solely Option Shares, solely Option Tradeable Warrants, solely Option Non-tradeable Warrants, or any combination thereof (each, an "Option Security" and collectively, the "Option Securities"). The Firm Securities and the Option Securities are collectively referred to as the "Securities." The Securities shall be issued directly by the Company and shall have the rights and privileges described in the Registration Statement, the Pricing Prospectus and the Prospectus (as defined below). The offering and sale of the Securities is herein referred to as the "Offering."

The Company and the several Underwriters hereby confirm their agreement as follows:

**1. Registration Statement and Prospectus.**

The Company has prepared and filed with the Securities and Exchange Commission (the "Commission") a registration statement covering the Securities (as defined in Section 4(f) hereof) on Form S-1 (File No. 333-[267951]) under the Securities Act of 1933, as amended (the "Securities Act"), and the rules and regulations (the "Rules and Regulations") of the Commission thereunder, including a preliminary prospectus relating to the Securities and such amendments to such registration statement (including post effective amendments) as may have been required to the date of this Agreement. Such registration statement, as amended (including any post effective amendments), has been declared effective by the Commission. Such registration statement, including amendments thereto (including post effective amendments thereto) and all documents and information deemed to be a part of the Registration Statement through incorporation by reference or otherwise at the time of effectiveness thereof (the "Effective Time"), the exhibits and any schedules thereto at the Effective Time or thereafter during the period of effectiveness and the documents and information otherwise deemed to be a part thereof or included therein by the Securities Act or otherwise pursuant to the Rules and Regulations at the Effective Time or thereafter during the period of effectiveness, is herein called the "Registration Statement." If the Company has filed or files an abbreviated registration statement pursuant to Rule 462(b) under the Securities Act (the "Rule 462 Registration Statement"), then any reference herein to the term Registration Statement shall include such Rule 462 Registration Statement. Any preliminary prospectus included in the Registration Statement or filed with the Commission pursuant to Rule 424(a) under the Securities Act is hereinafter called a "Preliminary Prospectus." The Preliminary Prospectus relating to the Securities that was included in the Registration Statement immediately prior to the pricing of the offering contemplated hereby is hereinafter called the "Pricing Prospectus."

The Company is filing with the Commission pursuant to Rule 424 under the Securities Act a final prospectus covering the Securities, which includes the information permitted to be omitted therefrom at the Effective Time by Rule 430A under the Securities Act. Such final prospectus, as so filed, is hereinafter called the "Final Prospectus." The Final Prospectus, the Pricing Prospectus and any preliminary prospectus in the form in which they were included in the Registration Statement or filed with the Commission pursuant to Rule 424 under the Securities Act is hereinafter called a "Prospectus." Reference made herein to any Preliminary Prospectus, the Pricing Prospectus or to the Prospectus shall be deemed to refer to and include any documents incorporated by reference therein.

**2. Representations and Warranties of the Company Regarding the Offering.**

(a) The Company represents and warrants to, and agrees with, the several Underwriters, as of the date hereof and as of the Closing Date (as defined in Section 4(d) below) and as of each Option Closing Date (as defined in Section 4(b) below), as follows:

(i) **No Material Misstatements or Omissions.** At each time of effectiveness, at the date hereof, at the Closing Date, and at each Option Closing Date, if any, the Registration Statement and any post-effective amendment thereto complied or will comply in all material respects with the requirements of the Securities Act and the Rules and Regulations and did not, does not, and will not, as the case may be, contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. The Time of Sale Disclosure Package (as defined below) as of the date hereof and at the Closing Date and on each Option Closing Date, any roadshow or investor presentations delivered to and approved by the Underwriter for use in connection with the marketing of the offering of the Securities (the "Marketing Materials"), if any, and the Final Prospectus, as amended or supplemented, as of its date, at the time of filing pursuant to Rule 424(b) under the Securities Act, at the Closing Date, and at each Option Closing Date, if any, did not, does not and will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading. The representations and warranties set forth in the two immediately preceding sentences shall not apply to statements in or omissions from the Registration Statement, the Time of Sale Disclosure Package or any Prospectus in reliance upon, and in conformity with, written information furnished to the Company by the Underwriter specifically for use in the preparation thereof, which written information is described in Section 7(f). The Registration Statement contains all exhibits and schedules required to be filed by the Securities Act or the Rules and Regulations. No order preventing or suspending the effectiveness or use of the Registration Statement or any Prospectus is in effect and no proceedings for such purpose have been instituted or are pending, or, to the knowledge of the

Company, are contemplated or threatened by the Commission.

(ii) **Marketing Materials.** The Company has not distributed any prospectus or other offering material in connection with the offering and sale of the Securities other than the Time of Sale Disclosure Package and the roadshow or investor presentations delivered to and approved by the Representative for use in connection with the marketing of the offering of the Securities (the “Marketing Materials”).

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(iii) **Accurate Disclosure.** (A) The Company has provided a copy to the Underwriters of each Issuer Free Writing Prospectus (as defined below) used in the sale of Securities. The Company has filed all Issuer Free Writing Prospectuses required to be so filed with the Commission, and no order preventing or suspending the effectiveness or use of any Issuer Free Writing Prospectus is in effect and no proceedings for such purpose have been instituted or are pending, or, to the knowledge of the Company, are contemplated or threatened by the Commission. When taken together with the rest of the Time of Sale Disclosure Package or the Final Prospectus, no Issuer Free Writing Prospectus, as of its issue date and at all subsequent times through the completion of the public offer and sale of the Securities, has, does or will include (1) any untrue statement of a material fact or omission to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading, or (2) information that conflicted, conflicts or will conflict with the information contained in the Registration Statement or the Final Prospectus. The representations and warranties set forth in the immediately preceding sentence shall not apply to statements in or omissions from the Time of Sale Disclosure Package, the Final Prospectus or any Issuer Free Writing Prospectus in reliance upon, and in conformity with, written information furnished to the Company by any Underwriter specifically for use in the preparation thereof, which written information is described in Section 7(f). As used in this paragraph and elsewhere in this Agreement:

(1) “Time of Sale Disclosure Package” means the Prospectus most recently filed with the Commission before the time of this Agreement, including any preliminary prospectus supplement deemed to be a part thereof, each Issuer Free Writing Prospectus, and the description of the transaction provided by the Underwriters included on **Schedule II**.

(2) “Issuer Free Writing Prospectus” means any “issuer free writing prospectus,” as defined in Rule 433 under the Securities Act, relating to the Securities that (A) is required to be filed with the Commission by the Company, or (B) is exempt from filing pursuant to Rule 433(d)(5)(i) or (d)(8) under the Securities Act, in each case in the form filed or required to be filed with the Commission or, if not required to be filed, in the form retained in the Company’s records pursuant to Rule 433(g) under the Securities Act.

(B) At the time of filing of the Registration Statement and at the date hereof, the Company is an “ineligible issuer,” as defined in Rule 405 under the Securities Act.

(C) Each Issuer Free Writing Prospectus listed on **Schedule III** satisfied, as of its issue date and at all subsequent times through the Prospectus Delivery Period (as defined in Section 5(a) hereof), all other conditions as may be applicable to its use as set forth in Rules 164 and 433 under the Securities Act, including any legend, record-keeping or other requirements.

(iv) **Financial Statements.** The financial statements of the Company, together with the related notes and schedules, included in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus comply in all material respects with the applicable requirements of the Securities Act and the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and the rules and regulations of the Commission thereunder, and fairly present in all material respects the financial condition of the Company as of the dates indicated and the results of operations and changes in cash flows for the periods therein specified in conformity with U.S. generally accepted accounting principles (“GAAP”) consistently applied throughout the periods involved (provided that unaudited interim financial statements are subject to year-end audit adjustments that are not expected to be material in the aggregate and do not contain all footnotes required by GAAP). No other financial statements, pro forma financial information or schedules are required under the Securities Act, the Exchange Act, or the Rules and Regulations to be included in the Registration Statement, the Time of Sale Disclosure Package or the Final Prospectus.

(v) **Pro Forma Financial Information.** The pro forma financial statements included in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus include assumptions that provide a reasonable basis for presenting the significant effects directly attributable to the transactions and events described therein, the related pro forma adjustments give appropriate effect to those assumptions, and the pro forma adjustments reflect the proper application of those adjustments to the historical financial statements amounts in the pro forma financial statements included in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus. The pro forma financial statements included in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus comply as to form in all material respects with the application requirements of Regulation S-X under the Exchange Act.

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(vi) **Independent Accountants.** To the Company’s knowledge, M&K CPAS, PLLC, which has expressed its opinion with respect to the audited financial statements and schedules included as a part of the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus, is an independent public accounting firm with respect to the Company within the meaning of the Securities Act and the Rules and Regulations.

(vii) **Accounting Controls.** The Company will maintain a system of “internal control over financial reporting” (as defined under Rules 13a-15 and 15d-15 under the Exchange Act) that complies with the requirements of the Exchange Act and has been designed by, or under the supervision of, its principal executive and principal financial officer, or persons performing similar functions, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP, including, but not limited to, internal accounting controls sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management’s general or specific authorizations; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability; (iii) access to assets is permitted only in accordance with management’s general or specific authorization; and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences.

(viii) **Forward-Looking Statements.** The Company had a reasonable basis for, and made in good faith, each “forward-looking statement” (within the meaning of Section 27A of the Securities Act or Section 21E of the Exchange Act) contained or incorporated by reference in the Registration Statement, the Time of Sale Disclosure Package, the Final Prospectus or the Marketing Materials.

(ix) **Statistical and Marketing-Related Data.** All statistical or market-related data included or incorporated by reference in the Registration Statement, the Time of Sale Disclosure Package or the Final Prospectus, or included in the Marketing Materials, are based on or derived from sources that the Company reasonably believes to be reliable and accurate, and the Company has obtained the written consent to the use of such data from such sources, to the extent required.

(x) **Stock Exchange Listing.** The shares of Common Stock have been approved for listing on The Nasdaq Capital Market (“Nasdaq”), and the Company has taken no action designed to, or likely to have the effect of, delisting the shares of Common Stock from Nasdaq, nor has the Company received any written notification that Nasdaq is contemplating terminating such listing.

(xi) **Absence of Manipulation.** The Company has not taken, directly or indirectly, any action that is designed to or that has constituted or that would reasonably be expected to cause or result in the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Securities.

(xii) **Investment Company Act.** The Company is not and, after giving effect to the offering and sale of the Securities and the application of the net proceeds thereof, will not be an “investment company,” as such term is defined in the Investment Company Act of 1940, as amended.

(b) Any certificate signed by any officer of the Company and delivered to the Underwriters or to counsel for the Underwriters shall be deemed a representation and warranty by the Company to the Underwriters as to the matters covered thereby.

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### 3. Representations and Warranties Regarding the Company.

(a) The Company represents and warrants to, and agrees with, the several Underwriters, as of the date hereof and as of the Closing Date and as of each Option Closing Date, if any, as follows:

(i) **Good Standing.** The Company has been duly organized and is validly existing as a corporation or other entity in good standing under the laws of its jurisdiction of incorporation or organization. The Company has the power and authority (corporate or otherwise) to own its properties and conduct its business as currently being carried on and as described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, and is duly qualified to do business as a foreign corporation or other entity in good standing in each jurisdiction in which it owns or leases real property or in which the conduct of its business makes such qualification necessary, except where the failure to so qualify would not have or be reasonably likely to result in a material adverse effect upon the business, prospects, properties, operations, condition (financial or otherwise) or results of operations of the Company, or in its ability to perform its obligations under this Agreement, the Warrant, the Warrant Agreement (“Material Adverse Effect”).

(ii) **Validity and Binding Effect of Agreements.** This Agreement, the Warrant, the Warrant Agreement have been duly and validly authorized by the Company, and, when executed and delivered, will constitute, the valid and binding agreements of the Company, enforceable against the Company in accordance with their respective terms, except: (i) as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting creditors’ rights generally; (ii) as enforceability of any indemnification or contribution provision may be limited under the federal and state securities laws; and (iii) that the remedy of specific performance and injunctive and other forms of equitable relief may be subject to the equitable defenses and to the discretion of the court before which any proceeding therefor may be brought.

(iii) **Contracts.** The execution, delivery and performance of this Agreement, the Warrant Agreement, the Warrant and the consummation of the transactions herein and therein contemplated will not (A) result in a breach or violation of any of the terms and provisions of, or constitute a default under, any law, order, rule or regulation to which the Company is subject, or by which any property or asset of the Company is bound or affected, except to the extent that such conflict, breach or default is not reasonably likely to result in a Material Adverse Effect, (B) conflict with, result in any violation or breach of, or constitute a default (or an event that with notice or lapse of time or both would become a default) under, or give to others any right of termination, amendment, acceleration or cancellation (with or without notice, lapse of time or both) (a “Default Acceleration Event”) of, any agreement, lease, credit facility, debt, note, bond, mortgage, indenture or other instrument (the “Contracts”) or obligation or other understanding to which the Company is a party or by which any property or asset of the Company is bound or affected, except to the extent that such conflict, default, or Default Acceleration Event is not reasonably likely to result in a Material Adverse Effect, or (C) result in a breach or violation of any of the terms and provisions of, or constitute a default under, the Company’s Amended and Restated Certificate of Incorporation, as amended (“Certificate of Incorporation”), or Amended and Restated Bylaws (“Bylaws”).

(iv) **No Violations of Governing Documents.** The Company is not in violation, breach or default under its Certificate of Incorporation, Bylaws or other equivalent organizational or governing documents.

(v) **Consents.** No consents, approvals, orders, authorizations or filings are required on the part of the Company in connection with the execution, delivery or performance of this Agreement, the Warrant Agreement, the Warrant and the issue and sale of the Securities, except (A) the registration under the Securities Act of the Securities and Representative’s Securities, which has been effected, (B) the necessary filings and approvals from Nasdaq to list the Securities and the shares of Common Stock underlying the Warrants (C) such consents, approvals, authorizations, registrations or qualifications as may be required under state or foreign securities or Blue Sky laws and the rules of the Financial Industry Regulatory Authority, Inc. (“FINRA”) in connection with the purchase and distribution of the Securities by the several Underwriters, (D) such consents and approvals as have been obtained and are in full force and effect, and (E) such consents, approvals, orders, authorizations and filings the failure of which to make or obtain is not reasonably likely to result in a Material Adverse Effect.

(vi) **Capitalization.** The Company has an authorized capitalization as set forth in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus. All of the issued and outstanding shares of capital stock of the Company are duly authorized and validly issued, fully paid and non-assessable, and have been issued in compliance with all applicable securities laws, and conform to the description thereof in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus. Since the respective dates as of which information is provided in the Registration Statement, the Time of Sale Disclosure Package or the Final Prospectus, the Company has not entered into or granted any convertible or exchangeable securities, options, warrants, agreements, contracts or other rights in existence to purchase or acquire from the Company any shares of the capital stock of the Company. The Firm Securities and the Option Securities have been duly authorized for issuance and sale and, when issued and paid for, will be validly issued, fully paid and non-assessable, free and clear of all liens imposed by the Company; the holders thereof are not and will not be subject to personal liability by reason of being such holders; the Securities are not and will not be subject to the preemptive rights of any holders of any security of the Company or similar contractual rights granted by the Company; and all corporate action required to be taken for the authorization, issuance and sale of the Securities has been duly and validly taken; the shares of Common Stock issuable upon exercise of the Warrants have been duly authorized and reserved for issuance by all necessary corporate action on the part of the Company and when paid for and issued in accordance with the Warrant Agreement, such shares of Common Stock will be validly issued, fully paid and non-assessable; and the Securities and the Warrant Agreement conform in all material respects to all statements with respect thereto contained in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus.

(vii) **Taxes.** The Company has (a) filed all foreign, federal, state and local tax returns (as hereinafter defined) required to be filed with taxing authorities prior to the date hereof or has duly obtained extensions of time for the filing thereof (except where the failure to file would not, individually or in the aggregate, have a Material Adverse Effect) and (b) paid all taxes (as hereinafter defined) shown as due and payable on such returns that were filed and has paid all taxes imposed on or assessed against the Company (except where the failure to pay would not, individually or in the aggregate, have a Material Adverse Effect). The provisions for taxes payable, if any, shown on the financial statements included in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus are sufficient for all accrued and unpaid taxes, whether or not disputed, and for all periods to and including the dates of such consolidated financial statements. To the knowledge of the Company, no issues have been raised (and are currently pending) by any taxing authority in connection with any of the returns or taxes asserted as due from the Company, and no waivers of statutes of limitation with respect to the returns or collection of taxes have been given by or requested from the Company. The term “taxes” mean all federal, state, local, foreign, and other net income, gross income, gross receipts, sales, use, ad valorem, transfer, franchise, profits, license, lease, service, service use, withholding, payroll, employment, excise, severance, stamp, occupation, premium, property, windfall profits, customs, duties or other taxes, fees, assessments, or charges of any kind whatever, together with any interest and any penalties, additions to tax, or additional amounts with respect thereto. The term “returns” means all returns, declarations, reports, statements, and other documents required to be filed in respect to taxes.

(viii) **Material Change.** Since the respective dates as of which information is given in the Registration Statement, the Time of Sale Disclosure

Package or the Final Prospectus, and except as disclosed in the Registration Statement, the Time of Sale Disclosure Package or the Final Prospectus, (a) the Company has not incurred any material liabilities or obligations, direct or contingent, or entered into any material transactions other than in the ordinary course of business, (b) the Company has not declared or paid any dividends or made any distribution of any kind with respect to its capital stock; (c) there has not been any change in the capital stock of the Company (other than a change in the number of outstanding shares of Common Stock due to the issuance of shares upon the exercise of outstanding options or warrants, upon the conversion of outstanding shares of preferred stock or other convertible securities, due to the vesting of outstanding stock grants or the issuance of restricted stock awards or restricted stock units under the Company's existing stock awards plan, or any new grants thereof in the ordinary course of business), (d) there has not been any material change in the Company's long-term or short-term debt, other than periodic accruals in the ordinary course pursuant to the terms of the Company's outstanding debt, and (e) there has not been the occurrence of any Material Adverse Effect.

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(ix) **Absence of Proceedings.** There is no action, suit, proceeding, inquiry, arbitration, investigation, litigation or governmental proceeding pending or, to the Company's knowledge, threatened against, or involving the Company or, to the Company's knowledge, any executive officer or director which has not been disclosed in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus.

(x) **Regulatory.** Except as described in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus: (i) the Company has not received notice from any Governmental Entity (as defined below) alleging or asserting noncompliance with any Applicable Regulations (as defined below) or Authorizations (as defined below); (ii) the Company is and has been in material compliance with federal, state or foreign statutes, laws, ordinances, rules and regulations applicable to the Company (collectively, "Applicable Regulations"); (iii) the Company possesses all licenses, certificates, approvals, clearances, consents, authorizations, qualifications, registrations, permits, and supplements or amendments thereto required by any such Applicable Regulations and/or to carry on its businesses as now conducted ("Authorizations") and such Authorizations are valid and in full force and effect and the Company is not in violation of any term of any such Authorizations; (iv) the Company has not received notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any Governmental Entity or third party alleging that any product, operation or activity is in violation of any Applicable Regulations or Authorizations or has any knowledge that any such Governmental Entity or third party is considering any such claim, litigation, arbitration, action, suit, investigation or proceeding, nor, has there been any material noncompliance with or violation of any Applicable Regulations by the Company that could reasonably be expected to require the issuance of any such communication or result in an investigation, corrective action, or enforcement action by any Governmental Entity; and (v) the Company has not received notice that any Governmental Entity has taken, is taking or intends to take action to limit, suspend, modify or revoke any Authorizations or has any knowledge that any such Governmental Entity has threatened or is considering such action. Neither the Company nor, to the Company's knowledge, any of its directors, officers, employees or agents has been convicted of any crime under any Applicable Regulations. "Governmental Entity" shall be defined as any arbitrator, court, governmental body, regulatory body, administrative agency or other authority, body or agency (whether foreign or domestic) having jurisdiction over the Company or any of its properties, assets or operations.

(xi) **Good Title.** The Company has good and marketable title to all property (whether real or personal) described in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus as being owned by it that are material to the business of the Company, in each case free and clear of all liens, claims, security interests, other encumbrances or defects, except those that are disclosed in the Registration Statement, the Time of Sale Disclosure Package or the Final Prospectus and those that are not reasonably likely to result in a Material Adverse Effect. The property held under lease by the Company is held by it under valid, subsisting and enforceable leases with only such exceptions with respect to any particular lease as do not interfere in any material respect with the conduct of the business of the Company.

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(xii) **Intellectual Property.** The Company owns or possesses or has valid rights to use all patents, patent applications, trademarks, service marks, trade names, trademark registrations, service mark registrations, copyrights, licenses, inventions, trade secrets and similar rights ("Intellectual Property Rights") necessary for the conduct of the business of the Company as currently carried on and as described in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus. To the knowledge of the Company, no action or use by the Company necessary for the conduct of its business as currently carried on and as described in the Registration Statement and the Final Prospectus will involve or give rise to any infringement of, or license or similar fees for, any Intellectual Property Rights of others. The Company has not received any notice alleging any such infringement, fee or conflict with asserted Intellectual Property Rights of others. Except as would not reasonably be expected to result, individually or in the aggregate, in a Material Adverse Effect (A) to the knowledge of the Company, there is no infringement, misappropriation or violation by third parties of any of the Intellectual Property Rights owned by the Company; (B) there is no pending or, to the knowledge of the Company, threatened action, suit, proceeding or claim by others challenging the rights of the Company in or to any such Intellectual Property Rights, and the Company is unaware of any facts which would form a reasonable basis for any such claim, that would, individually or in the aggregate, together with any other claims in this Section 3(a)(xii), reasonably be expected to result in a Material Adverse Effect; (C) the Intellectual Property Rights owned by the Company and, to the knowledge of the Company, the Intellectual Property Rights licensed to the Company have not been adjudged by a court of competent jurisdiction invalid or unenforceable, in whole or in part, and there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others challenging the validity or scope of any such Intellectual Property Rights, and the Company is unaware of any facts which would form a reasonable basis for any such claim that would, individually or in the aggregate, together with any other claims in this Section 3(a)(xii) reasonably be expected to result in a Material Adverse Effect; (D) there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others that the Company infringes, misappropriates or otherwise violates any Intellectual Property Rights or other proprietary rights of others, the Company has not received any written notice of such claim and the Company is unaware of any other facts which would form a reasonable basis for any such claim that would, individually or in the aggregate, together with any other claims in this Section 3(a)(xii), reasonably be expected to result in a Material Adverse Effect; and (E) to the Company's knowledge, no employee of the Company is in or has ever been in violation in any material respect of any term of any employment contract, patent disclosure agreement, invention assignment agreement, non-competition agreement, non-solicitation agreement, nondisclosure agreement or any restrictive covenant to or with a former employer where the basis of such violation relates to such employee's employment with the Company, or actions undertaken by the employee while employed with the Company and could reasonably be expected to result, individually or in the aggregate, in a Material Adverse Effect. To the Company's knowledge, all material technical information developed by and belonging to the Company which has not been patented has been kept confidential. The Company is not a party to or bound by any options, licenses or agreements with respect to the Intellectual Property Rights of any other person or entity that are required to be set forth in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus and are not described therein. The Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus contain in all material respects the same description of the matters set forth in the preceding sentence. None of the technology employed by the Company has been obtained or is being used by the Company in violation of any contractual obligation binding on the Company or, to the Company's knowledge, any of its officers, directors or employees, or otherwise in violation of the rights of any persons. To the Company's knowledge, there is no prior art or public or commercial activity that may render any patent included in the Intellectual Property Rights invalid or that would preclude the issuance of any patent on any patent application included in the Intellectual Property which has not been disclosed to the U.S. Patent and Trademark Office or the relevant foreign patent authority, as the case may be. The Company has not, and to the Company's knowledge, no third party has, committed any act or omitted to undertake any act the effect of such commission or omission would reasonably be expected to result in a legal determination that any item of Intellectual Property Rights thereby was rendered invalid or unenforceable in whole or in part. The manufacture, use and sale of the products or product candidates described in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus as under development by the Company fall within the scope of one or more claims of the patents or patent applications included in the Intellectual Property Rights. Other than information disclosed in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus, no government funding, facilities or resources of a university, college, other educational institution or research center was used in the development of any Intellectual Property Rights that are owned or purported to be owned by the Company that would confer upon any governmental agency or body, university, college, other educational institution or research center any claim or right in or to any such Intellectual Property Rights.

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(xiii) **Employment Matters.** There is (A) no unfair labor practice complaint pending against the Company, nor to the Company's knowledge, threatened against it, before the National Labor Relations Board, any state or local labor relation board or any foreign labor relations board, and no grievance or arbitration proceeding arising out of or under any collective bargaining agreement is so pending against the Company, or, to the Company's knowledge, threatened against it and (B) no labor disturbance by the employees of the Company exists or, to the Company's knowledge, is imminent, and the Company is not aware of any existing or imminent labor disturbance by the employees of any of its principal suppliers, manufacturers, customers or contractors, that could reasonably be expected, singularly or in the aggregate, to have a Material Adverse Effect. The Company is not aware that any key employee or significant group of employees of the Company plans to terminate employment with the Company.

(xiv) **ERISA Compliance.** No "prohibited transaction" (as defined in Section 406 of the Employee Retirement Income Security Act of 1974, as amended, including the regulations and published interpretations thereunder ("ERISA"), or Section 4975 of the Internal Revenue Code of 1986, as amended from time to time (the "Code")) or "accumulated funding deficiency" (as defined in Section 302 of ERISA) or any of the events set forth in Section 4043(b) of ERISA (other than events with respect to which the thirty (30)-day notice requirement under Section 4043 of ERISA has been waived) has occurred or could reasonably be expected to occur with respect to any employee benefit plan of the Company which would reasonably be expected to, singularly or in the aggregate, have a Material Adverse Effect. Each employee benefit plan of the Company is in compliance in all material respects with applicable law, including ERISA and the Code. The Company has not incurred and could not reasonably be expected to incur liability under Title IV of ERISA with respect to the termination of, or withdrawal from, any pension plan (as defined in ERISA). Each pension plan for which the Company would have any liability that is intended to be qualified under Section 401(a) of the Code is so qualified, and, to the Company's knowledge, nothing has occurred, whether by action or by failure to act, which could, singularly or in the aggregate, cause the loss of such qualification.

(xv) **Environmental Matters.** The Company is in compliance with all foreign, federal, state and local rules, laws and regulations relating to the use, treatment, storage and disposal of hazardous or toxic substances or waste and protection of health and safety or the environment which are applicable to their businesses ("Environmental Laws"), except where the failure to comply has not had and would not reasonably be expected to have, singularly or in the aggregate, a Material Adverse Effect. There has been no storage, generation, transportation, handling, treatment, disposal, discharge, emission, or other release of any kind of toxic or other wastes or other hazardous substances by, due to, or caused by the Company (or, to the Company's knowledge, any other entity for whose acts or omissions the Company is or may otherwise be liable) upon any of the property now or previously owned or leased by the Company, or upon any other property, in violation of any law, statute, ordinance, rule, regulation, order, judgment, decree or permit or which would, under any law, statute, ordinance, rule (including rule of common law), regulation, order, judgment, decree or permit, give rise to any liability, except for any violation or liability which has not had and would not reasonably be expected to have, singularly or in the aggregate, a Material Adverse Effect; and there has been no disposal, discharge, emission or other release of any kind onto such property or into the environment surrounding such property of any toxic or other wastes or other hazardous substances with respect to which the Company has knowledge.

(xvi) **SOX Compliance.** The Company has taken all actions it deems reasonably necessary or advisable to take on or prior to the date of this Agreement to assure that, upon and at all times after the Effective Date, it will be in compliance in all material respects with all applicable provisions of the Sarbanes-Oxley Act of 2002 and all rules and regulations promulgated thereunder or implementing the provisions thereof. (the "Sarbanes-Oxley Act") that are then in effect and will take all action it deems reasonably necessary or advisable to assure that it will be in compliance in all material respects with other applicable provisions of the Sarbanes-Oxley Act not currently in effect upon it and at all times after the effectiveness of such provisions.

(xvii) **Money Laundering Laws.** The operations of the Company are and have been conducted at all times in compliance with applicable financial recordkeeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all jurisdictions, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any Governmental Entity (collectively, the "Money Laundering Laws"); and no action, suit or proceeding by or before any Governmental Entity involving the Company with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(xviii) **Foreign Corrupt Practices Act.** Neither the Company nor, to the knowledge of the Company, any director, officer, employee, representative, agent, affiliate of the Company or any other person acting on behalf of the Company, is aware of or has taken any action, directly or indirectly, that would result in a violation by such persons of the Foreign Corrupt Practices Act of 1977, as amended, and the rules and regulations thereunder (the "FCPA"), including, without limitation, making use of the mails or any means or instrumentality of interstate commerce corruptly in furtherance of an offer, payment, promise to pay or authorization of the payment of any money, or other property, gift, promise to give, or authorization of the giving of anything of value to any "foreign official" (as such term is defined in the FCPA) or any foreign political party or official thereof or any candidate for foreign political office, in contravention of the FCPA and the Company and, to the knowledge of the Company, its affiliates have conducted their businesses in compliance with the FCPA and have instituted and maintain policies and procedures designed to ensure, and which are reasonably expected to continue to ensure, continued compliance therewith.

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(xix) **OFAC.** Neither the Company nor, to the knowledge of the Company, any director, officer, employee, representative, agent or affiliate of the Company or any other person acting on behalf of the Company is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department ("OFAC"); and the Company will not directly or indirectly use the proceeds of the offering of the Securities contemplated hereby, or lend, contribute or otherwise make available such proceeds to any person or entity, for the purpose of financing the activities of any person currently subject to any U.S. sanctions administered by OFAC.

(xx) **Insurance.** Following the consummation of the offering contemplated hereby, the Company will carry insurance in such amounts and covering such risks as is adequate for the conduct of its business and the value of its properties and as is customary for companies engaged in similar businesses in similar industries.

(xxi) **Books and Records.** The minute books of the Company have been made available to the Underwriters and counsel for the Underwriters, and such books (i) contain a complete summary of all meetings and actions of the board of directors (including each board committee) and stockholders of the Company (or analogous governing bodies and interest holders, as applicable), since the time of its incorporation or organization through the date of the latest meeting and action, and (ii) accurately in all material respects reflect all transactions referred to in such minutes.

(xxii) **No Violation.** Neither the Company nor, to its knowledge, any other party is in violation, breach or default of any Contract that has resulted in or could reasonably be expected to result in a Material Adverse Effect.

(xxiii) **Continued Business.** No supplier, customer, distributor or sales agent of the Company has notified the Company that it intends to discontinue or decrease the rate of business done with the Company, except where such discontinuation or decrease has not resulted in and could not reasonably be expected to result in a Material Adverse Effect.

(xxiv) **No Finder's Fee.** There are no claims, payments, issuances, arrangements or understandings for services in the nature of a finder's, consulting or origination fee with respect to the introduction of the Company to any Underwriter or the sale of the Securities hereunder or any other arrangements, agreements, understandings, payments or issuances with respect to the Company that may affect the Underwriters' compensation, as determined by FINRA.

(xxv) **No Fees.** Except as disclosed to the Representative in writing, the Company has not made any direct or indirect payments (in cash, securities or otherwise) to (i) any person, as a finder's fee, investing fee or otherwise, in consideration of such person raising capital for the Company or introducing to the Company persons who provided capital to the Company, (ii) any FINRA member, or (iii) any person or entity that has any direct or indirect affiliation or association with any FINRA member within the twelve (12) month period prior to the date on which the Registration Statement was filed with the Commission ("Filing Date") or thereafter.

(xxvi) **Proceeds.** None of the net proceeds of the offering will be paid by the Company to any participating FINRA member or any affiliate or associate of any participating FINRA member, except as specifically authorized herein.

(xxvii) **No FINRA Affiliations.** To the Company's knowledge and except as disclosed to the Representative in writing, no (i) officer or director of the Company or (ii) owner of 5% or more of any class of the Company's securities or (iii) owner of any amount of the Company's unregistered securities acquired within the 180-day period prior to the Filing Date, has any direct or indirect affiliation or association with any FINRA member. The Company will advise the Representative and counsel to the Underwriter if it becomes aware that any officer, director of the Company or any owner of 5% or more of any class of the Company's securities is or becomes an affiliate or associated person of a FINRA member participating in the offering.

(xxviii) **No Financial Advisor.** Other than the Underwriters, no person has the right to act as an underwriter or as a financial advisor to the Company in connection with the transactions contemplated hereby.

(xxix) **Data Privacy and Security Laws.** The Company is, and at all prior times was, in material compliance with all applicable state and federal data privacy and security laws and regulations in the United States, including, without limitation, the Health Insurance Portability and Accountability Act of 1996 ("HIPAA") as amended by the Health Information Technology for Economic and Clinical Health Act, and all applicable provincial and federal data privacy and security laws and regulations in Canada, including without limitation the Personal Information Protection and Electronic Documents Act (S.C. 2000, c. 5) ("PIPEDA"); and the Company has taken commercially reasonable actions to prepare to comply with, and have been and currently are in compliance with, the European Union General Data Protection Regulation ("GDPR") (EU 2016/679) (collectively, the "Privacy Laws"). To ensure compliance with the Privacy Laws, the Company has in place, comply with, and take appropriate steps reasonably designed to ensure compliance in all material respects with their policies and procedures relating to data privacy and security and the collection, storage, use, disclosure, handling, and analysis of Personal Data (the "Policies"). "Personal Data" means (i) a natural person's name, street address, telephone number, e-mail address, photograph, social security number or tax identification number, driver's license number, passport number, credit card number, bank information, or customer or account number; (ii) any information which would qualify as "personally identifying information" under the Federal Trade Commission Act, as amended; (iii) Protected Health Information as defined by HIPAA; (iv) "personal information", "personal health information", and "business contact information" as defined by PIPEDA; (v) "personal data" as defined by GDPR; and (vi) any other piece of information that allows the identification of such natural person, or his or her family, or permits the collection or analysis of any data related to an identified person's health or sexual orientation. The Company has at all times made all disclosures to users or customers required by applicable laws and regulatory rules or requirements, and none of such disclosures made or contained in any Policy have, to the knowledge of the Company, been inaccurate or in violation of any applicable laws and regulatory rules or requirements in any material respect. The Company further certifies: (i) it has not received notice of any actual or potential liability under or relating to, or actual or potential violation of, any of the Privacy Laws, and has no knowledge of any event or condition that would reasonably be expected to result in any such notice; (ii) is currently conducting or paying for, in whole or in part, any investigation, remediation, or other corrective action pursuant to any Privacy Law; or (iii) is a party to any order, decree, or agreement that imposes any obligation or liability under any Privacy Law.

(xxx) **No Registration Rights.** Except as described in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus, there are no contracts, agreements or understandings between the Company and any person granting such person the right (other than rights which have been waived in writing or otherwise satisfied) to require the Company to file a registration statement under the Securities Act with respect to any securities of the Company owned or to be owned by such person or to require the Company to include such securities in the securities registered pursuant to the Registration Statement or in any securities being registered pursuant to any other registration statement filed by the Company under the Securities Act.

(xxxi) **Prior Sales of Securities.** Except as set forth in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus, the Company has not sold or issued any shares of Common Stock during the six-month period preceding the date hereof, including any sales pursuant to Rule 144A under, or Regulations D or S of, the Securities Act, other than shares issued pursuant to employee benefit plans, stock option plans or other employee compensation plans, pursuant to outstanding preferred stock, options, rights or warrants or other outstanding convertible securities or in connection with the vesting of any outstanding stock grants.

(xxxii) **Compliance with Laws.** The Company: (A) is and at all times has been in compliance with all statutes, rules, or regulations applicable to the Company, including, without limitation, all statutes, rules, or regulations relating to the ownership, testing, development, manufacture, packaging, processing, use, distribution, marketing, labeling, promotion, sale, offer for sale, storage, import, export or disposal of any product manufactured or distributed by the Company and, without limiting the foregoing, include (i) the Federal Food, Drug, and Cosmetic Act (the "FDCA"), (ii) the Occupational Safety and Health Act, the Environmental Protection Act, the Toxic Substances Control Act and Laws applicable to hazardous or regulated substances and radioactive or biologic materials, (iii) the federal Anti-Kickback Statute, (iv) the False Claims Act, (v) the Civil Monetary Penalties Law, (vi) the Physician Payments Sunshine Act, (vii) the criminal False Claims Law, (viii) the HIPAA as amended by the Health Information Technology for Economic and Clinical Health Act and (ix) licensing and certification laws covering any aspect of the business of the Company ("Applicable Laws"), except as could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect; (B) has not received any warning letter, untitled letter or other correspondence or notice from any other governmental authority alleging or asserting noncompliance with any Applicable Laws or any licenses, certificates, approvals, clearances, authorizations, permits and supplements or amendments thereto required by any such Applicable Laws and/or to carry on its business as now conducted ("Applicable Authorizations"); (C) possesses all material Application Authorizations and such Applicable Authorizations are valid and in full force and effect and are not in material violation of any term of any such Applicable Authorizations; (D) has not received notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any Governmental Entity or third party alleging that any product operation or activity is in violation of any Applicable Laws or Applicable Authorizations and has no knowledge that any such Governmental Entity or third party is considering any such claim, litigation, arbitration, action, suit, investigation or proceeding nor, to the Company's knowledge, has there been any material noncompliance with or violation of any Applicable Laws by the Company that could reasonably be expected to require the issuance of any such communication or result in an investigation, corrective action, or enforcement action by any Governmental Entity; (E) has not received notice that any Governmental Entity has taken, is taking or intends to take action to limit, suspend, modify or revoke any Applicable Authorizations and has no knowledge that any such Governmental Entity has threatened or is considering such action; (F) has filed, obtained, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Applicable Laws or Applicable Authorizations and that all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete and correct on the date filed (or were corrected or supplemented by a subsequent submission); and (G) has not, either voluntarily or involuntarily, initiated, conducted, or issued or caused to be initiated, conducted or issued, any recall, market withdrawal or replacement, safety alert, post-sale warning, "dear doctor" letter, or other notice or action relating to the alleged lack of safety or efficacy of any product or any alleged product defect or violation and, to the Company's knowledge, no third party has initiated, conducted or intends to initiate any such notice or action.

(xxxiii) **Clinical and Preclinical Studies.** The studies, tests and preclinical and clinical trials conducted by or, to the Company's knowledge, on behalf of the Company were and, if still ongoing, are being conducted in all material respects in accordance with experimental protocols, procedures and controls pursuant to accepted professional scientific standards and all authorizations and applicable laws and the rules and regulations promulgated thereunder and any applicable rules, regulations and policies of the jurisdiction in which such trials and studies are being conducted; the descriptions of the results of such studies, tests and trials contained in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus are, to the Company's knowledge, accurate and complete in all material respects and fairly present the data derived from such studies, tests and trials; except to the extent disclosed in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus, the Company is not aware of any studies, tests or trials, the results of which the Company believes reasonably call into question the



study, test, or trial results described or referred to in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus when viewed in the context in which such results are described and the clinical state of development; and, except to the extent disclosed in the Registration Statement, the Time of Sale Disclosure Package or the Prospectus, the Company has not received any notices or correspondence from the FDA or any governmental entity requiring the termination or suspension of any studies, tests or preclinical or clinical trials conducted by or on behalf of the Company.

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#### 4. Purchase, Sale and Delivery of Shares.

(a) On the basis of the representations, warranties and agreements herein contained, but subject to the terms and conditions herein set forth, the Company agrees to issue and sell the Firm Shares to the several Underwriters, and the several Underwriters agree, severally and not jointly, to purchase the Firm Units set forth opposite the names of the Underwriters in Schedule I hereto. The purchase price for each Firm Unit shall be \$5.98 per Firm Unit (92% of the public offering price for each Firm Unit) which purchase price will be allocated as \$5.96 per Firm Share, \$0.01 per Firm Tradeable Warrant and \$0.01 per Firm Non-tradeable Warrant.

(b) The Company hereby grants to the Underwriters the option to purchase some or all of the Option Securities and, upon the basis of the warranties and representations and subject to the terms and conditions herein set forth, the Underwriter shall have the right, severally and not jointly, to purchase all or any portion of the Option Shares and/or the Option Warrants as may be necessary to cover over-allotments made in connection with the transactions contemplated hereby. The purchase price to be paid per Option Share shall be equal to \$5.96. The purchase price to be paid per Option Tradeable Warrant shall be equal to \$0.01. The purchase price to be paid per Option Non-tradeable Warrant shall be equal to \$0.01. The Underwriters shall not be under any obligation to purchase any of the Option Securities prior to the exercise of the Over-allotment Option. This Over-Allotment Option may be exercised by the Underwriters at any time and from time to time on or before the forty-fifth (45<sup>th</sup>) day following the date hereof, by written notice to the Company (the "Option Notice"). The Option Notice shall set forth the aggregate number of Option Shares and/or Option Warrants as to which the option is being exercised, and the date and time when the Option Shares and/or the Option Warrants are to be delivered (such date and time being herein referred to as the "Option Closing Date"); *provided, however*, that the Option Closing Date shall not be earlier than the Closing Date (as defined below) nor earlier than the first business day after the date on which the option shall have been exercised nor later than the fifth business day after the date on which the option shall have been exercised unless the Company and the Representative otherwise agree. Upon exercise of the Over-allotment Option with respect to all or any portion of the Option Securities subject to the terms and conditions set forth herein, (i) the Company shall become obligated to sell to the Underwriters the number of Option Securities specified in such notice; (ii) each of the Underwriters, acting severally and not jointly, shall purchase that portion of the total number of Option Securities then being purchased as set forth in Schedule I opposite the name of such Underwriter, subject to such adjustments as the Representative, in their sole discretion, shall determine and (iii) each of the Underwriters, acting severally and not jointly, shall purchase that portion of the total number of Option Warrants then being purchased that the number of Option Warrants as set forth in Schedule I opposite the name of such Underwriter bears to the total number of Option Warrants, subject, in each case, to such adjustments as the Representative, in their sole discretion, shall determine. The Representative may cancel the Over-Allotment Option at any time prior to the expiration of the Over-Allotment Option by written notice to the Company (except to the extent the Representative has exercised the Over-Allotment Option in accordance herewith).

(c) Payment of the purchase price for and delivery of the Option Shares and/or the Option Warrants shall be made on an Option Closing Date in the same manner and at the same office as the payment for the Firm Securities as set forth in subparagraph (d) below.

(d) The Firm Securities will be delivered by the Company to the Representative, for the respective accounts of the several Underwriters against payment of the purchase price thereof by wire transfer of same day funds payable to the order of the Company at the offices of WallachBeth Capital, LLC, Harborside Financial Center Plaza 5, 185 Hudson Street, Suite 1410, Jersey City, NJ 07311, or such other location as may be mutually acceptable, at 9:00 a.m. Eastern Time, on the second (or if the Firm Securities are priced, as contemplated by Rule 15c6-1(c) under the Exchange Act, after 4:30 p.m. Eastern time, the third) full business day following the date hereof, or at such other time and date as the Representative and the Company determine pursuant to Rule 15c6-1(a) under the Exchange Act, or, in the case of the Option Securities, at such date and time set forth in the Option Notice. The time and date of delivery of the Firm Shares is referred to herein as the "Closing Date." On the Closing Date, the Company shall deliver the Firm Securities which shall be registered in the name or names and shall be in such denominations as the Representative may request on behalf of the Underwriters at least one (1) business day before the Closing Date, to the respective accounts of the several Underwriters, which delivery shall with respect to the Firm Securities, be made through the facilities of the Depository Trust Company's Deposit or Withdrawal at Custodian ("DWAC") system.

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(e) It is understood that WallachBeth Capital, LLC, has been authorized, for its own account and the accounts of the several Underwriters, to accept delivery of and receipt for, and make payment of the purchase price for, the Firm Securities and any Option Securities the Underwriters have agreed to purchase. WallachBeth Capital, LLC, individually and not as the Representative of the Underwriters, may (but shall not be obligated to) make payment for any Securities to be purchased by any Underwriter whose funds shall not have been received by the Representative by the Closing Date or any Option Closing Date, as the case may be, for the account of such Underwriter, but any such payment shall not relieve such Underwriter from any of its obligations under this Agreement.

#### 5. Covenants.

(a) The Company covenants and agrees with the Underwriters as follows:

(i) The Company shall prepare the Final Prospectus in a form approved by the Representative and file such Final Prospectus pursuant to Rule 424(b) under the Securities Act not later than the Commission's close of business on the second business day following the execution and delivery of this Agreement, or, if applicable, such earlier time as may be required by the Rules and Regulations.

(ii) During the period beginning on the date hereof and ending on the later of the Closing Date or such date as determined by the Representative the Final Prospectus is no longer required by law to be delivered in connection with sales by an underwriter or dealer (the "Prospectus Delivery Period"), prior to amending or supplementing the Registration Statement, including any Rule 462 Registration Statement, the Time of Sale Disclosure Package or the Final Prospectus, the Company shall furnish to the Representative for review and comment a copy of each such proposed amendment or supplement, and the Company shall not file any such proposed amendment or supplement to which the Representative reasonably objects.

(iii) From the date of this Agreement until the end of the Prospectus Delivery Period, the Company shall promptly advise the Representative in writing (A) of the receipt of any comments of, or requests for additional or supplemental information from, the Commission, (B) of the time and date of any filing of any post-effective amendment to the Registration Statement or any amendment or supplement to the Time of Sale Disclosure Package, the Final Prospectus or any Issuer Free Writing Prospectus, (C) of the time and date that any post-effective amendment to the Registration Statement becomes effective and (D) of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or of any order preventing or suspending its use or the use of the Time of Sale Disclosure Package, the Final Prospectus or any Issuer Free Writing Prospectus, or of any proceedings to remove, suspend or terminate from listing or quotation the Common Stock from any securities exchange upon which it is listed for trading or included or designated for quotation, or of the threatening or initiation of any proceedings for any of such purposes. If the Commission shall enter any such stop order at any time during the Prospectus Delivery Period, the Company will use its reasonable efforts to obtain the lifting of such order at the earliest possible moment. Additionally, the Company agrees that it shall comply with the provisions of Rules 424(b), 430A, 430B or 430C as applicable, under the Securities Act and will use its reasonable efforts to confirm that any filings made by the Company under Rule 424(b) or Rule 433 were received in a timely manner by the Commission (without reliance on Rule 424(b)(8) or 164(b) of the Securities Act).

(iv) (A) During the Prospectus Delivery Period, the Company will comply with all requirements imposed upon it by the Securities Act, as now and hereafter amended, and by the Rules and Regulations, as from time to time in force, and by the Exchange Act, as now and hereafter amended, so far as necessary to permit the continuance of sales of or dealings in the Securities as contemplated by the provisions hereof, the Time of Sale Disclosure Package, the Registration Statement and the Final Prospectus. If during the Prospectus Delivery Period any event occurs the result of which would cause the Final Prospectus (or if the Final Prospectus is not yet available to prospective purchasers, the Time of Sale Disclosure Package ) to include an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances then existing, not misleading, or if during such period it is necessary or appropriate in the opinion of the Company or its counsel or the Representative or counsel to the Underwriters to amend the Registration Statement or supplement the Final Prospectus (or if the Final Prospectus is not yet available to prospective purchasers, the Time of Sale Disclosure Package) to comply with the Securities Act, the Company will promptly notify the Representative, allow the Representative the opportunity to provide reasonable comments on such amendment, prospectus supplement or document, and will amend the Registration Statement or supplement the Final Prospectus (or if the Final Prospectus is not yet available to prospective purchasers, the Time of Sale Disclosure Package) or file such document (at the expense of the Company) so as to correct such statement or omission or effect such compliance. (B) If at any time during the Prospectus Delivery Period there occurred or occurs an event or development the result of which such Issuer Free Writing Prospectus conflicted or would conflict with the information contained in the Registration Statement or any Prospectus or included or would include, when taken together with the Time of Sale Disclosure Package, an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances prevailing at that subsequent time, not misleading, the Company will promptly notify the Representative and will promptly amend or supplement, at its own expense, such Issuer Free Writing Prospectus to eliminate or correct such conflict, untrue statement or omission.

(v) The Company shall take or cause to be taken all necessary action to qualify the Securities for sale under the securities laws of such jurisdictions as the Representative reasonably designate and to continue such qualifications in effect so long as required, except that the Company shall not be required in connection therewith to qualify as a foreign corporation or as a dealer in securities in any jurisdiction in which it is not so qualified, to execute a general consent to service of process in any state or to subject itself to taxation in respect of doing business in any jurisdiction in which it is not otherwise subject.

(vi) The Company will furnish to the Underwriters and counsel to the Underwriters copies of the Registration Statement, each Prospectus, any Issuer Free Writing Prospectus, and all amendments and supplements to such documents, in each case as soon as available and in such quantities as the Underwriters may from time to time reasonably request.

(vii) The Company will make generally available to its security holders as soon as practicable, but in any event not later than 15 months after the end of the Company's current fiscal quarter, an earnings statement (which need not be audited) covering a 12-month period that shall satisfy the provisions of Section 11(a) of the Securities Act and Rule 158 of the Rules and Regulations.

(viii) The Company, whether or not the transactions contemplated hereunder are consummated or this Agreement is terminated, will pay or cause to be paid all expenses relating to the Offering, including, without limitation, (a) all filing fees and communication expenses relating to the registration of the Securities with the Commission; (b) all filing fees associated with the review of the public offering of the Securities by FINRA; (c) all fees and expenses relating to the listing of such Offered Securities on Nasdaq; (d) fees relating to background checks by the Representative; (e) all fees, expenses and disbursements relating to the registration, qualification or exemption of such Securities under the securities laws of such foreign jurisdictions as the Representative may reasonably designate; (f) the costs of all mailing and printing of the underwriting documents (including, without limitation, the Underwriting Agreement, any Blue Sky Surveys and, if appropriate, any Agreement Among Underwriters, Selected Dealers' Agreement, Underwriters' Questionnaire and Power of Attorney), Registration Statements, Prospectuses and all amendments, supplements and exhibits thereto and as many preliminary and final Prospectuses as the Representative may reasonably deem necessary; (g) the costs and expenses of a public relations firm for the Company mutually agreed upon by the Representative and the Company; (h) the costs of preparing, printing and delivering certificates representing the Securities; (i) fees and expenses of the transfer agent for the Securities of the Company; (j) the fees and expenses of the Company's legal counsel and other agents and Representative; (k) fees and expenses of legal counsel for the Underwriters not to exceed \$140,000 and (l) all reasonable road show expenses for the Offering.

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(ix) The Company intends to apply the net proceeds from the sale of the Securities to be sold by it hereunder for the purposes set forth in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus under the heading "Use of Proceeds".

(x) The Company has not taken and will not take, directly or indirectly, during the Prospectus Delivery Period, any action designed to, or which might reasonably be expected to cause or result in, or that has constituted, the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Securities.

(xi) The Company represents and agrees that, unless it obtains the prior written consent of the Representative, and each Underwriter, severally, and not jointly, represents and agrees that, unless it obtains the prior written consent of the Company, it has not made and will not make any offer relating to the Securities that would constitute an Issuer Free Writing Prospectus; provided that the prior written consent of the parties hereto shall be deemed to have been given in respect of the free writing prospectuses included in **Schedule III**. Any such free writing prospectus consented to by the Company and the Representative is hereinafter referred to as a "Permitted Free Writing Prospectus." The Company represents that it has treated or agrees that it will treat each Permitted Free Writing Prospectus as an "issuer free writing prospectus," as defined in Rule 433, and has complied or will comply with the requirements of Rule 433 applicable to any Permitted Free Writing Prospectus, including timely Commission filing where required, legending and record-keeping.

(xii) The Company hereby agrees that, without the prior written consent of the Representative, it and any successors will not, during the period ending 16 months after the date hereof ("Lock-Up Period"), (a) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of capital stock of the Company or any securities convertible into or exercisable or exchangeable for shares of capital stock or the Company, (b) file or caused to be filed any registration statement with the Commission relating to the offering or resale of any shares of capital stock or any securities convertible into or exercisable or exchangeable for shares of capital stock or (c) enter into any swap or other arrangement that transfers to another in whole or in part, any of the economic consequences of ownership of capital stock of the Company, whether any such transaction described in clause (a), (b) or (c) above is to be settled by delivery of shares of capital stock of the Company or any successors or such other securities, in cash or otherwise, other than in the case of a Variable Rate Transaction (as defined below). The restrictions contained in the preceding sentence shall not apply to (i) the shares of Common Stock to be sold hereunder, (ii) the issuance by the Company of shares of Common Stock upon the exercise of a stock option or warrant or the conversion of a security outstanding on the date hereof, which is disclosed in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus, the terms of which option, warrant or other outstanding convertible security are not thereafter amended, (iii) the issuance by the Company of shares of Common Stock upon the vesting of outstanding stock grants (iv) grants of stock options, stock awards, restricted stock, RSUs, or other equity awards and the issuance of Common Stock or securities convertible into or exercisable or exchangeable for Common Stock (whether upon the exercise of stock options or otherwise) to the Company's employees, officers, directors, advisors, or consultants pursuant to the terms of an equity compensation plan in effect as of the Closing Date and described in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus provided the grantee of any such equity award set forth in this Section enters into a Lock-Up Agreement (as defined below) in the form attached hereto as Exhibit B in connection with any such grant provided further that any such grant to advisors or consultants are issued as "restricted securities" (as defined in Rule 144) and carry no registration rights that require or permit the filing of any registration statement in connection therewith within 180 days following the date hereof; and (v) the filing by the Company of any registration statement on Form S-8 or a successor form thereto relating to an equity compensation plan described in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus.

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(xiii) From the date hereof until one year after the Closing Date, the Company shall be prohibited from effecting or entering into an agreement to effect any issuance by the Company or any of its subsidiaries of Common Stock or any securities of the Company or any subsidiary which would entitle the holder thereof to acquire at any time Common Stock, including, without limitation, any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock (or a combination of units thereof) involving a Variable Rate Transaction. "Variable Rate Transaction" means a transaction in which the Company (i) issues or sells any debt or equity securities that are convertible into, exchangeable or exercisable for, or include the right to receive, additional shares of Common Stock either (A) at a conversion price, exercise price or exchange rate or other price that is based upon, and/or varies with, the trading prices of or quotations for the shares of Common Stock at any time after the initial issuance of such debt or equity securities or (B) with a conversion, exercise or exchange price that is subject to being reset at some future date after the initial issuance of such debt or equity security or upon the occurrence of specified or contingent events directly or indirectly related to the business of the Company or the market for the Common Stock or (ii) enters into, or effects a transaction under, any agreement, including, but not limited to, an equity line of credit, whereby the Company may issue securities at a future determined price. Any Underwriter shall be entitled to obtain injunctive relief against the Company to preclude any such issuance, which remedy shall be in addition to any right to collect damages.

(xiv) To engage and maintain, at its expense, a registrar and transfer agent for the Common Stock (if other than the Company).

(xv) To use its reasonable best efforts to maintain the listing of the Common Stock on Nasdaq.

(xvi) To not take, directly or indirectly, any action designed to cause or result in, or that has constituted or might reasonably be expected to constitute, under the Exchange Act or otherwise, the stabilization or manipulation of the price of any securities of the Company to facilitate the sale or resale of the Securities.

(xvii) The Company further agrees that, in addition to the expenses payable pursuant to Section 5(a)(viii), on the Closing Date it shall pay to the Representative, by deduction from the net proceeds of the Offering contemplated herein, a non-accountable expense allowance equal to one percent (1%) of the gross proceeds received by the Company from the sale of the Securities; provided, however, that in the event that the Offering is terminated, the Company agrees to reimburse the Underwriters pursuant to Section 7 hereof. Notwithstanding the foregoing, any advance previously paid by the Company to WallachBeth Capital LLC against the Representative's non-accountable expense allowance actually anticipated to be incurred, shall be applied towards the accountable expenses set forth herein; provided that the Representative will reimburse the Company for any remaining portion of the Advance to the extent amount of the Advance was not used for accountable expenses actually incurred by the Representative in the offering.

(xviii) As of the Closing Date, the Company shall have retained an investor relations advisory firm reasonably acceptable to the Representative and the Company and shall retain such firm or another firm reasonably acceptable to the Representative for a period of not less than six (6) months after the Closing Date.

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(xix) On or prior to the date of this Agreement, the Company will have appropriate Directors' & Officers' ("D&O") and Errors & Omissions ("E&O") insurance with appropriate liability levels as reasonably determined by the Company.

**6. Conditions of the Underwriter's Obligations.** The respective obligations of the several Underwriters hereunder to purchase the Shares are subject to the accuracy, as of the date hereof and at all times through the Closing Date, and on each Option Closing Date (as if made on the Closing Date or such Option Closing Date, as applicable), of and compliance with all representations, warranties and agreements of the Company contained herein, the performance by the Company of its obligations hereunder and the following additional conditions:

(a) If filing of the Final Prospectus, or any amendment or supplement thereto, or any Issuer Free Writing Prospectus, is required under the Securities Act or the Rules and Regulations, the Company shall have filed the Final Prospectus (or such amendment or supplement) or such Issuer Free Writing Prospectus with the Commission in the manner and within the time period so required (without reliance on Rule 424(b)(8) or 164(b) under the Securities Act); the Registration Statement shall remain effective; no stop order suspending the effectiveness of the Registration Statement or any part thereof, any Rule 462 Registration Statement, or any amendment thereof, nor suspending or preventing the use of the Time of Sale Disclosure Package, any Prospectus, the Final Prospectus or any Issuer Free Writing Prospectus shall have been issued; no proceedings for the issuance of such an order shall have been initiated or threatened by the Commission; any request of the Commission or the Representative for additional information (to be included in the Registration Statement, the Time of Sale Disclosure Package, any Prospectus, the Final Prospectus, any Issuer Free Writing Prospectus or otherwise) shall have been complied with to the satisfaction of the Representative.

(b) The Common Stock and Warrants shall be approved for listing on Nasdaq, and satisfactory evidence thereof shall have been provided to the Representative and its counsel.

(c) FINRA shall have raised no objection to the fairness and reasonableness of the underwriting terms and arrangements.

(d) The Representative shall not have reasonably determined, and advised the Company, that the Registration Statement, the Time of Sale Disclosure Package, any Prospectus, the Final Prospectus, or any amendment thereof or supplement thereto, or any Issuer Free Writing Prospectus, contains an untrue statement of fact which, in the reasonable opinion of the Representative, is material, or omits to state a fact which, in the reasonable opinion of the Representative, is material and is required to be stated therein or necessary to make the statements therein not misleading.

(e) Intentionally Omitted.

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(f) On the Closing Date and on each Option Closing Date, there shall have been furnished to the Representative on behalf of the Underwriter the opinion and negative assurance letters of Carmel, Milazzo & Feil LLP, corporate counsel to the Company, dated the Closing Date or the Option Closing Date, as applicable, and addressed to the Underwriters, in form and substance reasonably satisfactory to the Representative.

(g)

(h) The Underwriters shall have received a letter of M&K CPAS, PLLC, on the date hereof and on the Closing Date and on each Option Closing Date, addressed to the Underwriters, confirming that they are independent public accountants within the meaning of the Securities Act and are in compliance with the applicable requirements relating to the qualifications of accountants under Rule 2-01 of Regulation S-X of the Commission, and confirming, as of the date of each such letter (or, with respect to matters involving changes or developments since the respective dates as of which specified financial information is given in the Registration Statement, the Time of Sale Disclosure Package and the Final Prospectus, as of a date not prior to the date hereof or more than five (5) days prior to the date of such letter), the conclusions and findings of said firm with respect to the financial information and other matters required by the Underwriters.

(i) Intentionally Omitted.

(j) On the Closing Date and on each Option Closing Date, there shall have been furnished to the Underwriters a certificate, dated the Closing Date and on each Option Closing Date and addressed to the Underwriters, signed by the chief executive officer and the chief financial officer of the Company, in their capacity as officers of the Company, to the effect that:

(i) The representations and warranties of the Company in this Agreement that are qualified by materiality or by reference to any Material Adverse Effect are true and correct in all respects, and all other representations and warranties of the Company in this Agreement are true and correct, in all material respects, as if made at and as of the Closing Date and on the Option Closing Date, and the Company has complied in all material respects with all the agreements and satisfied all the conditions on its part required to be performed or satisfied at or prior to the Closing Date or on the Option Closing Date, as applicable;

(ii) No stop order or other order (A) suspending the effectiveness of the Registration Statement or any part thereof or any amendment thereof, (B) suspending the qualification of the Securities for offering or sale, or (C) suspending or preventing the use of the Time of Sale Disclosure Package, any Prospectus, the Final Prospectus or any Issuer Free Writing Prospectus, has been issued, and no proceeding for that purpose has been instituted or, to their knowledge, is contemplated by the Commission or any state or regulatory body; and

(iii) There has been no occurrence of any event resulting or reasonably likely to result in a Material Adverse Effect during the period from and after the date of this Agreement and prior to the Closing Date or on the Option Closing Date, as applicable.

(k) On or before the date hereof, the Representative shall have received duly executed lock-up agreement, substantially in the form of **Exhibit B** hereto (each a "**Lock-Up Agreement**"), by and between the Representative and each of the parties specified in **Schedule IV**.

(l) On the Closing Date, the Company shall have delivered to the Representative executed copies of the Warrant Agreement

(m) The Company shall have furnished to the Representative and its counsel such additional documents, certificates and evidence as the Representative and its counsel may have reasonably requested.

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If any condition specified in this Section 6 shall not have been fulfilled when and as required to be fulfilled, this Agreement may be terminated by the Representative by notice to the Company at any time at or prior to the Closing Date or on the Option Closing Date, as applicable, and such termination shall be without liability of any party to any other party, except that Section 5(a)(viii), Section 7 and Section 8 shall survive any such termination and remain in full force and effect.

#### **7. Indemnification and Contribution.**

(a) The Company agrees to indemnify, defend and hold harmless each Underwriter, its affiliates, directors and officers and employees, and each person, if any, who controls such Underwriter within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, from and against any losses, claims, damages or liabilities to which such Underwriter or such person may become subject, under the Securities Act or otherwise (including in settlement of any litigation if such settlement is effected with the written consent of the Company), insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon (i) an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, including the information deemed to be a part of the Registration Statement at the time of effectiveness and at any subsequent time pursuant to Rules 430A and 430B of the Rules and Regulations, or arise out of or are based upon the omission from the Registration Statement, or alleged omission to state therein, a material fact required to be stated therein or necessary to make the statements therein not misleading (ii) an untrue statement or alleged untrue statement of a material fact contained in the Time of Sale Disclosure Package, any oral or written communication with potential investors undertaken in reliance on Section 5(d) of the Securities Act (Written Testing-the-Waters Communications), any Prospectus, the Final Prospectus, or any amendment or supplement thereto, any Issuer Free Writing Prospectus, or the Marketing Materials or in any other materials used in connection with the offering of the Securities, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, (iii) in whole or in part, any inaccuracy in the representations and warranties of the Company contained herein, or (iv) in whole or in part, any failure of the Company to perform its obligations hereunder or under law, and will reimburse each Underwriter for any legal or other expenses reasonably incurred by it in connection with evaluating, investigating or defending against such loss, claim, damage, liability or action; *provided, however*, that the Company shall not be liable in any such case to the extent that any such loss, claim, damage, liability or action arises out of or is based upon an untrue statement or alleged untrue statement or omission or alleged omission made in the Registration Statement, the Time of Sale Disclosure Package, any Written Testing-the-Waters Communications, any Prospectus, the Final Prospectus, or any amendment or supplement thereto or any Issuer Free Writing Prospectus, in reliance upon and in conformity with written information furnished to the Company by such Underwriter specifically for use in the preparation thereof, which written information is described in Section 7(f).

(b) Each Underwriter, severally and not jointly, will indemnify, defend and hold harmless the Company, its affiliates, directors, officers and employees, and each person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, from and against any losses, claims, damages or liabilities to which the Company may become subject, under the Securities Act or otherwise (including in settlement of any litigation, if such settlement is effected with the written consent of such Underwriter), insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, the Time of Sale Disclosure Package, any Prospectus, the Final Prospectus, or any amendment or supplement thereto or any Issuer Free Writing Prospectus, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, in each case to the extent, but only to the extent, that such untrue statement or alleged untrue statement or omission or alleged omission was made in the Registration Statement, the Time of Sale Disclosure Package, any Prospectus, the Final Prospectus, or any amendment or supplement thereto or any Issuer Free Writing Prospectus in reliance upon and in conformity with written information furnished to the Company by such Underwriter specifically for use in the preparation thereof, which written information is described in Section 7(f), and will reimburse the Company for any legal or other expenses reasonably incurred by the Company in connection with evaluating, investigating, and defending against any such loss, claim, damage, liability or action. The obligation of each Underwriter to indemnify the Company (including any controlling person, director or officer thereof) shall be limited to the amount of the underwriting discount applicable to the Shares to be purchased by such Underwriter hereunder actually received by such Underwriter.

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(c) Promptly after receipt by an indemnified party under subsection (a) or (b) above of notice of the commencement of any action, such indemnified party shall, if a claim in respect thereof is to be made against the indemnifying party under such subsection, notify the indemnifying party in writing of the commencement thereof, but the failure to notify the indemnifying party shall not relieve the indemnifying party from any liability that it may have to any indemnified party except to the extent such indemnifying party has been materially prejudiced by such failure. In case any such action shall be brought against any indemnified party, and it shall notify the indemnifying party of the commencement thereof, the indemnifying party shall be entitled to participate in, and, to the extent that it shall wish, jointly with any other indemnifying party similarly notified, to assume the defense thereof, with counsel satisfactory to such indemnified party, and after notice from the indemnifying party to such indemnified party of the indemnifying party's election so to assume the defense thereof, the indemnifying party shall not be liable to such indemnified party under such subsection for any legal or other expenses subsequently incurred by such indemnified party in connection with the defense thereof; *provided, however*, that if (i) the indemnified party has reasonably concluded (based on advice of counsel) that there may be legal defenses available to it or other indemnified parties that are different from or in addition to those available to the indemnifying party, (ii) a conflict or potential conflict exists (based on advice of counsel to the indemnified party) between the indemnified party and the indemnifying party (in which case the indemnifying party will not have the right to direct the defense of such action on behalf of the indemnified party), or (iii) the indemnifying party has not in fact employed counsel reasonably satisfactory to the indemnified party to assume the defense of such action within a reasonable time after receiving notice of the commencement of the action, the indemnified party shall have the right to employ a single counsel to represent it in any claim in respect of which indemnity may be sought under subsection (a) or

(b) of this Section 7, in which event the reasonable fees and expenses of such separate counsel shall be borne by the indemnifying party or parties and reimbursed to the indemnified party as incurred.

The indemnifying party under this Section 7 shall not be liable for any settlement of any proceeding effected without its written consent, but if settled with such consent or if there be a final judgment for the plaintiff, the indemnifying party agrees to indemnify the indemnified party against any loss, claim, damage, liability or expense by reason of such settlement or judgment. No indemnifying party shall, without the prior written consent of the indemnified party, effect any settlement, compromise or consent to the entry of judgment in any pending or threatened action, suit or proceeding in respect of which any indemnified party is a party or could be named and indemnity was or would be sought hereunder by such indemnified party, unless such settlement, compromise or consent (a) includes an unconditional release of such indemnified party from all liability for claims that are the subject matter of such action, suit or proceeding and (b) does not include a statement as to or an admission of fault, culpability or a failure to act by or on behalf of any indemnified party.

(d) If the indemnification provided for in this Section 7 is unavailable or insufficient to hold harmless an indemnified party under subsection (a) or (b) above, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of the losses, claims, damages or liabilities referred to in subsection (a) or (b) above, (i) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Underwriters on the other from the offering and sale of the Shares or (ii) if the allocation provided by clause (i) above is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) above but also the relative fault of the Company on the one hand and the Underwriters on the other in connection with the statements or omissions that resulted in such losses, claims, damages or liabilities, as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Underwriters on the other shall be deemed to be in the same proportion as the total net proceeds from the offering (before deducting expenses) received by the Company bear to the total underwriting discount received by the Underwriters, in each case as set forth in the table on the cover page of the Final Prospectus. The relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company or the Underwriters and the parties' relevant intent, knowledge, access to information and opportunity to correct or prevent such untrue statement or omission. The Company and the Underwriters agree that it would not be just and equitable if contributions pursuant to this subsection (d) were to be determined by pro rata allocation or by any other method of allocation that does not take account of the equitable considerations referred to in the first sentence of this subsection (d). The amount paid by an indemnified party as a result of the losses, claims, damages or liabilities referred to in the first sentence of this subsection (d) shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending against any action or claim that is the subject of this subsection (d). Notwithstanding the provisions of this subsection (d), no Underwriter shall be required to contribute any amount in excess of the amount of the of the underwriting discount applicable to the Shares to be purchased by such Underwriter hereunder actually received by such Underwriter. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' respective obligations to contribute as provided in this Section 7 are several in proportion to their respective underwriting commitments and not joint.

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(e) The obligations of the Company under this Section 7 shall be in addition to any liability that the Company may otherwise have and the benefits of such obligations shall extend, upon the same terms and conditions, to each person, if any, who controls any Underwriter within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act; and the obligations of each Underwriter under this Section 7 shall be in addition to any liability that each Underwriter may otherwise have and the benefits of such obligations shall extend, upon the same terms and conditions, to the Company and its officers, directors and each person who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act.

(f) For purposes of this Agreement, each Underwriter severally confirms, and the Company acknowledges, that there is no information concerning such Underwriter furnished in writing to the Company by such Underwriter specifically for preparation of or inclusion in the Registration Statement, the Time of Sale Disclosure Package, any Prospectus, the Final Prospectus or any Issuer Free Writing Prospectus, other than the statement set forth in the last paragraph on the cover page of the Prospectus, the marketing and legal names of each Underwriter, and the statements set forth in the "Underwriting" section of the Registration Statement, the Time of Sale Disclosure Package, and the Final Prospectus only insofar as such statements relate to the amount of selling concession and re-allowance, if any, or to over-allotment, stabilization and related activities that may be undertaken by such Underwriter.

**8. Representations and Agreements to Survive Delivery:** All representations, warranties, and agreements of the Company contained herein or in certificates delivered pursuant hereto, including, but not limited to, the agreements of the several Underwriters and the Company contained in Section 5(a)(viii) and Section 7 hereof, shall remain operative and in full force and effect regardless of any investigation made by or on behalf of the several Underwriters or any controlling person thereof, or the Company or any of its officers, directors, or controlling persons, and shall survive delivery of, and payment for, the Shares to and by the Underwriters hereunder.

#### **9. Termination of this Agreement.**

(a) The Representative shall have the right to terminate this Agreement by giving notice to the Company as hereinafter specified at any time at or prior to the Closing Date or any Option Closing Date (as to the Option Shares to be purchased on such Option Closing Date only), if in the discretion of the Representative, (i) there has occurred any material adverse change in the securities markets or any event, act or occurrence that has materially disrupted, or in the opinion of the Representative, will in the future materially disrupt, the securities markets or there shall be such a material adverse change in general financial, political or economic conditions or the effect of international conditions on the financial markets in the United States is such as to make it, in the judgment of the Representative, inadvisable or impracticable to market the Shares or enforce contracts for the sale of the Shares (ii) trading in the Company's Common Stock shall have been suspended by the Commission or Nasdaq or trading in securities generally on the Nasdaq Stock Market, the NYSE or the NYSE MKT shall have been suspended, (iii) minimum or maximum prices for trading shall have been fixed, or maximum ranges for prices for securities shall have been required, on the Nasdaq Stock Market, the NYSE or NYSE American, by such exchange or by order of the Commission or any other governmental authority having jurisdiction, (iv) a banking moratorium shall have been declared by federal or state authorities, (v) there shall have occurred any attack on, outbreak or escalation of hostilities or act of terrorism involving the United States any declaration by the United States of a national emergency or war, any substantial change or development involving a prospective substantial change in United States or other international political, financial or economic conditions or any other calamity or crisis, or (vi) the Company suffers any loss by strike, fire, flood, earthquake, accident or other calamity, whether or not covered by insurance, or (vii) in the judgment of the Representative, there has been, since the time of execution of this Agreement or since the respective dates as of which information is given in the Registration Statement, the Time of Sale Disclosure Package or the Final Prospectus, any material adverse change in the assets, properties, condition, financial or otherwise, or in the results of operations, business affairs or business prospects of the Company, whether or not arising in the ordinary course of business. Any such termination shall be without liability of any party to any other party except that the provisions of Section 5(a)(viii) and Section 7 hereof shall at all times be effective and shall survive such termination.

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(b) If the Representative elect to terminate this Agreement as provided in this Section 9, the Company and the other Underwriters shall be notified promptly by the Representative by telephone, confirmed by letter.

(c) If this Agreement is terminated pursuant to any of its provisions, the Company shall not be under any liability to any Underwriter, and no Underwriter shall be under any liability to the Company, except that (y) subject to a maximum reimbursement of \$140,000, the Company will reimburse the Representative only for all actual, accountable out-of-pocket expenses (including the reasonable fees and disbursements of its counsel) reasonably incurred by the Representative in connection with the proposed purchase and sale of the Shares or in contemplation of performing their obligations hereunder and (z) no Underwriter who shall have failed or refused to purchase the Shares agreed to be purchased by it under this Agreement, without some reason sufficient hereunder to justify cancellation or termination of its obligations under this Agreement, shall be relieved of liability to the Company, or to the other Underwriters for damages occasioned by its failure or refusal.

**10. Substitution of Underwriters.** If any Underwriter or Underwriters shall default in its or their obligations to purchase Shares hereunder on the Closing Date or any Option Closing Date and the aggregate number of Shares which such defaulting Underwriter or Underwriters agreed but failed to purchase does not exceed five percent (5%) of the total number of Shares to be purchased by all Underwriters on such Closing Date or Option Closing Date, the other Underwriters shall be obligated severally, in proportion to their respective commitments hereunder, to purchase the Shares which such defaulting Underwriter or Underwriters agreed but failed to purchase on such Closing Date or Option Closing Date. If any Underwriter or Underwriters shall so default and the aggregate number of Shares with respect to which such default or defaults occur is more than ten percent (10%) of the total number of Shares to be purchased by all Underwriters on such Closing Date or Option Closing Date and arrangements satisfactory to the remaining Underwriters and the Company for the purchase of such Shares by other persons are not made within forty-eight (48) hours after such default, this Agreement shall terminate.

If the remaining Underwriters or substituted Underwriters are required hereby or agree to take up all or part of the Shares of a defaulting Underwriter or Underwriters on such Closing Date or Option Closing Date as provided in this Section 10, (i) the Company shall have the right to postpone such Closing Date or Option Closing Date for a period of not more than five (5) full business days in order to permit the Company to effect whatever changes in the Registration Statement, the Final Prospectus, or in any other documents or arrangements, which may thereby be made necessary, and the Company agrees to promptly file any amendments to the Registration Statement or the Final Prospectus which may thereby be made necessary, and (ii) the respective numbers of Shares to be purchased by the remaining Underwriters or substituted Underwriters shall be taken as the basis of their underwriting obligation for all purposes of this Agreement. Nothing herein contained shall relieve any defaulting Underwriter of its liability to the Company or any other Underwriter for damages occasioned by its default hereunder. Any termination of this Agreement pursuant to this Section 10 shall be without liability on the part of any non-defaulting Underwriters or the Company, except that the obligations with respect to expenses to be paid or reimbursed pursuant to Section 5(a)(viii) and Section 7 and Sections 9 through 17, inclusive, shall not terminate and shall remain in full force and effect.

**11. [Intentionally Omitted].**

**12. Notices.** All notices and communications hereunder shall be in writing and mailed or delivered or by telephone, electronic mail or telegraph if subsequently confirmed in writing, (a) if to the Representative, WallachBeth Capital, LLC, Harborside Financial Center Plaza 5, 185 Hudson Street, Ste 1410, Jersey City, NJ 07311, with a copy (which shall not constitute notice) to Carmel, Milazzo & Feil LLP, 55 West 39<sup>th</sup> Street, 18th Floor New York, New York 10018, Attention: Jeffrey P. Wofford, Esq., and (b) if to the Company, to the Company's agent for service as such agent's address appears on the cover page of the Registration Statement with a copy (which shall not constitute notice) to Sichenzia Ross Ference LLP, 1185 Avenue of the Americas | 31st Floor | New York, NY 10036, Attention: Arthur Marcus

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**13. Persons Entitled to Benefit of Agreement.** This Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective successors and assigns and the controlling persons, officers and directors referred to in Section 7. Nothing in this Agreement is intended or shall be construed to give to any other person, firm or corporation any legal or equitable remedy or claim under or in respect of this Agreement or any provision herein contained. The term "successors and assigns" as herein used shall not include any purchaser, as such purchaser, of any of the Shares from any Underwriters.

**14. Absence of Fiduciary Relationship.** The Company acknowledges and agrees that: (a) each Underwriter has been retained solely to act as underwriter in connection with the sale of the Shares and that no fiduciary, advisory or agency relationship between the Company and any Underwriter has been created in respect of any of the transactions contemplated by this Agreement, irrespective of whether the Underwriter has advised or is advising the Company on other matters; (b) the price and other terms of the Shares set forth in this Agreement were established by the Company following discussions and arms-length negotiations with the Underwriters and the Company is capable of evaluating and understanding and understands and accepts the terms, risks and conditions of the transactions contemplated by this Agreement; (c) it has been advised that the Underwriters and their affiliates are engaged in a broad range of transactions that may involve interests that differ from those of the Company and that no Underwriter has any obligation to disclose such interest and transactions to the Company by virtue of any fiduciary, advisory or agency relationship; and (d) it has been advised that each Underwriter is acting, in respect of the transactions contemplated by this Agreement, solely for the benefit of such Underwriter, and not on behalf of the Company.

**15. Amendments and Waivers.** No supplement, modification or waiver of this Agreement shall be binding unless executed in writing by the party to be bound thereby. The failure of a party to exercise any right or remedy shall not be deemed or constitute a waiver of such right or remedy in the future. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provision hereof (regardless of whether similar), nor shall any such waiver be deemed or constitute a continuing waiver unless otherwise expressly provided.

**16. Partial Unenforceability.** The invalidity or unenforceability of any section, paragraph, clause or provision of this Agreement shall not affect the validity or enforceability of any other section, paragraph, clause or provision.

**17. Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the State of New York.

**18. Submission to Jurisdiction.** The Company hereby agrees that any action, proceeding or claim against it arising out of, or relating in any way to this Agreement shall be brought and enforced in the New York Supreme Court, County of New York, or in the United States District Court for the Southern District of New York, and irrevocably submits to such jurisdiction, which jurisdiction shall be exclusive. The Company hereby waives any objection to such exclusive jurisdiction and that such courts represent an inconvenient forum. EACH OF THE COMPANY (ON BEHALF OF ITSELF AND, TO THE FULLEST EXTENT PERMITTED BY LAW, ON BEHALF OF ITS RESPECTIVE EQUITY HOLDERS AND CREDITORS) AND THE UNDERWRITER HEREBY WAIVES ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY CLAIM BASED UPON, ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT AND THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT, THE REGISTRATION STATEMENT, THE TIME OF SALE DISCLOSURE PACKAGE, ANY PROSPECTUS AND THE FINAL PROSPECTUS.

**19. Counterparts.** This Agreement may be executed and delivered (including by facsimile transmission or electronic mail) in one or more counterparts and, if executed in more than one counterpart, the executed counterparts shall each be deemed to be an original and all such counterparts shall together constitute one and the same instrument.

[Signature Page Follows]

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Please sign and return to the Company the enclosed duplicates of this letter whereupon this letter will become a binding agreement between the Company and the several Underwriters in accordance with its terms.

Very truly yours,

**BULLFROG AI HOLDINGS, INC.**

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

Confirmed as of the date first above-mentioned by the Representative of the several Underwriters.

WALLACHBETH CAPITAL, LLC

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

[Signature page to Underwriting Agreement]

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**SCHEDULE I**

<i>Underwriter</i>	<i>Number of Firm Securities to be Purchased</i>	<i>Total Number of Option Securities to be Purchased</i>	
	Number of Firm Units	Number of Option Shares	Number of Option Warrants
WallachBeth Capital, LLC			
<b>Total</b>			

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**SCHEDULE II**

**Pricing Information**

Number of Firm Units

Number of Option Shares:

Number of Option Warrants:

Public Offering Price per Firm Unit: \$

Public Offering Price per Option Share: \$[\*]

Public Offering Price per Option Warrant:

Underwriting Discount per Firm Unit: (8% per Firm Unit)

Underwriting non-accountable expense allowance per Firm Unit: (1% per Firm Unit)

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**SCHEDULE III**

**Free Writing Prospectus**

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**SCHEDULE IV**

**Lock-Up Parties**

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## FORM OF WARRANT AGENT AGREEMENT

This Warrant Agent Agreement (this “Warrant Agreement”), dated as of [ ], 2023 (the “Issuance Date”) is between Bullfrog AI Holdings, Inc., a company incorporated under the laws of the State of Nevada (the “Company”), and VStock Transfer, LLC, a California limited liability company (the “Warrant Agent”).

WHEREAS, pursuant to the terms of that certain Underwriting Agreement (“Underwriting Agreement”), dated [ ], 2023, by and among the Company and WallachBeth Capital, LLC, as representative of the underwriters set forth therein (the “Representative”), the Company is engaged in a public offering (the “Offering”) of up to 1,317,647 units (each, a “Unit,” collectively, the “Units” each Unit consisting of: (i) one share (the “Shares”) of common stock, par value \$0.00001 per share (the “Common Stock”) of the Company, (ii) one five-year tradeable warrant (each, a “Tradeable Warrant”) to purchase one share of Common Stock (“Tradeable Warrant Shares”) at an anticipated exercise price of \$7.80 per share, and (iii) one five-year non-tradeable warrant (a “Non-tradeable Warrant”; together with each Tradeable Warrant, the “Warrants”) to purchase one share of Common Stock (“Non-tradeable Warrant Shares; together with the Tradeable Warrant Shares, the “Warrant Shares”) at an anticipated exercise price of \$8.125 per share, which includes Shares and Warrants issuable pursuant to the underwriters’ over-allotment option and the warrant;

WHEREAS, the Company has filed with the Securities and Exchange Commission (the “Commission”) a Registration Statement on Form S-1 (File No. 333-[ ]) (as the same may be amended from time to time, the “Registration Statement”), for the registration under the Securities Act of 1933, as amended (the “Securities Act”), of the Units, Shares, Warrants, the Representative’s Warrant and the Warrant Shares, and such Registration Statement was declared effective on [●], 2023;

WHEREAS the Company desires the Warrant Agent to act on behalf of the Company, and the Warrant Agent is willing to so act, in accordance with the terms set forth in this Warrant Agreement in connection with the issuance, registration, transfer, exchange and exercise of the Warrants;

WHEREAS, the Company desires to provide for the provisions of the Warrants, the terms upon which they shall be issued and exercised, and the respective rights, limitation of rights, and immunities of the Company, the Warrant Agent, and the holders of the Warrants; and

WHEREAS, all acts and things have been done and performed which are necessary to make the Warrants the valid, binding and legal obligations of the Company, and to authorize the execution and delivery of this Warrant Agreement.

NOW, THEREFORE, in consideration of the mutual agreements herein contained, the parties hereto agree as follows:

1. Appointment of Warrant Agent. The Company hereby appoints the Warrant Agent to act as agent for the Company with respect to the Warrants, and the Warrant Agent hereby accepts such appointment and agrees to perform the same in accordance with the express terms and conditions set forth in this Warrant Agreement (and no implied terms or conditions).

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## 2. Warrants.

2.1. Form of Warrants. The Tradeable Warrants shall be registered securities and shall be evidenced by a global certificate (“Tradeable Global Certificate”) in the form of Exhibit A to this Warrant Agreement, which shall be deposited on behalf of the Company with a custodian for The Depository Trust Company (“DTC”) and registered in the name of Cede & Co., a nominee of DTC. If DTC subsequently ceases to make its book-entry settlement system available for the Tradeable Warrants, the Company may instruct the Warrant Agent regarding making other arrangements for book-entry settlement. In the event that the Tradeable Warrants are not eligible for, or it is no longer necessary to have the Tradeable Warrants available in, book-entry form, the Company may instruct the Warrant Agent to provide written instructions to DTC to deliver to the Warrant Agent for cancellation of the Tradeable Global Certificate, and the Company shall instruct the Warrant Agent to deliver to DTC separate certificates evidencing the Tradeable Warrants (“Tradeable Definitive Certificates”) registered as requested through the DTC system. The Non-tradeable Warrants will be unregistered securities and will be evidenced by a global certificate (“Non-tradeable Global Certificate”; together with the Tradeable Global Certificate, the “Global Certificates”) in the form of Exhibit B to this Warrant Agreement, which shall be deposited on behalf of the Company with the Warrant Agent. If the Warrant Agent subsequently ceases to make its book-entry settlement system available for the Non-tradeable Warrants, the Company may instruct the Warrant Agent regarding making other arrangements for book-entry settlement. In the event that the Non-tradeable Warrants are not eligible for, or it is no longer necessary to have the Non-tradeable Warrants available in, book-entry form, the Company may instruct the Warrant Agent to cancel the Non-tradeable Global Certificate and to deliver separate certificates evidencing the Non-tradeable Warrants (“Non-tradeable Definitive Certificates” and, together with the Global Certificates and the Tradeable Definitive Certificates, the “Warrant Certificates”).

### 2.2. Issuance and Registration of Warrants.

2.2.1. Warrant Register. The Warrant Agent shall maintain books (“Warrant Register”) for the registration of original issuance and the registration of transfer of the Warrants. Any person in whose name ownership of a beneficial interest in the Warrants evidenced by a Global Certificate is recorded in the records maintained by DTC or its nominee shall be deemed the “beneficial owner” thereof, provided that all such beneficial interests shall be held through a Participant (as defined below), which shall be the registered holder of such Warrants.

2.2.2. Issuance of Warrants. Upon the initial issuance of the Tradeable Warrants, the Warrant Agent shall issue the Tradeable Global Certificate and deliver the Tradeable Warrants in the DTC book-entry settlement system in accordance with written instructions delivered to the Warrant Agent by the Company. Upon the initial issuance of the Non-tradeable Warrants, the Warrant Agent shall issue the Non-tradeable Global Certificate and deliver the Non-tradeable Warrants in the Warrant Agent’s book-entry settlement system in accordance with the Company’s written instructions delivered to the Warrant Agent. Ownership of security entitlements in the Warrants shall be shown on, and the transfer of such ownership shall be effected through, records maintained, (i) in the case of Tradeable Warrants (A) by DTC and (B) by institutions that have accounts with DTC (each, a “Participant”), and (ii) in the case of Non-tradeable Warrants, by the Warrant Agent.

2.2.3. Beneficial Owner; Holder. Prior to due presentment for registration of transfer of any Warrant, the Company and the Warrant Agent may deem and treat the Person in whose name that Warrant shall be registered on the Warrant Register (the “Holder”) as the absolute owner of such Warrant for purposes of any exercise thereof, and for all other purposes, and neither the Company nor the Warrant Agent shall be affected by any notice to the contrary. Notwithstanding the foregoing, nothing herein shall prevent the Company, the Warrant Agent or any agent of the Company or the Warrant Agent from giving effect to any written certification, proxy or other authorization furnished by DTC governing the exercise of the rights of a Holder of a beneficial interest in any Tradeable Warrant. The rights of beneficial owners in a Warrant evidenced by the Global Certificates shall be exercised by the Holder or a Participant through (i) in the case of a Tradeable Warrant, the DTC system, or (ii) in the case of a Non-tradeable Warrant, the Warrant Agent’s system, except to the extent set forth herein or in the Global Certificates.

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2.2.4. Execution. The Warrant Certificates shall be executed on behalf of the Company by any authorized officer of the Company (an “Authorized Officer”), which need not be the same authorized signatory for all of the Warrant Certificates, either manually or by facsimile signature. The Warrant Certificates shall be countersigned by an authorized signatory of the Warrant Agent, which need not be the same signatory for all of the Warrant Certificates, and no Warrant Certificate shall be valid for any purpose unless so countersigned. In case any Authorized Officer of the Company that signed any of the Warrant Certificates ceases to be an Authorized Officer of the Company



before countersignature by the Warrant Agent and issuance and delivery by the Company, such Warrant Certificates, nevertheless, may be countersigned by the Warrant Agent, issued and delivered with the same force and effect as though the Person who signed such Warrant Certificates had not ceased to be such officer of the Company; and any Warrant Certificate may be signed on behalf of the Company by any Person who, at the actual date of the execution of such Warrant Certificate, shall be an Authorized Officer of the Company authorized to sign such Warrant Certificate, although at the date of the execution of this Warrant Agreement any such Person was not such an Authorized Officer.

2.2.5. Registration of Transfer. At any time at or prior to the Expiration Date (as defined below), a transfer of any Warrants may be registered and any Warrant Certificate or Warrant Certificates may be split up, combined or exchanged for another Warrant Certificate or Warrant Certificates evidencing the same number of Warrants as the Warrant Certificate or Warrant Certificates surrendered. Any Holder desiring to register the transfer of Warrants or to split up, combine or exchange any Warrant Certificate shall make such request in writing delivered to the Warrant Agent, and shall surrender to the Warrant Agent the Warrant Certificate or Warrant Certificates evidencing the Warrants the transfer of which is to be registered or that is or are to be split up, combined or exchanged and, in the case of registration of transfer, shall provide a signature guarantee. Thereupon, the Warrant Agent shall countersign and deliver to the Person entitled thereto a Warrant Certificate or Warrant Certificates, as the case may be, as so requested. The Company and the Warrant Agent may require payment, by the Holder requesting a registration of transfer of Warrants or a split-up, combination or exchange of a Warrant Certificate (but, for purposes of clarity, not upon the exercise of the Warrants and issuance of Warrant Shares to the Holder), of a sum sufficient to cover any tax or governmental charge that may be imposed in connection with such registration of transfer, split-up, combination or exchange, together with reimbursement to the Company and the Warrant Agent of all reasonable expenses incidental thereto.

2.2.6. Loss, Theft and Mutilation of Warrant Certificates. Upon receipt by the Company and the Warrant Agent of evidence reasonably satisfactory to them of the loss, theft, destruction or mutilation of a Warrant Certificate, and, in case of loss, theft or destruction, of indemnity or security in customary form and amount, and reimbursement to the Company and the Warrant Agent of all reasonable expenses incidental thereto, and upon surrender to the Warrant Agent and cancellation of the Warrant Certificate if mutilated, the Warrant Agent shall, on behalf of the Company, countersign and deliver a new Warrant Certificate of like tenor to the Holder in lieu of the Warrant Certificate so lost, stolen, destroyed or mutilated. The Warrant Agent may charge the Holder an administrative fee for processing the replacement of lost Warrant Certificates, which shall be charged only once in instances where a single surety bond obtained covers multiple certificates. The Warrant Agent may receive compensation from the surety companies or surety agents for administrative services provided to them.

2.2.7. Proxies. The Holder of a Warrant may grant proxies or otherwise authorize any Person, including the Participants and beneficial holders that may own interests through the Participants in the case of Tradeable Warrants, to take any action that a Holder is entitled to take under this Agreement or the Warrants; provided, however, that at all times that Tradeable Warrants are evidenced by a Tradeable Global Certificate, exercise of those Tradeable Warrants shall be effected on their behalf by Participants through DTC in accordance the procedures administered by DTC.

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### 3. Terms and Exercise of Warrants

3.1. Exercise Price. Each Warrant shall entitle the Holder, subject to the provisions of the applicable Warrant Certificate and of this Warrant Agreement, to purchase from the Company the number of Shares of Common Stock stated therein, at the price of (i) \$7.80 per whole Share upon exercise of a Tradeable Warrant, and (ii) \$8.125 per whole Share upon exercise of a Non-tradeable Warrant, subject in both cases to the subsequent adjustments provided in Section 4 hereof. The term "Exercise Price" as used in this Warrant Agreement refers to the price per Share at which Shares of Common Stock may be purchased at the time a Warrant is exercised.

3.2. Duration of Warrants. Warrants may be exercised only during the period ("Exercise Period") commencing on the Issuance Date and terminating at 11:59 P.M., New York City Time (the "close of business") on the fifth anniversary of the Issuance Date, [●], 2028 ("Expiration Date"). Each Warrant not exercised on or before the Expiration Date shall become void, and all rights thereunder and all rights in respect thereof under this Warrant Agreement shall cease at the close of business on the Expiration Date.

#### 3.3. Exercise of Warrants

3.3.1. Exercise and Payment. (a) Subject to the provisions of this Warrant Agreement, a Holder (or a Participant or a designee of a Participant acting on behalf of a Holder) may exercise Warrants by delivering to the Warrant Agent, not later than 5:00 P.M., New York City Time, on any Business Day during the Exercise Period an election to purchase the Warrant Shares underlying the Warrants to be exercised (i) in the form included in Exhibit C to this Warrant Agreement or (ii) in the case of a Tradeable Warrant, via an electronic warrant exercise through the DTC system (each, an "Election to Purchase"). No later than one (1) Trading Day following delivery of an Election to Purchase, the Holder (or a Participant acting on behalf of a Holder in accordance with DTC procedures) shall: (i) (A) surrender the Warrant Certificate evidencing the Warrants to the Warrant Agent at its office designated for such purpose or (B) deliver the Warrants to an account of the Warrant Agent at DTC designated for such purpose in writing by the Warrant Agent to DTC from time to time, and (ii) unless the cashless exercise procedure specified in Section 3.3.7(b) or (c) below is permitted and specified in the applicable Notice of Exercise, deliver to the Company the Exercise Price for each Warrant to be exercised, in lawful money of the United States of America in cash, by certified or official bank check payable to the Company or bank wire transfer in immediately available funds to:

**BULLFROG AI HOLDINGS, INC.**

Bank Name: [\_\_\_\_]

Routing (ABA)#: [\_\_\_\_]

Beneficiary Account Name: Bullfrog AI Holdings, Inc.

Beneficiary Account Number:[\_\_\_\_]

No ink-original Election to Purchase shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Election to Purchase form be required. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender the Warrants to the Company until the Holder has purchased all of the Warrant Shares available thereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender such Warrant to the Company for cancellation within three (3) Trading Days of the date the final Election to Purchase is delivered to the Company. Partial exercises of a Warrant resulting in purchases of a portion of the total number of Warrant Shares available thereunder shall have the effect of lowering the outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Holder and the Company shall maintain records showing the number of Warrant Shares purchased and the date of such purchases. The Company shall deliver any objection to any Election to Purchase within one (1) Business Day of receipt of such notice. **The Holder and any assignee, by acceptance of a Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face thereof.**

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Any Person so designated by the Holder (or a Participant or designee of a Participant on behalf of a Holder) to receive Warrant Shares shall be deemed to have become holder of record of such Warrant Shares as of the time that an appropriately completed and duly signed Election to Purchase has been delivered to the Warrant Agent, provided that the Holder (or Participant on behalf of the Holder) makes delivery of the deliverables referenced in the immediately preceding sentence by the date that is one (1) Trading Day after the delivery of the Election to Purchase. If the Holder (or Participant on behalf of the Holder) fails to make delivery of such deliverables on or prior to the Trading Day following delivery of the Election to Purchase, such Election to Purchase shall be void *ab initio*.

(b) If any of (i) the Warrants, (ii) the Election to Purchase, or (iii) the Exercise Price therefor, is received by the Warrant Agent on any date after 5:00 P.M., New York City Time, or on a date that is not a Trading Day, the Warrants with respect thereto will be deemed to have been received and exercised on the Trading Day next succeeding such date. “Business Day” means a day other than a Saturday, Sunday, or other day on which commercial Banks in New York City are authorized or required by law to remain closed; provided, however, for clarification, commercial banks shall not be deemed to be authorized or required by law to remain closed due to “stay at home”, “shelter-in-place”, “non-essential employee” or any other similar orders or restrictions or the closure of any physical branch locations at the direction of any governmental authority so long as the electronic funds transfer systems (including for wire transfers) of commercial banks in The City of New York generally are open for use by customers on such day. The “Exercise Date” will be the date on which the materials in the foregoing sentence are received by the Warrant Agent (if by 5:00 P.M., New York City time), or the following Trading Day (if after 5:00 P.M., New York City time), regardless of any earlier date written on the materials. If the Warrants are received or deemed to be received after the Expiration Date, the exercise thereof will be null and void and any funds delivered to the Company will be returned to the Holder or Participant, as the case may be, as soon as practicable. In no event will interest accrue on any funds deposited with the Company in respect of an exercise or attempted exercise of Warrants.

(c) If less than all the Warrants evidenced by a surrendered Warrant Certificate are exercised, the Warrant Agent shall split up the surrendered Warrant Certificate and return to the Holder a Warrant Certificate evidencing the Warrants that were not exercised.

Notwithstanding the foregoing in this Section 3.3.1, a holder whose interest in a Warrant is a beneficial interest in certificate(s) representing such Warrant held in registered form through DTC (or another established clearing corporation performing similar functions), shall effect exercises made pursuant to this Section 3.3.1 by delivering to DTC (or such other clearing corporation, as applicable) the appropriate instruction form for exercise, complying with the procedures to effect exercise that are required by DTC (or such other clearing corporation, as applicable), subject to a holder’s right to elect to receive a Definitive Warrant pursuant to the terms of this Warrant Agreement, in which case this sentence shall not apply. Upon giving irrevocable instructions to its Participant to exercise Warrants, solely for purposes of Regulation SHO, the holder whose interest in the Warrant is a beneficial interest shall be deemed to have exercised such Warrant, regardless of when the applicable Warrant Shares are delivered to such holder

3.3.2. Issuance of Warrant Shares. (a) The Warrant Agent shall, by 11:00 a.m., New York City time, on the Trading Day following the Exercise Date of any Warrant, advise the Company, the transfer agent and registrar for the Company’s Common Stock, in respect of (i) the number of Warrant Shares indicated on the Election to Purchase as issuable upon such exercise with respect to such exercised Warrants, (ii) the instructions of the Holder or Participant, as the case may be, provided to the Warrant Agent with respect to the delivery of the Warrant Shares and the number of Warrants that remain outstanding after such exercise, and (iii) such other information as the Company or such transfer agent and registrar shall reasonably request.

(b) The Company shall, by no later than 5:00 P.M., New York City Time, on the second Trading Day following the Exercise Date of any Tradeable Warrant and the clearance of the funds in payment of the Exercise Price (such date and time, the “Delivery Time”), cause its registrar to electronically transmit the Warrant Shares issuable upon that exercise to DTC by crediting the account of DTC or of the Participant, as the case may be, through its Deposit Withdrawal Agent Commission system.

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3.3.3. Valid Issuance. All Warrant Shares issued by the Company upon the proper exercise of a Warrant in conformity with this Warrant Agreement shall be duly authorized, validly issued, fully paid and non-assessable.

3.3.4. No Fractional Exercise. No fractional Warrant Shares will be issued upon the exercise of the Warrant. If, by reason of any adjustment made pursuant to Section 4, a Holder would be entitled, upon the exercise of such Warrant, to receive a fractional interest in a share, the Company shall, upon such exercise, round up to the next whole share.

3.3.5. No Transfer Taxes. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of such Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that, in the event that Warrant Shares are to be issued in a name other than the name of the Holder, the Warrant when surrendered for exercise shall be accompanied by the Assignment Form attached to the Warrant duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Transfer Agent fees required for same-day processing of any Election to Purchase and all fees to DTC (or another established clearing corporation performing similar functions) required for same-day electronic delivery of the Warrant Shares.

3.3.6. Date of Issuance. The Company will treat an exercising Holder as a beneficial owner of the Warrant Shares as of the Exercise Date, except that, if the Exercise Date is a date when the stock transfer books of the Company are closed, such Person shall be deemed to have become the holder of such shares at the open of business on the next succeeding date on which the stock transfer books are open.

3.3.7. Restrictive Legend Events; Cashless Exercise Under Certain Circumstances. (a) The Company shall use its reasonable best efforts to maintain the effectiveness of the Registration Statement and the current status of the prospectus included therein or to file and maintain the effectiveness of another registration statement and another current prospectus covering the Tradeable Warrants and the Tradeable Warrant Shares at any time that the Tradeable Warrants are exercisable. The Company shall provide to the Warrant Agent and each Holder prompt written notice of any time that the Company is unable to deliver the Warrant Shares via DTC transfer or otherwise without restrictive legend because: (i) the Commission has issued a stop order with respect to the Registration Statement, (ii) the Commission otherwise has suspended or withdrawn the effectiveness of the Registration Statement, either temporarily or permanently, (iii) the Company has suspended or withdrawn the effectiveness of the Registration Statement, either temporarily or permanently, (iv) in the case of a Tradeable Warrant, the prospectus contained in the Registration Statement is not available for the issuance of the Tradeable Warrant Shares to the Holder, or (v) otherwise (each a “Restrictive Legend Event”). To the extent that the Warrants cannot be exercised as a result of a Restrictive Legend Event or a Restrictive Legend Event occurs after a Holder has exercised Warrants in accordance with the terms of the Warrants but prior to the delivery of the Warrant Shares, the Company shall, at the election of the Holder, which shall be given within five (5) days of receipt of such notice of the Restrictive Legend Event, either (i) rescind the previously submitted Election to Purchase and return all consideration paid by registered Holder for such shares upon such rescission, or (ii) treat the attempted exercise as a cashless exercise as described in paragraph (b) below and refund the cash portion of the exercise price to the Holder. Notwithstanding anything herein to the contrary, the Company shall not be required to make any cash payments or net cash settlement to the Holder in lieu of delivery of the Warrant Shares.

(b) If a Restrictive Legend Event has occurred, the Warrant shall only be exercisable on a cashless basis. Upon a “cashless exercise”, the Holder shall be entitled to receive the number of Warrant Shares equal to the quotient obtained by dividing (A-B) (X) by (A), where:

- (A) = as applicable: (i) the VWAP on the Trading Day immediately preceding the Exercise Date if the Holder’s Election to Purchase is (1) both executed and delivered pursuant to Section 3.3.7(a) hereof on a day that is not a Trading Day, or (2) both executed and delivered pursuant to Section 3.3.7(a) hereof on a Trading Day prior to the opening of “regular trading hours” (as defined in Rule 600(b)(68) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) at the option of the Holder, either (y) the VWAP on the Trading Day immediately preceding the date of the applicable Election to Purchase, or (z) the Bid Price of the Common Stock on the principal Trading Market as reported by Bloomberg L.P. as of the time of the Holder’s execution of the applicable Election to Purchase if such Election to Purchase is executed during “regular trading hours” on a Trading Day and is delivered within two (2) hours thereafter (including until two (2) hours after the close of “regular trading hours” on a Trading Day) pursuant to Section 3.3.7(a) hereof, or (iii) the VWAP on the date of the applicable Election to Purchase if the date of such Election to Purchase is a Trading Day and such Election to Purchase is both executed and delivered pursuant to Section 3.3.7(a) hereof after the close of “regular trading hours” on such Trading Day;
- (B) = the Exercise Price then in effect for the applicable Warrant Shares at the time of the exercise of the Warrant, as adjusted as set forth herein; and

(X) = the number of Warrant Shares that would be issuable upon exercise of the Warrant in accordance with the terms of the Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

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Notwithstanding anything to the contrary herein, a “cashless exercise” may occur after the earlier of (i) 1 Trading Day from the Initial Exercise Date of this Warrant or (ii) the time when \$10.0 million of volume is traded in the Common Shares, if the VWAP of the Common Shares on any Trading Day on or after the closing date fails to exceed the Exercise Price in effect as of the Initial Exercise Date (subject to adjustment for any stock splits, stock dividends, stock combinations, recapitalizations and similar events). In such event, the aggregate number of Warrant Shares issuable in such cashless exercise pursuant to any given Notice of Exercise electing to effect a cashless exercise shall equal the product of (x) the aggregate number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise and (y) 1.00.

If Tradeable Warrant Shares are issued in such a cashless exercise, the Company acknowledges and agrees that, in accordance with Section 3(a)(9) of the Securities Act, the Tradeable Warrant Shares shall take on the registered characteristics of the Tradeable Warrants being exercised and the Company agrees not to take any position contrary thereto. Upon receipt of an Election to Purchase for a cashless exercise, the Warrant Agent will promptly deliver a copy of the Election to Purchase to the Company to confirm the number of Warrant Shares issuable in connection with the cashless exercise. The Company shall calculate and transmit to the Warrant Agent in a written notice, and the Warrant Agent shall have no duty, responsibility or obligation under this section to calculate, the number of Warrant Shares issuable in connection with any cashless exercise. The Warrant Agent shall be entitled to rely conclusively on any such written notice provided by the Company, and the Warrant Agent shall not be liable for any action taken, suffered or omitted to be taken by it in accordance with such written instructions or pursuant to this Warrant Agreement.

**3.3.8. Restrictive Legend of Non-tradeable Warrants.** No registration is required for the offer and sale of the Non-tradeable Warrants by the Company to the Holders. The Non-tradeable Warrants may only be disposed of in compliance with state and federal securities laws. In connection with any transfer of Non-tradeable Warrants other than pursuant to an effective registration statement or Rule 144 promulgated under the Securities Act, the Company may require the transferor thereof to provide to the Company an opinion of counsel selected by the transferor and reasonably acceptable to the Company, the form and substance of which opinion shall be reasonably satisfactory to the Company, to the effect that such transfer does not require registration of such transferred Non-tradeable Warrant under the Securities Act. Certificates evidencing the Non-tradeable Warrants shall not contain any legend: (i) while a registration statement covering the resale of such security is effective under the Securities Act; (ii) following any sale of such Non-tradeable Warrants pursuant to Rule 144 (assuming cashless exercise of the Non-tradeable Warrants); (iii) if such Non-tradeable Warrants are eligible for sale under Rule 144 (assuming cashless exercise of the Non-tradeable Warrants); or (iv) if such legend is not required under applicable requirements of the Securities Act (including judicial interpretations and pronouncements issued by the staff of the Commission). The Company shall cause its counsel to issue a legal opinion to the Warrant Agent or the Holder promptly if required by the Warrant Agent to effect the removal of the legend hereunder, or if requested by a Holder, respectively. If all or any portion of a Non-tradeable Warrant is exercised at a time when a legend is not required pursuant to clauses (i)-(iv) above, then such Non-tradeable Warrants shall be issued free of all legends.

**3.3.9. Disputes.** In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the number of Warrant Shares issuable in connection with any exercise, the Company shall promptly deliver to the Holder the number of Warrant Shares that are not disputed.

**3.3.9 Compensation for Buy-In on Failure to Timely Deliver Warrant Shares Upon Exercise.** In addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares in accordance with the provisions of Section 3.3.2 above pursuant to an exercise on or before the Delivery Time, and if after such date the Holder is required by its broker to purchase (in an open market transaction or otherwise) or the Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a “Buy-In”), then the Company shall (A) pay in cash to the Holder the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock with an aggregate sale price giving rise to such purchase obligation of \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof.

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**3.3.10 Beneficial Ownership Limitation.** The Company shall not affect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of a Warrant, pursuant to Section 3 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Election to Purchase, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates (such Persons, “Attribution Parties”)), would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by the Holder and its Affiliates and Attribution Parties shall include the number of shares of Common Stock issuable upon exercise of the Warrants with respect to which such determination is being made, but shall exclude the number of shares of Common Stock (a) which would be issuable upon exercise of the remaining, non-exercised Warrants beneficially owned by that Holder or any of its Affiliates or Attribution Parties and (b) which would be issuable upon exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company (including, without limitation, any other Common Stock Equivalents) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its Affiliates or Attribution Parties. Except as set forth in the preceding sentence, for purposes of this Section 3.3.10, beneficial ownership shall be calculated in accordance with Section 13(d) of the Securities Exchange Act of 1934, as amended, and the rule and regulations promulgated thereunder (the “Exchange Act”), it being acknowledged by the Holder that neither the Warrant Agent nor the Company is representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder or beneficial owner is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 3.3.10 applies, the determination of whether a Warrant is exercisable and of which portion of the Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of an Election to Purchase shall be deemed to be the Holder's determination of whether such Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and which portion of the Warrant is exercisable, and neither the Warrant Agent nor the Company shall have any obligation to verify or confirm the accuracy of such determination and neither of them shall have any liability for any error made by the Holder or any other Person. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 3.3.10, in determining the number of outstanding shares of Common Stock, a Holder or other Person may rely on the number of outstanding shares of Common Stock as reflected in (a) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (b) a more recent public announcement by the Company or (c) a more recent written notice by the Company or the Company's transfer agent setting forth the number of shares of Common Stock outstanding (the “Reported Outstanding Share Number”). If the Company receives an Election to Purchase from a Holder at a time when the actual number of outstanding shares of Common Stock is less than the Reported Outstanding Share Number, the Company shall (i) notify the Holder in writing of the number of shares of Common Stock then outstanding and, to the extent that such Election to Purchase would otherwise cause the Holder's beneficial ownership to exceed the Beneficial Ownership Limitation, the Holder must notify the Company of a reduced number of Warrant Shares to be acquired pursuant to such Election to Purchase (the number of shares by which such purchase is reduced, the “Reduction Shares”) and (ii) as soon as reasonably practicable, the Company shall return to the Holder any exercise price paid by the Holder for the Reduction Shares. For any reason at any time, upon the written or oral request of a Person that represents that it is or is acting on behalf of a Holder, the Company shall, within one (1) Trading Day, confirm orally or in writing or by e-mail to that Person

the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including the Warrant, by the Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding shares of Common Stock was reported. The “Beneficial Ownership Limitation” shall be 4.99% (or, upon election by a Holder prior to the issuance of any Warrants, 9.99%) of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon exercise of this Warrant. Upon delivery of a written notice to the Company, the Holder may from time to time increase or decrease the Beneficial Ownership Limitation to any other percentage not in excess of 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock upon exercise of this Warrant held by the Holder and the provisions of this Section 3.3.10 shall continue to apply, as specified in such notice, provided that any increase in the Beneficial Ownership Limitation will not be effective until the sixty-first (61<sup>st</sup>) day after such notice is delivered to the Company and any such increase or decrease will apply only to the Holder and its Affiliates and Attribution Parties and not to any other holder of Warrants. The provisions of this Section 3.3.10 shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 3.3.10 to correct this subsection (or any portion hereof) which may be defective or inconsistent with the intended beneficial ownership limitation herein contained. The limitations contained in this paragraph shall apply to a successor holder of the Warrant.

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#### 4. Adjustments.

4.1. Adjustment upon Subdivisions or Combinations. If the Company at any time after the Issuance Date subdivides (by any stock split, stock dividend, recapitalization, reorganization, scheme, arrangement or otherwise) its outstanding shares of Common Stock into a greater number of shares, the Exercise Price in effect immediately prior to such subdivision will be proportionately reduced and the number of Warrant Shares will be proportionately increased. If the Company at any time after the Issuance Date combines (by any stock split, stock dividend, recapitalization, reorganization, scheme, arrangement or otherwise) its outstanding shares of Common Stock into a smaller number of shares, the Exercise Price in effect immediately prior to such combination will be proportionately increased and the number of Warrant Shares will be proportionately decreased. Any adjustment under this Section 4.1 shall become effective at the close of business on the date the subdivision or combination becomes effective. The Company shall promptly notify Warrant Agent of any such adjustment and give specific instructions to Warrant Agent with respect to any adjustments to the warrant register.

4.2. Adjustment for Other Distributions. In the event the Company shall fix a record date for the making of a dividend or distribution to all holders of Common Stock of any evidences of indebtedness or assets or subscription rights, options or warrants (excluding those referred to in Section 4.1 or other dividends paid out of retained earnings), then in each such case the Holder will, upon the exercise of Warrants, be entitled to receive, in addition to the number of Warrant Shares issuable thereupon, and without payment of any additional consideration therefor, the amount of such dividend or distribution, as applicable, which such Holder would have held on the date of such exercise had such Holder been the holder of record of such Warrant Shares as of the date on which holders of Common Stock became entitled to receive such dividend or distribution. Such adjustment shall be made whenever any such distribution is made and shall become effective immediately after the record date mentioned above.

4.3. Fundamental Transaction. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company or any Subsidiary, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding Common Stock or 50% or more of the voting power of the common equity of the Company, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, merger or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires 50% or more of the outstanding shares of Common Stock or 50% or more of the voting power of the common equity of the Company (each a “Fundamental Transaction”), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction, at the option of the Holder (without regard to any limitation in Section 2(e) on the exercise of this Warrant), the number of shares of Common Stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (the “Alternate Consideration”) receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which each Warrant is exercisable immediately prior to such Fundamental Transaction (without regard to any limitation in Section 2(e) on the exercise of the Warrants). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. Notwithstanding anything to the contrary, in the event of a Fundamental Transaction, the Company or any Successor Entity (as defined below) shall, at the Holder’s option, exercisable at any time concurrently with, or within 30 days after, the consummation of the Fundamental Transaction (or, if later, the date of the public announcement of the applicable Fundamental Transaction), purchase this Warrant from the Holder by paying to the Holder an amount of cash equal to the Black Scholes Value (as defined below) of the remaining unexercised portion of this Warrant on the date of the consummation of such Fundamental Transaction; provided, however, that, if the Fundamental Transaction is not within the Company’s control, including not approved by the Company’s Board of Directors, Holder shall only be entitled to receive from the Company or any Successor Entity the same type or form of consideration (and in the same proportion), at the Black Scholes Value of the unexercised portion of this Warrant, that is being offered and paid to the holders of Common Stock of the Company in connection with the Fundamental Transaction, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of Common Stock are given the choice to receive from among alternative forms of consideration in connection with the Fundamental Transaction; provided, further, that if holders of Common Stock of the Company are not offered or paid any consideration in such Fundamental Transaction, such holders of Common Stock will be deemed to have received common stock of the Successor Entity (which Entity may be the Company following such Fundamental Transaction) in such Fundamental Transaction. “Black Scholes Value” means the value of this Warrant based on the Black-Scholes Option Pricing Model obtained from the “OV” function on Bloomberg, L.P. (“Bloomberg”) determined as of the day of consummation of the applicable contemplated Fundamental Transaction for pricing purposes and reflecting (A) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Termination Date, (B) an expected volatility equal to the greater of 100% and the 100 day volatility obtained from the HVT function on Bloomberg (determined utilizing a 365 day annualization factor) as of the Trading Day immediately following the public announcement of the applicable contemplated Fundamental Transaction, (C) the underlying price per share used in such calculation shall be the greater of (i) the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in such Fundamental Transaction and (ii) the highest VWAP during the period beginning on the Trading Day immediately preceding the public announcement of the applicable contemplated Fundamental Transaction (or the consummation of the applicable Fundamental Transaction, if earlier) and ending on the Trading Day of the Holder’s request pursuant to this Section 3(e) and (D) a remaining option time equal to the time between the date of the public announcement of the applicable contemplated Fundamental Transaction and the Termination Date [and (E) a zero cost of borrow. The payment of the Black Scholes Value will be made by wire transfer of immediately available funds (or such other consideration) within five Business Days of the Holder’s election (or, if later, on the date of consummation of the Fundamental Transaction). The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the “Successor Entity”) to assume in writing all of the obligations of the Company under this Warrant Agreement in accordance with the provisions of this Section 4.4 pursuant to written agreements in form and substance reasonably satisfactory to the Holder and approved by the Holder (without unreasonable delay) prior to such Fundamental Transaction and shall, at the option of the Holder, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of the Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of the Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall be added to the term “Company” under this Warrant (so that from and after the occurrence or consummation of such Fundamental Transaction, each and every

provision of this Warrant and the other Transaction Documents referring to the "Company" shall refer instead to each of the Company and the Successor Entity or Successor Entities, jointly and severally), and the Successor Entity or Successor Entities, jointly and severally with the Company, may exercise every right and power of the Company prior thereto and the Successor Entity or Successor Entities shall assume all of the obligations of the Company prior thereto under this Warrant and the other Transaction Documents with the same effect as if the Company and such Successor Entity or Successor Entities, jointly and severally, had been named as the Company herein. For the avoidance of doubt, the Holder shall be entitled to the benefits of the provisions of this Section 3(e) regardless of (i) whether the Company has sufficient authorized shares of Common Stock for the issuance of Warrant Shares and/or (ii) whether a Fundamental Transaction occurs prior to the Initial Exercise Date.

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4.4. Other Events. If any event occurs of the type contemplated by the provisions of Section 4.1 or 4.2 but not expressly provided for by such provisions (including, without limitation, the granting of stock appreciation rights, Adjustment Rights, phantom stock rights or other rights with equity features to all holders of Common Stock for no consideration), then the Company's Board of Directors will, at its discretion and in good faith, make an adjustment in the Exercise Price and the number of Warrant Shares or designate such additional consideration to be deemed issuable upon exercise of a Warrant, so as to protect the rights of the registered Holder. No adjustment to the Exercise Price will be made pursuant to more than one sub-section of this Section 4 in connection with a single issuance.

4.5. Notices of Changes in Warrant. Upon every adjustment of the Exercise Price or the number of Warrant Shares issuable upon exercise of a Warrant, the Company shall give prompt written notice thereof to the Warrant Agent, which notice shall state the Exercise Price resulting from such adjustment and the increase or decrease, if any, in the number of Warrant Shares purchasable at such price upon the exercise of a Warrant, setting forth in reasonable detail the method of calculation and the facts upon which such calculation is based. Upon the occurrence of any event specified in Sections 4.1 or 4.2, then, in any such event, the Company shall give written notice to each Holder, at the last address set forth for such holder in the Warrant Register, as of the record date or the effective date of the event. Failure to give such notice, or any defect therein, shall not affect the legality or validity of such event. The Warrant Agent shall be entitled to rely conclusively on, and shall be fully protected in relying on, any certificate, notice or instructions provided by the Company with respect to any adjustment of the Exercise Price or the number of shares issuable upon exercise of a Warrant, or any related matter, and the Warrant Agent shall not be liable for any action taken, suffered or omitted to be taken by it in accordance with any such certificate, notice or instructions or pursuant to this Warrant Agreement. The Warrant Agent shall not be deemed to have knowledge of any such adjustment unless and until it shall have received written notice thereof from the Company.

5. Restrictive Legends; Fractional Warrants. In the event that a Warrant Certificate surrendered for transfer bears a restrictive legend, the Warrant Agent shall not register that transfer until the Warrant Agent has received an opinion of counsel for the Company stating that such transfer may be made and indicating whether the Warrants must also bear a restrictive legend upon that transfer. The Warrant Agent shall not be required to effect any registration of transfer or exchange which will result in the transfer of or delivery of a Warrant Certificate for a fraction of a Warrant.

6. Other Provisions Relating to Rights of Holders of Warrants.

6.1. No Rights as Stockholder. Except as otherwise specifically provided herein, a Holder, solely in its capacity as a holder of Warrants, shall not be entitled to vote or receive dividends or be deemed the holder of share capital of the Company for any purpose, nor shall anything contained in this Warrant Agreement be construed to confer upon a Holder, solely in its capacity as the registered holder of Warrants, any of the rights of a stockholder of the Company or any right to vote, give or withhold consent to any corporate action (whether any reorganization, issue of stock, reclassification of share capital, consolidation, merger, conveyance or otherwise), receive notice of meetings, receive dividends or subscription rights or rights to participate in new issues of shares, or otherwise, prior to the issuance to the Holder of the Warrant Shares which it is then entitled to receive upon the due exercise of Warrants.

6.2. Reservation of Common Stock. The Company shall at all times reserve and keep available a number of its authorized but unissued shares of Common Stock that will be sufficient to permit the exercise in full of all outstanding Warrants issued pursuant to this Warrant Agreement.

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7. Concerning the Warrant Agent and Other Matters.

7.1. Any instructions given to the Warrant Agent orally, as permitted by any provision of this Warrant Agreement, shall be confirmed in writing by the Company as soon as practicable. The Warrant Agent shall not be liable or responsible and shall be fully authorized and protected for acting, or failing to act, in accordance with any oral instructions which do not conform with the written confirmation received in accordance with this Section 7.1.

7.2. (a) Whether or not any Warrants are exercised, for the Warrant Agent's services as agent for the Company hereunder, the Company shall pay to the Warrant Agent such fees as may be separately agreed between the Company and Warrant Agent and the Warrant Agent's out of pocket expenses in connection with this Warrant Agreement, including, without limitation, the fees and expenses of the Warrant Agent's counsel. While the Warrant Agent endeavors to maintain out-of-pocket charges (both internal and external) at competitive rates, these charges may not reflect actual out-of-pocket costs, and may include handling charges to cover internal processing and use of the Warrant Agent's billing systems.

(b) All amounts owed by the Company to the Warrant Agent under this Warrant Agreement are due within 30 days of the invoice date. Delinquent payments are subject to a late payment charge of one and one-half percent (1.5%) per month commencing 30 days from the invoice date. The Company agrees to reimburse the Warrant Agent for any attorney's fees and any other costs associated with collecting delinquent payments.

(c) No provision of this Warrant Agreement shall require Warrant Agent to expend or risk its own funds or otherwise incur any financial liability in the performance of any of its duties under this Warrant Agreement or in the exercise of its rights.

7.3. As agent for the Company hereunder the Warrant Agent: (a) shall have no duties or obligations other than those specifically set forth herein or as may subsequently be agreed to in writing by the Warrant Agent and the Company; (b) shall be regarded as making no representations and having no responsibilities as to the validity, sufficiency, value, or genuineness of the Warrants or any Warrant Shares; (c) shall not be obligated to take any legal action hereunder; if, however, the Warrant Agent determines to take any legal action hereunder, and where the taking of such action might, in its judgment, subject or expose it to any expense or liability it shall not be required to act unless it has been furnished with an indemnity reasonably satisfactory to it; (d) may rely on and shall be fully authorized and protected in acting or failing to act upon any certificate, instrument, opinion, notice, letter, telegram, telex, facsimile transmission or other document or security delivered to the Warrant Agent and believed by it to be genuine and to have been signed by the proper party or parties; (e) shall not be liable or responsible for any recital or statement contained in the Registration Statement or any other documents relating thereto; (f) shall not be liable or responsible for any failure on the part of the Company to comply with any of its covenants and obligations relating to the Warrants, including without limitation obligations under applicable securities laws; (g) may rely on and shall be fully authorized and protected in acting or failing to act upon the written, telephonic or oral instructions with respect to any matter relating to its duties as Warrant Agent covered by this Warrant Agreement (or supplementing or qualifying any such actions) of officers of the Company, and is hereby authorized and directed to accept instructions with respect to the performance of its duties hereunder from the Company or counsel to the Company, and may apply to the Company, for advice or instructions in connection with the Warrant Agent's duties hereunder, and the Warrant Agent shall not be liable for any delay in acting while waiting for those instructions; any applications by the Warrant Agent for written instructions from the Company may, at the option of the Agent, set forth in writing any action proposed to be taken or omitted by the Warrant Agent under this Warrant Agreement and the date on or after which such action shall be taken or such omission shall be effective; the Warrant Agent shall not be liable for any action taken by, or omission of, the Warrant Agent in accordance with a proposal included in such application on or after the date specified in such application (which date shall not be less than five business days after the date such application is sent to the Company, unless the Company shall have consented in writing to any earlier date) unless prior to taking any such action, the Warrant Agent shall have received written

instructions in response to such application specifying the action to be taken or omitted; (i) may consult with counsel satisfactory to the Warrant Agent, including its in-house counsel, and the advice of such counsel shall be full and complete authorization and protection in respect of any action taken, suffered, or omitted by it hereunder in good faith and in accordance with the advice of such counsel; (j) may perform any of its duties hereunder either directly or by or through nominees, correspondents, designees, or subagents, and it shall not be liable or responsible for any misconduct or negligence on the part of any nominee, correspondent, designee, or subagent appointed with reasonable care by it in connection with this Warrant Agreement; (k) is not authorized, and shall have no obligation, to pay any brokers, dealers, or soliciting fees to any person; and (l) shall not be required hereunder to comply with the laws or regulations of any country other than the United States of America or any political subdivision thereof.

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7.4. (a) In the absence of gross negligence or willful misconduct on its part (which gross negligence or willful misconduct must be determined by a final, non-appealable court of competent jurisdiction), the Warrant Agent shall not be liable for any action taken, suffered, or omitted by it or for any error of judgment made by it in the performance of its duties under this Warrant Agreement. Anything in this Warrant Agreement to the contrary notwithstanding, in no event shall Warrant Agent be liable for special, indirect, incidental, consequential or punitive losses or damages of any kind whatsoever (including but not limited to lost profits), even if the Warrant Agent has been advised of the possibility of such losses or damages and regardless of the form of action. Any liability of the Warrant Agent will be limited in the aggregate to the amount of fees paid by the Company hereunder. The Warrant Agent shall not be liable for any failures, delays or losses, arising directly or indirectly out of conditions beyond its reasonable control including, but not limited to, acts of government, exchange or market ruling, suspension of trading, work stoppages or labor disputes, fires, civil disobedience, riots, rebellions, storms, electrical or mechanical failure, computer hardware or software failure, communications facilities failures including telephone failure, war, terrorism, insurrection, earthquakes, floods, acts of God or similar occurrences. (b) In the event any question or dispute arises with respect to the proper interpretation of the Warrants or the Warrant Agent's duties under this Warrant Agreement or the rights of the Company or of any Holder, the Warrant Agent shall not be required to act and shall not be held liable or responsible for its refusal to act until the question or dispute has been judicially settled (and, if appropriate, it may file a suit in interpleader or for a declaratory judgment for such purpose) by final judgment rendered by a court of competent jurisdiction, binding on all Persons interested in the matter which is no longer subject to review or appeal, or settled by a written document in form and substance satisfactory to Warrant Agent and executed by the Company and each such Holder. In addition, the Warrant Agent may require for such purpose, but shall not be obligated to require, the execution of such written settlement by all the Holders and all other Persons that may have an interest in the settlement.

7.5. The Company covenants to indemnify the Warrant Agent and hold it harmless from and against any loss, liability, claim or expense ("Loss") arising out of or in connection with the Warrant Agent's duties under this Warrant Agreement, including the costs and expenses of defending itself against any Loss, unless such Loss shall have been determined by a court of competent jurisdiction to be a result of the Warrant Agent's gross negligence or willful misconduct (which gross negligence or willful misconduct must be determined by a final, non-appealable court of competent jurisdiction).

7.6. Unless terminated earlier by the parties hereto, this Agreement shall terminate 90 days after the earlier of the Expiration Date and the date on which no Warrants remain outstanding (the "Termination Date"). On the Business Day following the Termination Date, the Agent shall deliver to the Company any entitlements, if any, held by the Warrant Agent under this Warrant Agreement. The Agent's right to be reimbursed for fees, charges and out-of-pocket expenses as provided in this Section 7 shall survive the termination of this Warrant Agreement.

7.7. If any provision of this Warrant Agreement shall be held illegal, invalid, or unenforceable by any court, this Warrant Agreement shall be construed and enforced as if such provision had not been contained herein and shall be deemed an Agreement among the parties to it to the full extent permitted by applicable law.

7.8. The Company represents and warrants that: (a) it is duly incorporated and validly existing under the laws of its jurisdiction of incorporation; (b) the offer and sale of the Warrants and the execution, delivery and performance of all transactions contemplated thereby (including this Warrant Agreement) have been duly authorized by all necessary corporate action and will not result in a breach of or constitute a default under the articles of association, bylaws or any similar document of the Company or any indenture, agreement or instrument to which it is a party or is bound; (c) this Warrant Agreement has been duly executed and delivered by the Company and constitutes the legal, valid, binding and enforceable obligation of the Company; (d) the Warrants will comply in all material respects with all applicable requirements of law; and (e) to the best of its knowledge, there is no litigation pending or threatened as of the date hereof in connection with the offering of the Warrants.

7.9. In the event of inconsistency between this Warrant Agreement and the descriptions in the Registration Statement, as they may from time to time be amended, the terms of this Warrant Agreement shall control.

7.10. Set forth in Exhibit C hereto is a list of the names and specimen signatures of the Persons authorized to act for the Company under this Warrant Agreement (the "Authorized Representatives"). The Company shall, from time to time, certify to you the names and signatures of any other Persons authorized to act for the Company under this Warrant Agreement.

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7.11. Except as expressly set forth elsewhere in this Warrant Agreement, all notices, instructions and communications under this Agreement shall be in writing, shall be effective upon receipt and shall be addressed, if to the Company, to its address set forth beneath its signature to this Agreement, or, if to the Warrant Agent, to Equiniti Trust Company, 1110 Centre Pointe Curve, Suite 101, Mendota Heights, MN 55120, or to such other address of which a party hereto has notified the other party.

7.12. (a) This Warrant Agreement shall be governed by and construed in accordance with the laws of the State of New York. All actions and proceedings relating to or arising from, directly or indirectly, this Warrant Agreement may be litigated in courts located within the Borough of Manhattan in the City and State of New York. The Company hereby submits to the personal jurisdiction of such courts and consents that any service of process may be made by certified or registered mail, return receipt requested, directed to the Company at its address last specified for notices hereunder. Each of the parties hereto hereby waives the right to a trial by jury in any action or proceeding arising out of or relating to this Warrant Agreement.

(b) This Warrant Agreement shall inure to the benefit of and be binding upon the successors and assigns of the parties hereto. This Warrant Agreement may not be assigned, or otherwise transferred, in whole or in part, by either party without the prior written consent of the other party, which the other party will not unreasonably withhold, condition or delay; except that (i) consent is not required for an assignment or delegation of duties by Warrant Agent to any affiliate of Warrant Agent and (ii) any reorganization, merger, consolidation, sale of assets or other form of business combination by Warrant Agent or the Company shall not be deemed to constitute an assignment of this Warrant Agreement.

(c) No provision of this Warrant Agreement may be amended, modified or waived, except in a written document signed by both parties. The Company and the Warrant Agent may amend or supplement this Warrant Agreement without the consent of any Holder for the purpose of curing any ambiguity, or curing, correcting or supplementing any defective provision contained herein or adding or changing any other provisions with respect to matters or questions arising under this Agreement as the parties may deem necessary or desirable and that the parties determine, in good faith, shall not adversely affect the interest of the Holders. All other amendments and supplements shall require the vote or written consent of Holders of at least 67% of the then outstanding Warrants, provided that adjustments may be made to the Warrant terms and rights in accordance with Section 4 without the consent of the Holders.

7.13. Payment of Taxes. The Company will from time to time promptly pay all taxes and charges that may be imposed upon the Company or the Warrant Agent in respect of the issuance or delivery of Warrant Shares upon the exercise of Warrants, but the Company may require the Holders to pay any transfer taxes in respect of the Warrants or such shares. The Warrant Agent may refrain from registering any transfer of Warrants or any delivery of any Warrant Shares unless or until the Persons requesting the registration or issuance shall have paid to the Warrant Agent for the account of the Company the amount of such tax or charge, if any, or shall have established to the

reasonable satisfaction of the Company and the Warrant Agent that such tax or charge, if any, has been paid.

#### 7.14. Resignation of Warrant Agent.

7.14.1. Appointment of Successor Warrant Agent. The Warrant Agent, or any successor to it hereafter appointed, may resign its duties and be discharged from all further duties and liabilities hereunder after giving thirty (30) days' notice in writing to the Company, or such shorter period of time agreed to by the Company. The Company may terminate the services of the Warrant Agent, or any successor Warrant Agent, after giving thirty (30) days' notice in writing to the Warrant Agent or successor Warrant Agent, or such shorter period of time as agreed. If the office of the Warrant Agent becomes vacant by resignation, termination or incapacity to act or otherwise, the Company shall appoint in writing a successor Warrant Agent in place of the Warrant Agent. If the Company shall fail to make such appointment within a period of 30 days after it has been notified in writing of such resignation or incapacity by the Warrant Agent, then the Warrant Agent or any Holder may apply to any court of competent jurisdiction for the appointment of a successor Warrant Agent at the Company's cost. Pending appointment of a successor to such Warrant Agent, either by the Company or by such a court, the duties of the Warrant Agent shall be carried out by the Company. Any successor Warrant Agent (but not including the initial Warrant Agent), whether appointed by the Company or by such court, shall be a Person organized and existing under the laws of any state of the United States of America, in good standing, and authorized under such laws to exercise corporate trust powers and subject to supervision or examination by federal or state authority. After appointment, any successor Warrant Agent shall be vested with all the authority, powers, rights, immunities, duties, and obligations of its predecessor Warrant Agent with like effect as if originally named as Warrant Agent hereunder, without any further act or deed, and except for executing and delivering documents as provided in the sentence that follows, the predecessor Warrant Agent shall have no further duties, obligations, responsibilities or liabilities hereunder, but shall be entitled to all rights that survive the termination of this Warrant Agreement and the resignation or removal of the Warrant Agent, including but not limited to its right to indemnity hereunder. If for any reason it becomes necessary or appropriate or at the request of the Company, the predecessor Warrant Agent shall execute and deliver, at the expense of the Company, an instrument transferring to such successor Warrant Agent all the authority, powers, and rights of such predecessor Warrant Agent hereunder; and upon request of any successor Warrant Agent the Company shall make, execute, acknowledge, and deliver any and all instruments in writing for more fully and effectually vesting in and confirming to such successor Warrant Agent all such authority, powers, rights, immunities, duties, and obligations.

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7.14.2. Notice of Successor Warrant Agent. In the event a successor Warrant Agent shall be appointed, the Company shall give notice thereof to the predecessor Warrant Agent and the transfer agent for the Common Stock not later than the effective date of any such appointment.

7.14.3. Merger or Consolidation of Warrant Agent. Any Person into which the Warrant Agent may be merged or converted or with which it may be consolidated or any Person resulting from any merger, conversion or consolidation to which the Warrant Agent shall be a party or any Person succeeding to the shareowner services business of the Warrant Agent or any successor Warrant Agent shall be the successor Warrant Agent under this Warrant Agreement, without any further act or deed. For purposes of this Warrant Agreement, "person" shall mean any individual, firm, corporation, partnership, limited liability company, joint venture, association, trust or other entity, and shall include any successor (by merger or otherwise) thereof or thereto.

#### 8. Miscellaneous Provisions.

8.1. Persons Having Rights under this Warrant Agreement. Nothing in this Warrant Agreement expressed and nothing that may be implied from any of the provisions hereof is intended, or shall be construed, to confer upon, or give to, any Person or corporation other than the parties hereto and the Holders any right, remedy, or claim under or by reason of this Warrant Agreement or of any covenant, condition, stipulation, promise, or agreement hereof.

8.2. Examination of the Warrant Agreement. A copy of this Warrant Agreement shall be available at all reasonable times at the office of the Warrant Agent designated for such purpose for inspection by any Holder. Prior to such inspection, the Warrant Agent may require any such holder to provide reasonable evidence of its interest in the Warrants.

8.3. Counterparts. This Warrant Agreement may be executed in any number of original, facsimile or electronic counterparts and each of such counterparts shall for all purposes be deemed to be an original, and all such counterparts shall together constitute but one and the same instrument.

8.4. Effect of Headings. The Section headings herein are for convenience only and are not part of this Warrant Agreement and shall not affect the interpretation thereof.

#### 9. Certain Definitions. As used herein, the following terms shall have the following meanings:

(a) "Adjustment Right" means any right granted with respect to any securities issued in connection with, or with respect to, any issuance, sale or delivery (or deemed issuance, sale or delivery in accordance with Section 4) of Common Stock (other than rights of the type described in Section 4.2 and 4.3 hereof) that could result in a decrease in the net consideration received by the Company in connection with, or with respect to, such securities (including, without limitation, any cash settlement rights, cash adjustment or other similar rights) but excluding anti-dilution and other similar rights (including pursuant to Section 4.4 of this Agreement).

(b) "Trading Day" means any day on which the Common Stock is traded on the Trading Market, or, if the Trading Market is not the principal trading market for the Common Stock, then on the principal securities exchange or securities market in the United States on which the Common Stock is then traded, provided that "Trading Day" shall not include any day on which the Common Stock is scheduled to trade on such exchange or market for less than 4.5 hours or any day that the Common Stock is suspended from trading during the final hour of trading on such exchange or market (or if such exchange or market does not designate in advance the closing time of trading on such exchange or market, then during the hour ending at 4:00 P.M., Eastern Standard Time).

(c) "Trading Market" means NYSE MKT, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market or the New York Stock Exchange.

(d) "VWAP" means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported in the "Pink Sheets" published by OTC Markets Group, Inc. (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the holders of a majority in interest of the Warrants then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company

[Signature Page to Follow]

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IN WITNESS WHEREOF, this Warrant Agent Agreement has been duly executed by the parties hereto as of the day and year first above written.

**BULLFROG AI HOLDINGS, INC.**

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

VSTOCK TRANSFER LLC

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

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EXHIBIT A

**BULLFROG AI HOLDINGS, INC.  
COMMON STOCK PURCHASE WARRANT**

Warrant Shares: \_\_\_\_\_

THIS COMMON STOCK PURCHASE WARRANT (the “Warrant”) certifies that, for value received, \_\_\_\_\_ or its assigns (the “Holder”) is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time on or after the date hereof (the “Initial Exercise Date”) and on or prior to 5:00 p.m. (New York City time) on October [ ], 2027 (the “Termination Date”) but not thereafter, to subscribe for and purchase from Bullfrog AI Holdings, Inc., a Nevada corporation (the “Company”), up to \_\_\_\_\_ shares (as subject to adjustment hereunder, the “Warrant Shares”) of Common Stock. The purchase price of one share of Common Stock under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b). This Warrant shall initially be issued and maintained in the form of a security held in book-entry form and the Depository Trust Company or its nominee (“DTC”) shall initially be the sole registered holder of this Warrant, subject to a Holder’s right to elect to receive a Warrant in certificated form pursuant to the terms of the Warrant Agency Agreement, in which case this sentence shall not apply.

Section 1. Definitions. In addition to the terms defined elsewhere in this Warrant, the following terms have the meanings indicated in this Section 1:

“Affiliate” means any Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a Person, as such terms are used in and construed under Rule 405 under the Securities Act.

“Bid Price” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the bid price of the Common Stock for the time in question (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on the Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Warrants then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

“Business Day” means any day other than Saturday, Sunday or other day on which commercial banks in The City of New York are authorized or required by law to remain closed; provided, however, for clarification, commercial banks shall not be deemed to be authorized or required by law to remain closed due to “stay at home”, “shelter-in-place”, “non-essential employee” or any other similar orders or restrictions or the closure of any physical branch locations at the direction of any governmental authority so long as the electronic funds transfer systems (including for wire transfers) of commercial banks in The City of New York generally are open for use by customers on such day.

“Commission” means the United States Securities and Exchange Commission.

“Common Stock” means the common stock of the Company, par value \$0.00001 per share, and any other class of securities into which such securities may hereafter be reclassified or changed.

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“Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

“Person” means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

“Registration Statement” means the Company’s registration statement on Form S-1 (File No. 333-[ ]).

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“Subsidiary” means any subsidiary of the Company and shall, where applicable, also include any direct or indirect subsidiary of the Company formed or acquired after the date hereof.

“Trading Day” means a day on which the Common Stock is traded on a Trading Market.

“Trading Market” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE American, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange, OTCQB or OTCQX (or any successors to any of the foregoing).

“Transfer Agent” means VStock Transfer, LLC, the current transfer agent of the Company, and any successor transfer agent of the Company.

“Underwriting Agreement” means the underwriting agreement, dated as of October [ ], 2022, among the Company and WallachBeth Capital, LLC as representative of the underwriters named therein, as amended, modified or supplemented from time to time in accordance with its terms.

“VWAP” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City



time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on the Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the holders of a majority in interest of the Common Stock Purchase Warrants then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

“Warrant Agency Agreement” means that certain warrant agent agreement, dated on or about the Initial Exercise Date, between the Company and the Warrant Agent.

“Warrant Agent” means the Transfer Agent and any successor warrant agent of the Company.

“Warrants” means this Warrant and other Common Stock purchase warrants issued by the Company pursuant to the Registration Statement.

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## Section 2. Exercise.

a) Notwithstanding the foregoing in this Section 2(a), a holder whose interest in this Warrant is a beneficial interest in certificate(s) representing this Warrant held in book-entry form through DTC (or another established clearing corporation performing similar functions), shall effect exercises made pursuant to this Section 2(a) by delivering to DTC (or such other clearing corporation, as applicable) the appropriate instruction form for exercise, complying with the procedures to effect exercise that are required by DTC (or such other clearing corporation, as applicable), subject to a Holder’s right to elect to receive a Warrant in certificated form pursuant to the terms of the Warrant Agency Agreement, in which case this sentence shall not apply.

b) Exercise Price. The exercise price per share of Common Stock under this Warrant shall be \$[ ], subject to adjustment hereunder (the “Exercise Price”).

c) Cashless Exercise. If at the time of exercise hereof there is no effective registration statement registering, or the prospectus contained therein is not available for the issuance of the Warrant Shares to the Holder, then this Warrant may also be exercised, in whole or in part, at such time by means of a “cashless exercise” in which the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

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(A) = as applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise if such Notice of Exercise is (1) both executed and delivered pursuant to Section 2(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 2(a) hereof on a Trading Day prior to the opening of “regular trading hours” (as defined in Rule 600(b) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) at the option of the Holder, either (y) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise or (z) the Bid Price of the Common Stock on the principal Trading Market as reported by Bloomberg L.P. as of the time of the Holder’s execution of the applicable Notice of Exercise if such Notice of Exercise is executed during “regular trading hours” on a Trading Day and is delivered within two (2) hours thereafter (including until two (2) hours after the close of “regular trading hours” on a Trading Day) pursuant to Section 2(a) hereof or (iii) the VWAP on the date of the applicable Notice of Exercise if the date of such Notice of Exercise is a Trading Day and such Notice of Exercise is both executed and delivered pursuant to Section 2(a) hereof after the close of “regular trading hours” on such Trading Day;

(B) = the Exercise Price of this Warrant, as adjusted hereunder; and

(X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

If Warrant Shares are issued in such a cashless exercise, the parties acknowledge and agree that in accordance with Section 3(a)(9) of the Securities Act, the Warrant Shares shall take on the registered characteristics of the Warrants being exercised. The Company agrees not to take any position contrary to this Section 2(c).

### d) Mechanics of Exercise.

i. Delivery of Warrant Shares Upon Exercise. The Company shall cause the Warrant Shares purchased hereunder to be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder’s or its designee’s balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system (“DWAC”) if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by Holder or (B) this Warrant is being exercised via cashless exercise, and otherwise by physical delivery of a certificate, registered in the Company’s share register in the name of the Holder or its designee, for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is the earliest of (i) two (2) Trading Days after the delivery to the Company of the Notice of Exercise, (ii) one (1) Trading Day after delivery of the aggregate Exercise Price to the Company and (iii) the number of Trading Days comprising the Standard Settlement Period after the delivery to the Company of the Notice of Exercise (such date, the “Warrant Share Delivery Date”). Upon delivery of the Notice of Exercise, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the Warrant Shares, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise) is received within the earlier of (i) two (2) Trading Days and (ii) the number of Trading Days comprising the Standard Settlement Period following delivery of the Notice of Exercise. If the Company fails for any reason to deliver to the Holder the Warrant Shares subject to a Notice of Exercise by the Warrant Share Delivery Date, the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Warrant Shares subject to such exercise (based on the VWAP of the Common Stock on the date of the applicable Notice of Exercise), \$10 per Trading Day (increasing to \$20 per Trading Day on the fifth Trading Day after such liquidated damages begin to accrue) for each Trading Day after such Warrant Share Delivery Date until such Warrant Shares are delivered or Holder rescinds such exercise. The Company agrees to maintain a transfer agent that is a participant in the FAST program so long as this Warrant remains outstanding and exercisable. As used herein, “Standard Settlement Period” means the standard settlement period, expressed in a number of Trading Days, on the Company’s primary Trading Market with respect to the Common Stock as in effect on the date of delivery of the Notice of Exercise. Notwithstanding the foregoing, with respect to any Notice(s) of Exercise delivered on or prior to 12:00 p.m. (New York City time) on the Initial Exercise Date, which may be delivered at any time after the time of execution of the Underwriting Agreement, the Company agrees to deliver the Warrant Shares subject to such notice(s) by 4:00 p.m. (New York City time) on the Initial Exercise Date and the Initial Exercise Date shall be the Warrant Share Delivery Date for purposes hereunder, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise) is received by such Warrant Share Delivery Date.

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ii. Delivery of New Warrants Upon Exercise. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.

iii. Rescission Rights. If the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares pursuant to Section 2(d) (i) by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise.

iv. Compensation for Buy-In on Failure to Timely Deliver Warrant Shares Upon Exercise. In addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares in accordance with the provisions of Section 2(d)(i) above pursuant to an exercise on or before the Warrant Share Delivery Date, and if after such date the Holder is required by its broker to purchase (in an open market transaction or otherwise) or the Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a "Buy-In"), then the Company shall (A) pay in cash to the Holder the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock with an aggregate sale price giving rise to such purchase obligation of \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof.

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v. No Fractional Shares or Scrip. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, the Company shall, at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Exercise Price or round up to the next whole share.

vi. Charges, Taxes and Expenses. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of such Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that, in the event that Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form attached hereto duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Transfer Agent fees required for same-day processing of any Notice of Exercise and all fees to the Depository Trust Company (or another established clearing corporation performing similar functions) required for same-day electronic delivery of the Warrant Shares.

vii. Closing of Books. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

e) Holder's Exercise Limitations. The Company shall not effect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of this Warrant, pursuant to Section 2 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates (such Persons, "Attribution Parties")), would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by the Holder and its Affiliates and Attribution Parties shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which would be issuable upon (i) exercise of the remaining, nonexercised portion of this Warrant beneficially owned by the Holder or any of its Affiliates or Attribution Parties and (ii) exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company (including, without limitation, any other Common Stock Equivalents) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its Affiliates or Attribution Parties. Except as set forth in the preceding sentence, for purposes of this Section 2(e), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 2(e) applies, the determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Exercise shall be deemed to be the Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable, in each case subject to the Beneficial Ownership Limitation, and the Company shall have no obligation to verify or confirm the accuracy of such determination. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 2(e), in determining the number of outstanding shares of Common Stock, a Holder may rely on the number of outstanding shares of Common Stock as reflected in (A) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (B) a more recent public announcement by the Company or (C) a more recent written notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding. Upon the written or oral request of a Holder, the Company shall within one Trading Day confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding shares of Common Stock was reported. The "Beneficial Ownership Limitation" shall be 4.99% (or, upon election by a Holder prior to the issuance of any Warrants, 9.99%) of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon exercise of this Warrant. The Holder, upon notice to the Company, may increase or decrease the Beneficial Ownership Limitation provisions of this Section 2(e), provided that the Beneficial Ownership Limitation in no event exceeds 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock upon exercise of this Warrant held by the Holder and the provisions of this Section 2(e) shall continue to apply. Any increase in the Beneficial Ownership Limitation will not be effective until the 61<sup>st</sup> day after such notice is delivered to the Company. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 2(e) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant.

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### Section 3. Certain Adjustments.

a) Stock Dividends and Splits. If the Company, at any time while this Warrant is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions on shares of its Common Stock or any other equity or equity equivalent securities payable in shares of Common Stock (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Company upon exercise of this Warrant), (ii) subdivides outstanding shares of Common Stock into a larger number of shares, (iii) combines (including by way of reverse stock split) outstanding shares of Common Stock into a smaller number of shares, or (iv) issues by reclassification of shares of the Common Stock any shares of capital stock of the Company, then in each case the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event, and the number of shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b) Reserved.

c) Subsequent Rights Offerings. In addition to any adjustments pursuant to Section 3(a) above, if at any time the Company grants, issues or sells any Common Stock Equivalents or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the "Purchase Rights"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, that, to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such shares of Common Stock as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

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d) Pro Rata Distributions. During such time as this Warrant is outstanding, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a "Distribution"), at any time after the issuance of this Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution (provided, however, that, to the extent that the Holder's right to participate in any such Distribution would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any shares of Common Stock as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

e) Fundamental Transaction. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company or any Subsidiary, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding Common Stock, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, merger or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires more than 50% of the outstanding Common Stock (not including any Common Shares held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock or share purchase agreement or other business combination)(each a "Fundamental Transaction"), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction, at the option of the Holder (without regard to any limitation in Section 2(e) on the exercise of this Warrant), the number of Common Stock (or shares of common stock, as applicable) of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (the "Alternate Consideration") receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Warrant is exercisable immediately prior to such Fundamental Transaction (without regard to any limitation in Section 2(e) on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. Notwithstanding anything to the contrary, in the event of a Fundamental Transaction, the Company or any Successor Entity (as defined below) shall, at the Holder's option, exercisable at any time concurrently with, or within 30 days after, the consummation of the Fundamental Transaction (or, if later, the date of the public announcement of the applicable Fundamental Transaction), purchase this Warrant from the Holder by paying to the Holder an amount of cash equal to the Black Scholes Value (as defined below) of the remaining unexercised portion of this Warrant on the date of the consummation of such Fundamental Transaction; provided, however, that, if the Fundamental Transaction is not within the Company's control, including not approved by the Company's Board of Directors, Holder shall only be entitled to receive from the Company or any Successor Entity the same type or form of consideration (and in the same proportion), at the Black Scholes Value of the unexercised portion of this Warrant, that is being offered and paid to the holders of Common Stock of the Company in connection with the Fundamental Transaction, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of Common Stock are given the choice to receive from among alternative forms of consideration in connection with the Fundamental Transaction; provided, further, that if holders of Common Stock of the Company are not offered or paid any consideration in such Fundamental Transaction, such holders of Common Stock will be deemed to have received common stock of the Successor Entity (which Entity may be the Company following such Fundamental Transaction) in such Fundamental Transaction. "Black Scholes Value" means the value of this Warrant based on the Black-Scholes Option Pricing Model obtained from the "OV" function on Bloomberg, L.P. ("Bloomberg") determined as of the day of consummation of the applicable Fundamental Transaction for pricing purposes and reflecting (A) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Termination Date, (B) an expected volatility equal to the 100 day volatility obtained from the HVT function on Bloomberg (determined utilizing a 365 day annualization factor) as of the Trading Day immediately following the public announcement of the applicable Fundamental Transaction, (C) the underlying price per share used in such calculation shall be the greater of (i) the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in such Fundamental Transaction and (ii) the greater of (x) the last VWAP immediately prior to the public announcement of such Fundamental Transaction and (y) the last VWAP immediately prior to the consummation of such Fundamental Transaction and (D) a remaining option time equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Termination Date, and (E) a zero cost of borrow. The payment of the Black Scholes Value will be made by wire transfer of immediately available funds (or such other consideration) within five

Business Days of the Holder's election (or, if later, on the date of consummation of the Fundamental Transaction). The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the "Successor Entity") to assume in writing all of the obligations of the Company under this Warrant in accordance with the provisions of this Section 3(d) pursuant to written agreements in form and substance reasonably satisfactory to the Holder and approved by the Holder (without unreasonable delay) prior to such Fundamental Transaction and shall, at the option of the Holder, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for (so that from and after the date of such Fundamental Transaction, the provisions of this Warrant referring to the "Company" shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Warrant with the same effect as if such Successor Entity had been named as the Company herein.

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f) Calculations. All calculations under this Section 3 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 3, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding treasury shares, if any) issued and outstanding.

g) Notice to Holder.

i. Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 3, the Company shall promptly deliver to the Holder by email a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment.

ii. Notice to Allow Exercise by Holder. If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Company shall authorize the granting to all holders of the Common Stock rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Company shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Company (or any of its Subsidiaries) is a party, any sale or transfer of all or substantially all of its assets, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be delivered by email to the Holder at its last email address as it shall appear upon the Warrant Register of the Company, at least 20 calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange; provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided in this Warrant constitutes, or contains, material, non-public information regarding the Company or any of the Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

h) Voluntary Adjustment By Company. Subject to the rules and regulations of the Trading Market, the Company may at any time during the term of this Warrant, subject to the prior written consent of the Holder, reduce the then current Exercise Price to any amount and for any period of time deemed appropriate by the board of directors of the Company.

#### Section 4. Transfer of Warrant.

a) Transferability. This Warrant and all rights hereunder (including, without limitation, any registration rights) are transferable, in whole or in part, upon surrender of this Warrant at the principal office of the Company or its designated agent, together with a written assignment of this Warrant substantially in the form attached hereto duly executed by the Holder or its agent or attorney and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees, as applicable, and in the denomination or denominations specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company unless the Holder has assigned this Warrant in full, in which case, the Holder shall surrender this Warrant to the Company within three (3) Trading Days of the date on which the Holder delivers an assignment form to the Company assigning this Warrant in full. The Warrant, if properly assigned in accordance herewith, may be exercised by a new holder for the purchase of Warrant Shares without having a new Warrant issued.

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b) New Warrants. If this Warrant is not held in global form through DTC (or any successor depository), this Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4(a), as to any transfer which may be involved in such division or combination, the Company shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the initial issuance date of this Warrant and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

c) Warrant Register. The Warrant Agent shall register this Warrant, upon records to be maintained by the Warrant Agent for that purpose (the "Warrant Register"), in the name of the record Holder hereof from time to time. The Company and the Warrant Agent may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

#### Section 5. Miscellaneous.

a) No Rights as Stockholder Until Exercise; No Settlement in Cash. This Warrant does not entitle the Holder to any voting rights, dividends or other rights as a stockholder of the Company prior to the exercise hereof as set forth in Section 2(d)(i), except as expressly set forth in Section 3. Without limiting any rights of a Holder to receive Warrant Shares on a "cashless exercise" pursuant to Section 2(c) or to receive cash payments pursuant to Section 2(d)(i) and Section 2(d)(iv) herein, in no

event shall the Company be required to net cash settle an exercise of this Warrant.

b) Loss, Theft, Destruction or Mutilation of Warrant. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or stock certificate, if mutilated, the Company will make and deliver a new Warrant or stock certificate of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.

c) Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then such action may be taken or such right may be exercised on the next succeeding Business Day.

d) Authorized Shares.

The Company covenants that, during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Stock a sufficient number of shares to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of issuing the necessary Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which the Common Stock may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and nonassessable and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue).

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Except and to the extent as waived or consented to by the Holder, the Company shall not by any action, including, without limitation, amending its certificate of incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of Holder as set forth in this Warrant against impairment. Without limiting the generality of the foregoing, the Company will (i) not increase the par value of any Warrant Shares above the amount payable therefor upon such exercise immediately prior to such increase in par value, (ii) take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant and (iii) use commercially reasonable efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof, as may be, necessary to enable the Company to perform its obligations under this Warrant.

Before taking any action which would result in an adjustment in the number of Warrant Shares for which this Warrant is exercisable or in the Exercise Price, the Company shall obtain all such authorizations or exemptions thereof, or consents thereto, as may be necessary from any public regulatory body or bodies having jurisdiction thereof.

e) Governing Law. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflicts of law thereof. Each party agrees that all legal proceedings concerning the interpretations, enforcement and defense of the transactions contemplated by this Warrant (whether brought against a party hereto or their respective affiliates, directors, officers, shareholders, partners, members, employees or agents) shall be commenced exclusively in the state and federal courts sitting in the City of New York. Each party hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in the City of New York, Borough of Manhattan for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is improper or is an inconvenient venue for such proceeding. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Warrant and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. If either party shall commence an action, suit or proceeding to enforce any provisions of this Warrant, the prevailing party in such action, suit or proceeding shall be reimbursed by the other party for their reasonable attorneys' fees and other costs and expenses incurred with the investigation, preparation and prosecution of such action or proceeding. **Notwithstanding the foregoing, this exclusive forum provision shall not apply to suits brought to enforce a duty or liability created by the Exchange Act, any other claim for which the federal courts have exclusive jurisdiction or any complaint asserting a cause of action arising under the Securities Act against us or any of our directors, officers, other employees or agents. Section 27 of the Exchange Act creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder.**

f) Restrictions. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered, and the Holder does not utilize cashless exercise, will have restrictions upon resale imposed by state and federal securities laws.

g) Nonwaiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies. Without limiting any other provision of this Warrant, if the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

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h) Notices. Any and all notices or other communications or deliveries to be provided by the Holders hereunder including, without limitation, any Notice of Exercise, shall be in writing and delivered personally, by e-mail, or sent by a nationally recognized overnight courier service, addressed to the Company, at 323 Ellington Blvd, Unit 317, Gaithersburg, MD 20878 Attention: Vininder Singh, Chief Executive Officer, email address: [\_\_\_\_], or such other email address or address as the Company may specify for such purposes by notice to the Holders. Any and all notices or other communications or deliveries to be provided by the Company hereunder shall be in writing and delivered personally, by e-mail, or sent by a nationally recognized overnight courier service addressed to each Holder at the e-mail address or address of such Holder appearing on the books of the Company. Any notice or other communication or deliveries hereunder shall be deemed given and effective on the earliest of (i) the time of transmission, if such notice or communication is delivered via e-mail at the e-mail address set forth in this Section prior to 5:30 p.m. (New York City time) on any date, (ii) the next Trading Day after the time of transmission, if such notice or communication is delivered via e-mail at the e-mail address set forth in this Section on a day that is not a Trading Day or later than 5:30 p.m. (New York City time) on any Trading Day, (iii) the second Trading Day following the date of mailing, if sent by U.S. nationally recognized overnight courier service, or (iv) upon actual receipt by the party to whom such notice is required to be given. To the extent that any notice provided hereunder constitutes, or contains, material, non-public information regarding the Company or any Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K.

i) Limitation of Liability. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Stock or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

j) Remedies. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.

k) Successors and Assigns. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

l) Amendment. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company, on the one hand, and the Holder of the beneficial owner of this Warrant, on the other hand.

m) Severability. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.

n) Headings. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

o) Warrant Agency Agreement. If this Warrant is held in global form through DTC (or any successor depository), this Warrant is issued subject to the Warrant Agency Agreement. To the extent any provision of this Warrant conflicts with the express provisions of the Warrant Agency Agreement, the provisions of this Warrant shall govern and be controlling.

\*\*\*\*\*

(Signature Page Follows)

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IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

**BULLFROG AI HOLDINGS, INC.**

By: \_\_\_\_\_

Name: Vininder Singh

Title: Chief Executive Officer

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**NOTICE OF EXERCISE**

**TO: BULLFROG AI HOLDINGS, INC.**

(1) The undersigned hereby elects to purchase \_\_\_\_\_ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

in lawful money of the United States; or

if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 2(c), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 2(c).

(3) Please register and issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

\_\_\_\_\_

The Warrant Shares shall be delivered to the following DWAC Account Number or by physical delivery of a certificate to:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(4) Accredited Investor. If the Warrant is being exercised via cash exercise, the undersigned is an "accredited investor" as defined in Regulation D promulgated under the Securities Act of 1933, as amended

[SIGNATURE OF HOLDER]

Name of Investing Entity:

\_\_\_\_\_  
*Signature of Authorized Signatory of Investing Entity:*

\_\_\_\_\_  
Name of Authorized Signatory:

\_\_\_\_\_  
Title of Authorized Signatory:

Date: \_\_\_\_\_

**ASSIGNMENT FORM**

*(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to exercise the Warrant.)*

FOR VALUE RECEIVED, [ ] all of or [ ] shares of the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name:

Address:

\_\_\_\_\_  
(Please Print)

Phone Number:

Email Address:

Dated: \_\_\_\_\_, \_\_\_\_\_

Holder's Signature: \_\_\_\_\_

Holder's Address: \_\_\_\_\_

NOTE: The signature to this Assignment Form must correspond with the name as it appears on the face of the Warrant, without alteration or enlargement or any change whatsoever. Officers of corporations and those acting in a fiduciary or other representative capacity should file proper evidence of authority to assign the foregoing Warrant.

**EXHIBIT B  
FORM OF NON-TRADEABLE WARRANT**

**EXHIBIT C**

[Form of Election to Purchase]

(To Be Executed Upon Exercise of Warrants not evidenced by a Global Certificate)

The undersigned hereby irrevocably elects to exercise the right, represented by Warrants evidenced by this Warrant Certificate, to receive \_\_\_\_\_ Warrant Shares and herewith (i) tenders payment for such Warrant Shares to the order of Bullfrog AI Holdings, Inc., a Nevada corporation, in the amount of \$ \_\_\_\_\_ in accordance with the terms hereof, or (ii) if permitted, makes the payment by the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 3.3.7(b), to exercise this Warrant with respect to the above number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 3.3.7(b).

The undersigned requests that a certificate for such Warrant Shares be registered in the name of \_\_\_\_\_, whose address is \_\_\_\_\_ and that such certificate be delivered to \_\_\_\_\_, whose address is \_\_\_\_\_. If the number of Warrants being exercised hereby is less than all the Warrants evidenced by this Warrant Certificate, the undersigned requests that a new Warrant Certificate representing the remaining unexercised Warrants be registered in the name of \_\_\_\_\_, whose address is \_\_\_\_\_ and that such Warrant Certificate be delivered to \_\_\_\_\_ whose address is \_\_\_\_\_.

Signature,

Date:

[Signature Guarantee]

**EXHIBIT C  
AUTHORIZED REPRESENTATIVES**

Name	Title	Signature
Vininder Sing	Chief Executive Officer	
Dane Saglio	Chief Financial Officer	

## [FORM OF NON-TRADEABLE WARRANT]

THE NUMBER OF SHARES OF COMMON STOCK ISSUABLE UPON EXERCISE OF THIS WARRANT MAY BE LESS THAN THE AMOUNTS SET FORTH ON THE FACE HEREOF PURSUANT TO SECTION 1(d) OF THIS WARRANT.

## BULLFROG AI HOLDINGS, INC.

## Non-tradeable Warrant To Purchase Common Stock

Warrant No.:

Date of Issuance: [\*], 2023 (“**Issuance Date**”)

Bullfrog AI Holdings, Inc., a Nevada corporation (the “**Company**”), hereby certifies that, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, [\*], the registered holder hereof or its permitted assigns (the “**Holder**”), is entitled, subject to the terms set forth below, to purchase from the Company, at the Exercise Price (as defined below) then in effect, upon exercise of this Warrant to Purchase shares of Common Stock (including any Warrants to Purchase shares of Common Stock issued in exchange, transfer or replacement hereof, the “**Warrant**”), at any time or times on or after the Issuance Date, but not after 11:59 p.m., New York time, on the Expiration Date (as defined below), [\*] (subject to adjustment as provided herein) fully paid and non-assessable shares of Common Stock (as defined below) (the “**Warrant Shares**”, and such number of Warrant Shares, the “**Warrant Number**”). Except as otherwise defined herein, capitalized terms in this Warrant shall have the meanings set forth in Section 17. This Warrant is one of the Non-tradeable Warrants to Purchase Common Stock (the “**Unregistered Warrants**”) issued pursuant to (i) the first paragraph of that certain Underwriting Agreement, dated as of [\*], 2023 (the “**Offering Date**”), by and among the Company and the underwriter(s) referred to therein, as amended from time to time (the “**Underwriting Agreement**”) and (ii) the Company’s Registration Statement on Form S-1 (File number 333-267951) (the “**Registration Statement**”).

1. EXERCISE OF WARRANT.

(a) Mechanics of Exercise. Subject to the terms and conditions hereof (including, without limitation, the limitations set forth in Section 1(f)), this Warrant may be exercised by the Holder on any day on or after the Issuance Date (an “**Exercise Date**”), in whole or in part, by delivery (whether via facsimile, electronic mail or otherwise) of a written notice, in the form attached hereto as **Exhibit A** (the “**Exercise Notice**”), of the Holder’s election to exercise this Warrant. Within one (1) Trading Day following an exercise of this Warrant as aforesaid, the Holder shall deliver payment to the Company of an amount equal to the Exercise Price in effect on the date of such exercise multiplied by the number of Warrant Shares as to which this Warrant was so exercised (the “**Aggregate Exercise Price**”) in cash or via wire transfer of immediately available funds to the account specified by the Company in the wire instructions attached hereto as **Exhibit B** if the Holder did not notify the Company in such Exercise Notice that such exercise was made pursuant to a Cashless Exercise (as defined in Section 1(d)). The Holder shall not be required to deliver the original of this Warrant in order to effect an exercise hereunder. Execution and delivery of an Exercise Notice with respect to less than all of the Warrant Shares shall have the same effect as cancellation of the original of this Warrant and issuance of a new Warrant evidencing the right to purchase the remaining number of Warrant Shares. Execution and delivery of an Exercise Notice for all of the then-remaining Warrant Shares shall have the same effect as cancellation of the original of this Warrant after delivery of the Warrant Shares in accordance with the terms hereof. On or before the first (1st) Trading Day following the date on which the Company has received an Exercise Notice, the Company shall transmit by facsimile or electronic mail an acknowledgment of confirmation of receipt of such Exercise Notice, in the form attached hereto as **Exhibit C**, to the Holder and the Company’s Warrant Agent (the “**Warrant Agent**”), which confirmation shall constitute an instruction to the Warrant Agent to process such Exercise Notice in accordance with the terms herein. On or before the second (2nd) Trading Day following the date on which the Company has received such Exercise Notice (or such earlier date as required pursuant to the 1934 Act or other applicable law, rule or regulation for the settlement of a trade of such Warrant Shares initiated on the applicable Exercise Date), the Company shall (i) provided that the Warrant Agent is participating in The Depository Trust Company (“**DTC**”) Fast Automated Securities Transfer Program (“**FAST Program**”), upon the request of the Holder, credit such aggregate number of shares of Common Stock to which the Holder is entitled pursuant to such exercise to the Holder’s or its designee’s balance account with DTC through its Deposit/Withdrawal at Custodian system, or (ii) if the Warrant Agent is not participating in the DTC FAST Program, upon the request of the Holder, issue and deliver (via reputable overnight courier) to the address as specified in the Exercise Notice, a certificate, registered in the name of the Holder or its designee, for the number of shares of Common Stock to which the Holder shall be entitled pursuant to such exercise, which shares of Common Stock shall be freely tradeable pursuant to all applicable securities laws. Upon delivery of an Exercise Notice, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date such Warrant Shares are credited to the Holder’s DTC account or the date of delivery of the certificates evidencing such Warrant Shares (as the case may be). If this Warrant is submitted in connection with any exercise pursuant to this Section 1(a) and the number of Warrant Shares represented by this Warrant submitted for exercise is greater than the number of Warrant Shares being acquired upon an exercise and upon surrender of this Warrant to the Company by the Holder, then, at the request of the Holder, the Company shall as soon as practicable and in no event later than two (2) Business Days after any exercise and at its own expense, issue and deliver to the Holder (or its designee) a new Warrant (in accordance with Section 7(d)) representing the right to purchase the number of Warrant Shares purchasable immediately prior to such exercise under this Warrant, less the number of Warrant Shares with respect to which this Warrant is exercised. No fractional shares of Common Stock are to be issued upon the exercise of this Warrant, but rather the number of shares of Common Stock to be issued shall be rounded up to the nearest whole number. The Company shall pay any and all transfer, stamp, issuance and similar taxes, costs and expenses (including, without limitation, fees and expenses of the Warrant Agent) that may be payable with respect to the issuance and delivery of Warrant Shares upon exercise of this Warrant. Notwithstanding the foregoing, except in the case where an exercise of this Warrant is validly made pursuant to a Cashless Exercise, the Company’s failure to deliver Warrant Shares to the Holder on or prior to the later of (A) two (2) Trading Days after receipt of the applicable Exercise Notice (or such earlier date as required pursuant to the 1934 Act or other applicable law, rule or regulation for the settlement of a trade of such Warrant Shares initiated on the applicable Exercise Date) and (B) one (1) Trading Day after the Company’s receipt of the Aggregate Exercise Price (or valid notice of a Cashless Exercise) (such later date, the “**Share Delivery Date**”) shall not be deemed to be a breach of this Warrant. From the Issuance Date through and including the Expiration Date, the Company shall maintain a Warrant Agent that participates in the DTC FAST Program. Notwithstanding any other provision in this Agreement, the Holder may elect, at its sole discretion, to receive unregistered Warrant Shares issued in response to an Exercise Notice instead of Warrant Shares (i) registered pursuant to the Registration Statement or any other registration statement or (ii) issued pursuant to Section 1(c).

(b) Exercise Price. For purposes of this Warrant, “**Exercise Price**” means \$8.125 subject to adjustment as provided herein.

(c) Company’s Failure to Timely Deliver Securities. If the Company shall fail, for any reason or for no reason, on or prior to the Share Delivery Date, either (I) if the Warrant Agent is not participating in the DTC FAST Program, to issue and deliver to the Holder (or its designee) a certificate for the number of Warrant Shares to which the Holder is entitled and register such Warrant Shares on the Company’s share register or, if the Warrant Agent is participating in the DTC FAST Program, to credit the balance account of the Holder or the Holder’s designee with DTC for such number of Warrant Shares to which the Holder is entitled upon the Holder’s exercise of this Warrant (as the case may be) or (II) if the Registration Statement (or prospectus contained therein) covering the issuance of the Warrant Shares that are the subject of the Exercise Notice (the “**Unavailable Warrant Shares**”) is not available for the issuance of such Unavailable Warrant Shares and the Company fails to promptly (x) so notify the Holder and (y) deliver the Warrant Shares electronically without any restrictive legend by crediting such aggregate number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the Holder’s or its designee’s balance account with DTC through its Deposit/Withdrawal At Custodian system (the event described in the immediately foregoing clause (II) is hereinafter referred to as a “**Notice Failure**” and together with the event described in clause (I) above, a “**Delivery Failure**”), the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Warrant Shares subject to such exercise (based on the VWAP of the Common Stock on the date of the applicable Exercise Notice), \$10 per Trading Day (increasing to \$20 per Trading Day on the fifth (5<sup>th</sup>) Trading Day after such liquidated damages begin to accrue) for each Trading Day after such Warrant Share Delivery Date until such Warrant Shares are delivered or Holder rescinds such exercise, and if on or after such Share Delivery Date the Holder purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by the Holder of all or any portion of the number of shares of Common Stock issuable upon such exercise that the Holder is entitled to receive from the Company (a “**Buy-In**”), then, in addition to all other remedies available to



the Holder, the Company shall, within two (2) Business Days after the Holder's request and in the Holder's discretion, either (i) as an indemnity for loss hereunder, pay cash to the Holder in an amount equal to the Holder's total purchase price (including brokerage commissions and other out-of-pocket expenses, if any) for the shares of Common Stock so purchased (including, without limitation, by any other Person in respect, or on behalf, of the Holder) (the "**Buy-In Price**"), at which point the Company's obligation to so issue and deliver such certificate (and to issue such shares of Common Stock) or credit the balance account of such Holder or such Holder's designee, as applicable, with DTC for the number of Warrant Shares to which the Holder is entitled upon the Holder's exercise hereunder (as the case may be) (and to issue such Warrant Shares) shall terminate, or (ii) promptly honor its obligation to so issue and deliver to the Holder a certificate or certificates representing such Warrant Shares or credit the balance account of such Holder or such Holder's designee, as applicable, with DTC for the number of Warrant Shares to which the Holder is entitled upon the Holder's exercise hereunder (as the case may be) and, as an indemnity for loss hereunder, pay cash to the Holder in an amount equal to the excess (if any) of the Holder's total purchase price (including brokerage commissions and other out-of-pocket expenses, if any) for the shares of Common Stock so purchased (including, without limitation, by any other Person in respect, or on behalf, of the Holder) (the "**Buy-In Price**") over the product of (A) such number of Warrant Shares multiplied by (B) the lowest Closing Sale Price of the shares of Common Stock on any Trading Day during the period commencing on the date of the applicable Exercise Notice and ending on the date of such issuance and payment under this clause (ii) (the "**Buy-In Payment Amount**"). Nothing shall limit the Holder's right to pursue any other remedies available to it hereunder, at law or in equity, including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver certificates representing shares of Common Stock (or to electronically deliver such shares of Common Stock) upon the exercise of this Warrant as required pursuant to the terms hereof. While this Warrant is outstanding, the Company shall cause its Warrant Agent to participate in the DTC FAST Program. In addition to the foregoing rights, (i) if the Company fails to deliver the applicable number of Warrant Shares upon an exercise pursuant to Section 1 by the applicable Share Delivery Date, then the Holder shall have the right to rescind such exercise in whole or in part and retain and/or have the Company return, as the case may be, any portion of this Warrant that has not been exercised pursuant to such Exercise Notice; provided that the rescission of an exercise shall not affect the Company's obligation to make any payments that have accrued prior to the date of such notice pursuant to this Section 1(c) or otherwise except with respect to any returned portion of an exercise under this subclause (i), and (ii) if a registration statement (which may be the Registration Statement) covering the issuance or resale of the Warrant Shares that are subject to an Exercise Notice is not available for the issuance or resale, as applicable, of such Exercise Notice Warrant Shares and the Holder has submitted an Exercise Notice prior to receiving notice of the non-availability of such registration statement and the Company has not already delivered the Warrant Shares underlying such Exercise Notice electronically without any restrictive legend by crediting such aggregate number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the Holder's or its designee's balance account with DTC through its Deposit / Withdrawal At Custodian system, the Holder shall have the option, by delivery of notice to the Company, to (x) rescind such Exercise Notice in whole or in part and retain or have returned, as the case may be, any portion of this Warrant that has not been exercised pursuant to such Exercise Notice; provided that the rescission of an Exercise Notice shall not affect the Company's obligation to make any payments that have accrued prior to the date of such notice pursuant to this Section 1(c) or otherwise, and/or (y) switch some or all of such Exercise Notice from a cash exercise to a Cashless Exercise.

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(d) **Cashless Exercise.** Notwithstanding anything contained herein to the contrary (other than Section 1(f) below), if at the time of exercise hereof the Registration Statement is not effective (or the prospectus contained therein is not available for use) for the issuance of all of the Warrant Shares, then the Holder may, in its sole discretion, exercise this Warrant in whole or in part and, in lieu of making the cash payment otherwise contemplated to be made to the Company upon such exercise in payment of the Aggregate Exercise Price, elect instead to receive upon such exercise the "Net Number" of Warrant Shares determined according to the following formula (a "**Cashless Exercise**");

$$\text{Net Number} = \frac{[(A-B) \times (X)]}{A}$$

For purposes of the foregoing formula:

A= As applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Exercise Notice if such Exercise Notice is (1) both executed and delivered pursuant to Section 1 hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 1 hereof on a Trading Day prior to the opening of "regular trading hours" (as defined in Rule 600(b)(68) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) at the option of the Holder, either (y) the VWAP on the Trading Day immediately preceding the date of the applicable Exercise Notice or (z) the Bid Price of the Common Stock on the principal Trading Market as reported by Bloomberg L.P. as of the time of the Holder's execution of the applicable Exercise Notice if such Exercise Notice is executed during "regular trading hours" on a Trading Day and is delivered within two (2) hours thereafter (including until two (2) hours after the close of "regular trading hours" on a Trading Day) pursuant to Section 1 hereof, or (iii) the VWAP on the date of the applicable Exercise Notice if the date of such Exercise Notice is a Trading Day and such Exercise Notice is both executed and delivered pursuant to Section 1 hereof after the close of "regular trading hours" on such Trading Day.

B= The Exercise Price then in effect for the applicable Warrant Shares at the time of such exercise.

X= The number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

For purposes of Rule 144(d) promulgated under the 1933 Act, as in effect on the Initial Exercise Date, it is intended that the Warrant Shares issued in a Cashless Exercise shall be deemed to have been acquired by the Holder, and the holding period for the Warrant Shares shall be deemed to have commenced, on the date this Warrant was originally issued pursuant to the Underwriting Agreement. Notwithstanding anything herein to the contrary, on the Expiration Date, this Warrant shall be automatically exercised via cashless exercise pursuant to this Section 1(d).

(e) **Disputes.** In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the number of Warrant Shares to be issued pursuant to the terms hereof, the Company shall promptly issue to the Holder the number of Warrant Shares that are not disputed and resolve such dispute in accordance with Section 13.

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(f) **Limitations on Exercises.** The Company shall not effect the exercise of any portion of this Warrant, and the Holder shall not have the right to exercise any portion of this Warrant, pursuant to the terms and conditions of this Warrant and any such exercise shall be null and void and treated as if never made, to the extent that after giving effect to such exercise, the Holder together with the other Attribution Parties collectively would beneficially own in excess of 4.99% (the "**Maximum Percentage**") of the shares of Common Stock outstanding immediately after giving effect to such exercise. For purposes of the foregoing sentence, the aggregate number of shares of Common Stock beneficially owned by the Holder and the other Attribution Parties shall include the number of shares of Common Stock held by the Holder and all other Attribution Parties plus the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which the determination of such sentence is being made, but shall exclude shares of Common Stock which would be issuable upon (A) exercise of the remaining, unexercised portion of this Warrant beneficially owned by the Holder or any of the other Attribution Parties and (B) exercise or conversion of the unexercised or unconverted portion of any other securities of the Company (including, without limitation, any convertible notes or convertible preferred shares or warrants, including other Unregistered Warrants) beneficially owned by the Holder or any other Attribution Party subject to a limitation on conversion or exercise analogous to the limitation contained in this Section 1(f). For purposes of this Section 1(f), beneficial ownership shall be calculated in accordance with Section 13(d) of the 1934 Act. For purposes of determining the number of outstanding shares of Common Stock the Holder may acquire upon the exercise of this Warrant without exceeding the Maximum Percentage, the Holder may rely on the number of outstanding shares of Common Stock as reflected in (x) the Company's most recent Annual Report on Form 10-K, Quarterly Report on Form 10-Q, Current Report on Form 8-K or other public filing with the SEC, as the case may be, (y) a more recent public announcement by the Company or (z) any other written notice by the Company or the Warrant Agent, if any, setting forth the number of shares of Common Stock outstanding (the "**Reported Outstanding Share Number**"). If the Company receives an Exercise Notice from the Holder at a time when the actual number of outstanding shares of Common Stock is less than the Reported Outstanding Share Number, the Company shall (i) notify the Holder in writing of the number of shares of Common Stock

then outstanding and, to the extent that such Exercise Notice would otherwise cause the Holder's beneficial ownership, as determined pursuant to this Section 1(f), to exceed the Maximum Percentage, the Holder must notify the Company of a reduced number of Warrant Shares to be acquired pursuant to such Exercise Notice (the number of shares by which such purchase is reduced, the "**Reduction Shares**") and (ii) as soon as reasonably practicable, the Company shall return to the Holder any exercise price paid by the Holder for the Reduction Shares. For any reason at any time, upon the written or oral request of the Holder, the Company shall within one (1) Business Day confirm orally and in writing or by electronic mail to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder and any other Attribution Party since the date as of which the Reported Outstanding Share Number was reported. In the event that the issuance of shares of Common Stock to the Holder upon exercise of this Warrant results in the Holder and the other Attribution Parties being deemed to beneficially own, in the aggregate, more than the Maximum Percentage of the number of outstanding shares of Common Stock (as determined under Section 13(d) of the 1934 Act), the number of shares so issued by which the Holder's and the other Attribution Parties' aggregate beneficial ownership exceeds the Maximum Percentage (the "**Excess Shares**") shall be deemed null and void and shall be cancelled ab initio, and the Holder shall not have the power to vote or to transfer the Excess Shares. As soon as reasonably practicable after the issuance of the Excess Shares has been deemed null and void, the Company shall return to the Holder the exercise price paid by the Holder for the Excess Shares. Upon delivery of a written notice to the Company, the Holder may from time to time increase (with such increase not effective until the sixty-first (61<sup>st</sup>) day after delivery of such notice) or decrease the Maximum Percentage to any other percentage not in excess of 9.99% as specified in such notice; provided that (i) any such increase in the Maximum Percentage will not be effective until the sixty-first (61<sup>st</sup>) day after such notice is delivered to the Company and (ii) any such increase or decrease will apply only to the Holder and the other Attribution Parties and not to any other holder of Unregistered Warrants that is not an Attribution Party of the Holder. For purposes of clarity, the shares of Common Stock issuable pursuant to the terms of this Warrant in excess of the Maximum Percentage shall not be deemed to be beneficially owned by the Holder for any purpose including for purposes of Section 13(d) or Rule 16a-1(a)(1) of the 1934 Act. No prior inability to exercise this Warrant pursuant to this paragraph shall have any effect on the applicability of the provisions of this paragraph with respect to any subsequent determination of exercisability. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 1(f) to the extent necessary to correct this paragraph or any portion of this paragraph which may be defective or inconsistent with the intended beneficial ownership limitation contained in this Section 1(f) or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitation contained in this paragraph may not be waived and shall apply to a successor holder of this Warrant.

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(g) Reservation of Shares.

(i) Required Reserve Amount. So long as this Warrant remains outstanding, the Company shall at all times keep reserved for issuance under this Warrant a number of shares of Common Stock at least equal to 100% of the maximum number of shares of Common Stock as shall be necessary to satisfy the Company's obligation to issue shares of Common Stock under the Unregistered Warrants then outstanding (without regard to any limitations on exercise) (the "**Required Reserve Amount**"); provided that at no time shall the number of shares of Common Stock reserved pursuant to this Section 1(g)(i) be reduced other than proportionally in connection with any exercise of Unregistered Warrants or such other event covered by Section 2(a) below. The Required Reserve Amount (including, without limitation, each increase in the number of shares so reserved) shall be allocated pro rata among the holders of the Unregistered Warrants based on number of shares of Common Stock issuable upon exercise of Unregistered Warrants held by each holder on the Issuance Date (without regard to any limitations on exercise) or increase in the number of reserved shares, as the case may be (the "**Authorized Share Allocation**"). In the event that a holder shall sell or otherwise transfer any of such holder's Unregistered Warrants, each transferee shall be allocated a pro rata portion of such holder's Authorized Share Allocation. Any shares of Common Stock reserved and allocated to any Person which ceases to hold any Unregistered Warrants shall be allocated to the remaining holders of Unregistered Warrants, pro rata based on the number of shares of Common Stock issuable upon exercise of the Unregistered Warrants then held by such holders (without regard to any limitations on exercise).

(ii) Insufficient Authorized Shares. If, notwithstanding Section 1(g)(i) above, and not in limitation thereof, at any time while any of the Unregistered Warrants remain outstanding, the Company does not have a sufficient number of authorized and unreserved shares of Common Stock to satisfy its obligation to reserve the Required Reserve Amount (an "**Authorized Share Failure**"), then the Company shall immediately take all action necessary to increase the Company's authorized shares of Common Stock to an amount sufficient to allow the Company to reserve the Required Reserve Amount for all the Unregistered Warrants then outstanding. Without limiting the generality of the foregoing sentence, as soon as practicable after the date of the occurrence of an Authorized Share Failure, but in no event later than sixty (60) days after the occurrence of such Authorized Share Failure, the Company shall hold a meeting of its shareholders for the approval of an increase in the number of authorized shares of Common Stock. In connection with such meeting, the Company shall provide each shareholder with a proxy statement and shall use its best efforts to solicit its shareholders' approval of such increase in authorized shares of Common Stock and to cause its board of directors to recommend to the shareholders that they approve such proposal. In the event that the Company is prohibited from issuing shares of Common Stock upon an exercise of this Warrant due to the failure by the Company to have sufficient shares of Common Stock available out of the authorized but unissued shares of Common Stock (such unavailable number of Common Shares, the "**Authorization Failure Shares**"), in lieu of delivering such Authorization Failure Shares to the Holder, the Company shall pay cash in exchange for the cancellation of such portion of this Warrant exercisable into such Authorization Failure Shares at a price equal to the sum of (i) the product of (x) such number of Authorization Failure Shares and (y) the greatest Closing Sale Price of the Common Stock on any Trading Day during the period commencing on the date the Holder delivers the applicable Exercise Notice with respect to such Authorization Failure Shares to the Company and ending on the date of such issuance and payment under this Section 1(f); and (ii) to the extent the Holder purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by the Holder of Authorization Failure Shares, any Buy-In Payment Amount, brokerage commissions and other out-of-pocket expenses, if any, of the Holder incurred in connection therewith.

(h) Warrant Agent Agreement. If this Warrant is held in global form through DTC (or any successor depository), this Warrant is issued subject to the Warrant Agent Agreement, dated [ \* ], 2023 by and between the Company and VStock Transfer, LLC (the "**Warrant Agent Agreement**"). To the extent any provision of this Warrant conflicts with the express provisions of the Warrant Agent Agreement, the provisions of this Warrant shall govern and be controlling.

2. ADJUSTMENT OF EXERCISE PRICE AND NUMBER OF WARRANT SHARES. The Exercise Price and number of Warrant Shares issuable upon exercise of this Warrant are subject to adjustment from time to time as set forth in this Section 2.

(a) Share Dividends and Splits. Without limiting any provision of Section 4, if the Company, at any time on or after the Offering Date, (i) pays a share dividend on one or more classes of its then outstanding shares of Common Stock or otherwise makes a distribution on any class of capital shares that is payable in shares of Common Stock, (ii) subdivides (by any share split, share dividend, recapitalization or otherwise) one or more classes of its then outstanding shares of Common Stock into a larger number of shares or (iii) combines (by combination, reverse share split or otherwise) one or more classes of its then outstanding shares of Common Stock into a smaller number of shares, then in each such case the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event. Any adjustment made pursuant to clause (i) of this paragraph shall become effective immediately after the record date for the determination of shareholders entitled to receive such dividend or distribution, and any adjustment pursuant to clause (ii) or (iii) of this paragraph shall become effective immediately after the effective date of such subdivision or combination.

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(b) Number of Warrant Shares. Simultaneously with any adjustment to the Exercise Price pursuant to this Section 2, the number of Warrant Shares that may be purchased upon exercise of this Warrant shall be increased or decreased proportionately, so that after such adjustment the aggregate Exercise Price payable hereunder for the adjusted number of Warrant Shares shall be the same as the aggregate Exercise Price in effect immediately prior to such adjustment (without regard to any limitations on exercise contained herein).

(c) Other Events. In the event that the Company, or any subsidiary of the Company (a "**Subsidiary**"), shall take any action to which the provisions hereof are not

strictly applicable, or, if applicable, would not operate to protect the Holder from dilution or if any event occurs of the type contemplated by the provisions of this Section 2 but not expressly provided for by such provisions (including, without limitation, the granting of share appreciation rights, phantom share rights or other rights with equity features), then the Company's board of directors shall in good faith determine and implement an appropriate adjustment in the Exercise Price and the number of Warrant Shares (if applicable) so as to protect the rights of the Holder, provided that no such adjustment pursuant to this Section 2(c) will increase the Exercise Price or decrease the number of Warrant Shares as otherwise determined pursuant to this Section 2, provided further that if the Holder does not accept such adjustments as appropriately protecting its interests hereunder against such dilution, then the Company's board of directors and the Holder shall agree, in good faith, upon an independent investment bank of nationally recognized standing to make such appropriate adjustments, whose determination shall be final and binding absent manifest error and whose fees and expenses shall be borne by the Company.

(d) Calculations. All calculations under this Section 2 shall be made by rounding to the nearest cent or the nearest 1/100th of a share, as applicable. The number of shares of Common Stock outstanding at any given time shall not include shares owned or held by or for the account of the Company, and the disposition of any such shares shall be considered an issuance or sale of shares of Common Stock.

3. RIGHTS UPON DISTRIBUTION OF ASSETS. In addition to any adjustments pursuant to Section 2 above, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to holders of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, shares or other securities, property, options, evidence of indebtedness or any other assets by way of a dividend, spin off, reclassification, corporate rearrangement, plan of arrangement or other similar transaction) (a "**Distribution**"), at any time after the issuance of this Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations or restrictions on exercise of this Warrant, including without limitation, the Maximum Percentage) immediately before the date on which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of Common Stock are to be determined for the participation in such Distribution (provided, however, that to the extent that the Holder's right to participate in any such Distribution would result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, then the Holder shall not be entitled to participate in such Distribution to the extent of the Maximum Percentage (and shall not be entitled to beneficial ownership of such shares of Common Stock as a result of such Distribution (and beneficial ownership) to the extent of any such excess) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time or times, if ever, as its right thereto would not result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, at which time or times the Holder shall be granted such Distribution (and any Distributions declared or made on such initial Distribution or on any subsequent Distribution held similarly in abeyance) to the same extent as if there had been no such limitation).

#### 4. PURCHASE RIGHTS; FUNDAMENTAL TRANSACTIONS.

(a) Purchase Rights. In addition to any adjustments pursuant to Section 2 above, if at any time the Company grants, issues or sells any Options, Convertible Securities or rights to purchase shares, warrants, securities or other property pro rata to the record holders of any class of Common Stock (the "**Purchase Rights**"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations or restrictions on exercise of this Warrant, including without limitation, the Maximum Percentage) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of Common Stock are to be determined for the grant, issuance or sale of such Purchase Rights (provided, however, that to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, then the Holder shall not be entitled to participate in such Purchase Right to the extent of the Maximum Percentage (and shall not be entitled to beneficial ownership of such shares of Common Stock as a result of such Purchase Right (and beneficial ownership) to the extent of any such excess) and such Purchase Right to such extent shall be held in abeyance for the benefit of the Holder until such time or times, if ever, as its right thereto would not result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, at which time or times the Holder shall be granted such right (and any Purchase Right granted, issued or sold on such initial Purchase Right or on any subsequent Purchase Right held similarly in abeyance) to the same extent as if there had been no such limitation).

(b) Fundamental Transactions. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company or any Subsidiary, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding shares of Common Stock, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the shares of Common Stock are effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, merger or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires more than 50% of the outstanding shares of Common Stock (not including any shares of Common Stock held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock or share purchase agreement or other business combination) (each a "**Fundamental Transaction**"), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction, at the option of the Holder (without regard to any limitation in Section 1(f) on the exercise of this Warrant), the number of shares of common stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (the "**Alternate Consideration**") receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Warrant is exercisable immediately prior to such Fundamental Transaction (without regard to any limitation in Section 1(f) on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. Notwithstanding anything to the contrary, in the event of a Fundamental Transaction, the Company or any Successor Entity (as defined below) shall, at the Holder's option, exercisable at any time concurrently with, or within thirty (30) days after, the consummation of the Fundamental Transaction (or, if later, the date of the public announcement of the applicable Fundamental Transaction), purchase this Warrant from the Holder by paying to the Holder an amount of cash equal to the Black Scholes Value (as defined below) of the remaining unexercised portion of this Warrant on the date of the consummation of such Fundamental Transaction; provided, however, that, if the Fundamental Transaction is not within the Company's control, including not approved by the Company's Board of Directors, Holder shall only be entitled to receive from the Company or any Successor Entity the same type or form of consideration (and in the same proportion), at the Black Scholes Value of the unexercised portion of this Warrant, that is being offered and paid to the holders of Common Stock of the Company in connection with the Fundamental Transaction, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of Common Stock are given the choice to receive from among alternative forms of consideration in connection with the Fundamental Transaction; provided, further, that if holders of Common Stock of the Company are not offered or paid any consideration in such Fundamental Transaction, such holders of Common Stock will be deemed to have received common stock of the Successor Entity (which Entity may be the Company following such Fundamental Transaction) in such Fundamental Transaction. "**Black Scholes Value**" means the value of this Warrant based on the Black Scholes Option Pricing Model obtained from the "OV" function on Bloomberg, L.P. ("**Bloomberg**") determined as of the day of consummation of the applicable Fundamental Transaction for pricing purposes and reflecting (A) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Expiration Date, (B) an expected volatility equal to the greater of 100% and the 100 day volatility obtained from the HVT function on Bloomberg (determined utilizing a 365 day annualization factor) as of the Trading Day immediately following the public announcement of the applicable Fundamental Transaction, (C) the underlying price per share used in such calculation shall be the greater of (i) the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in such Fundamental Transaction and (ii) the highest VWAP during the period beginning on the Trading Day immediately preceding the announcement of the applicable Fundamental Transaction (or the consummation of the applicable Fundamental Transaction, if earlier) and ending on the Trading Day of the Holder's request pursuant to this Section 4(b) and (D) a remaining option time equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Expiration Date

and (E) a zero cost of borrow. The payment of the Black Scholes Value will be made by wire transfer of immediately available funds within five Business Days of the Holder's election (or, if later, on the effective date of the Fundamental Transaction). The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the "**Successor Entity**") to assume in writing all of the obligations of the Company under this Warrant and the other transaction documents in accordance with the provisions of this Section 4(b) pursuant to written agreements in form and substance reasonably satisfactory to the Holder and approved by the Holder (without unreasonable delay) prior to such Fundamental Transaction and shall, at the option of the Holder, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for (so that from and after the date of such Fundamental Transaction, the provisions of this Warrant and the other transaction documents referring to the "Company" shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Warrant and the other transaction documents with the same effect as if such Successor Entity had been named as the Company herein.

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(c) [RESERVED.]

(d) Application. The provisions of this Section 4 shall apply similarly and equally to successive Fundamental Transactions and Corporate Events and shall be applied as if this Warrant (and any such subsequent warrants) were fully exercisable and without regard to any limitations on the exercise of this Warrant (provided that the Holder shall continue to be entitled to the benefit of the Maximum Percentage, applied however with respect to capital shares registered under the 1934 Act and thereafter receivable upon exercise of this Warrant (or any such other warrant)).

5. NONCIRCUMVENTION. The Company hereby covenants and agrees that the Company will not, by amendment of its certificate of incorporation or other organizational documents or through any reorganization, transfer of assets, consolidation, merger, amalgamation, plan of arrangement, dissolution, issuance or sale of securities, or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, and will at all times in good faith carry out all the provisions of this Warrant and take all action as may be required to protect the rights of the Holder. Without limiting the generality of the foregoing, the Company (a) shall not increase the par value of any shares of Common Stock receivable upon the exercise of this Warrant above the Exercise Price then in effect, and (b) shall take all such actions as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and non-assessable shares of Common Stock upon the exercise of this Warrant, which shares of Common Stock shall be freely tradeable pursuant to all applicable securities laws. Notwithstanding anything herein to the contrary, if after the sixty (60) calendar day anniversary of the Issuance Date, the Holder is not permitted to exercise this Warrant in full for any reason (other than pursuant to restrictions set forth in Section 1(f) hereof), the Company shall use its best efforts to promptly remedy such failure, including, without limitation, obtaining such consents or approvals as necessary to permit such exercise into shares of Common Stock.

6. WARRANT HOLDER NOT DEEMED A SHAREHOLDER. Except as otherwise specifically provided herein, the Holder, solely in its capacity as a holder of this Warrant, shall not be entitled to vote or receive dividends or be deemed the holder of share capital of the Company for any purpose, nor shall anything contained in this Warrant be construed to confer upon the Holder, solely in its capacity as the Holder of this Warrant, any of the rights of a shareholder of the Company or any right to vote, give or withhold consent to any corporate action (whether any reorganization, issue of shares, reclassification of shares, consolidation, merger, conveyance or otherwise), receive notice of meetings, receive dividends or subscription rights, or otherwise, prior to the issuance to the Holder of the Warrant Shares which it is then entitled to receive upon the due exercise of this Warrant. In addition, nothing contained in this Warrant shall be construed as imposing any liabilities on the Holder to purchase any securities (upon exercise of this Warrant or otherwise) or as a shareholder of the Company, whether such liabilities are asserted by the Company or by creditors of the Company. Notwithstanding this Section 6, the Company shall provide the Holder with copies of the same notices and other information given to the shareholders of the Company generally, contemporaneously with the giving thereof to the shareholders.

#### 7. REISSUANCE OF WARRANTS.

(a) Transfer of Warrant. If this Warrant is to be transferred, the Holder shall surrender this Warrant to the Company, together with a properly completed and duly executed written assignment of this Warrant substantially in the form attached hereto as Exhibit D, whereupon the Company will forthwith issue and deliver upon the order of the Holder a new Warrant (in accordance with Section 7(d)), representing the right to purchase the number of Warrant Shares being transferred by the Holder and, if less than the total number of Warrant Shares then underlying this Warrant is being transferred, a new Warrant (in accordance with Section 7(d)) to the Holder representing the right to purchase the number of Warrant Shares not being transferred.

(b) Lost, Stolen or Mutilated Warrant. Upon receipt by the Company of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant (as to which a written certification and the indemnification contemplated below shall suffice as such evidence), and, in the case of loss, theft or destruction, of any indemnification undertaken by the Holder to the Company in customary and reasonable form and, in the case of mutilation, upon surrender and cancellation of this Warrant, the Company shall execute and deliver to the Holder a new Warrant (in accordance with Section 7(d)) representing the right to purchase the Warrant Shares then underlying this Warrant.

(c) Exchangeable for Multiple Warrants. This Warrant is exchangeable, upon the surrender hereof by the Holder at the principal office of the Company, for a new Warrant or Warrants (in accordance with Section 7(d)) representing in the aggregate the right to purchase the number of Warrant Shares then underlying this Warrant, and each such new Warrant will represent the right to purchase such portion of such Warrant Shares as is designated by the Holder at the time of such surrender; provided, however, no warrants for fractional shares of Common Stock shall be given.

(d) Issuance of New Warrants. Whenever the Company is required to issue a new Warrant pursuant to the terms of this Warrant, such new Warrant (i) shall be of like tenor with this Warrant, (ii) shall represent, as indicated on the face of such new Warrant, the right to purchase the Warrant Shares then underlying this Warrant (or in the case of a new Warrant being issued pursuant to Section 7(a) or Section 7(c), the Warrant Shares designated by the Holder which, when added to the number of shares of Common Stock underlying the other new Warrants issued in connection with such issuance, does not exceed the number of Warrant Shares then underlying this Warrant), (iii) shall have an issuance date, as indicated on the face of such new Warrant which is the same as the Issuance Date, and (iv) shall have the same rights and conditions as this Warrant.

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8. NOTICES. (a) General. Whenever notice is required to be given under this Warrant, unless otherwise provided herein, such notice shall be given in writing, (i) if delivered (a) from within the domestic United States, by first-class registered or certified airmail, or nationally recognized overnight express courier, postage prepaid, electronic mail or by facsimile or (b) from outside the United States, by International Federal Express, electronic mail or facsimile, and (ii) will be deemed given (A) if delivered by first-class registered or certified mail domestic, three (3) Business Days after so mailed, (B) if delivered by nationally recognized overnight carrier, one (1) Business Day after so mailed, (C) if delivered by International Federal Express, two (2) Business Days after so mailed and (D) if delivered by electronic mail, when sent (provided that such sent email is kept on file (whether electronically or otherwise) by the sending party and the sending party does not receive an automatically generated message from the recipient's email server that such e-mail could not be delivered to such recipient) and (E) if delivered by facsimile, upon electronic confirmation of receipt of such facsimile, and will be delivered and addressed as follows:

(i) if to the Company, to:

[\*]

with a copy (which shall not constitute notice) to:

[\*]

(ii) if to the Holder, at such address or other contact information delivered by the Holder to Company or as is on the books and records of the Company.

(b) Required Notices. The Company shall provide the Holder with prompt written notice of all actions taken pursuant to this Warrant (other than the issuance of shares of Common Stock upon exercise in accordance with the terms hereof), including in reasonable detail a description of such action and the reason therefor. Without limiting the generality of the foregoing, the Company will give written notice to the Holder (i) immediately upon each adjustment of the Exercise Price and the number of Warrant Shares, setting forth in reasonable detail, and certifying, the calculation of such adjustment(s), (ii) at least ten (10) Trading Days prior to the date on which the Company closes its books or takes a record (A) with respect to any dividend or distribution upon the Common Stock, (B) with respect to any grants, issuances or sales of any Options, Convertible Securities or rights to purchase shares, warrants, securities or other property to holders of Common Stock or (C) for determining rights to vote with respect to any Fundamental Transaction, dissolution or liquidation, provided in each case that such information shall be made known to the public prior to or in conjunction with such notice being provided to the Holder, and (iii) at least ten (10) Trading Days prior to the consummation of any Fundamental Transaction. To the extent that any notice provided hereunder constitutes, or contains, material, non-public information regarding the Company or any of its Subsidiaries, the Company shall simultaneously file such notice with the SEC pursuant to a Current Report on Form 8-K. It is expressly understood and agreed that the time of execution specified by the Holder in each Exercise Notice shall be definitive and may not be disputed or challenged by the Company.

9. AMENDMENT AND WAIVER. Except as otherwise provided herein, the provisions of this Warrant (other than Section 1(f)) may be amended and the Company may take any action herein prohibited, or omit to perform any act herein required to be performed by it, only if the Company has obtained the written consent of the Holder. No waiver shall be effective unless it is in writing and signed by an authorized representative of the waiving party.

10. SEVERABILITY. If any provision of this Warrant is prohibited by law or otherwise determined to be invalid or unenforceable by a court of competent jurisdiction, the provision that would otherwise be prohibited, invalid or unenforceable shall be deemed amended to apply to the broadest extent that it would be valid and enforceable, and the invalidity or unenforceability of such provision shall not affect the validity of the remaining provisions of this Warrant so long as this Warrant as so modified continues to express, without material change, the original intentions of the parties as to the subject matter hereof and the prohibited nature, invalidity or unenforceability of the provision(s) in question does not substantially impair the respective expectations or reciprocal obligations of the parties or the practical realization of the benefits that would otherwise be conferred upon the parties. The parties will endeavor in good faith negotiations to replace the prohibited, invalid or unenforceable provision(s) with a valid provision(s), the effect of which comes as close as possible to that of the prohibited, invalid or unenforceable provision(s).

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11. GOVERNING LAW. This Warrant shall be governed by and construed and enforced in accordance with, and all questions concerning the construction, validity, interpretation and performance of this Warrant shall be governed by, the internal laws of the State of New York, without giving effect to any choice of law or conflict of law provision or rule (whether of the State of New York or any other jurisdictions) that would cause the application of the laws of any jurisdictions other than the State of New York. The Company hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof to the Company at its principal executive office and agrees that such service shall constitute good and sufficient service of process and notice thereof. The Company hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in The City of New York, Borough of Manhattan, for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is brought in an inconvenient forum or that the venue of such suit, action or proceeding is improper. Nothing contained herein shall be deemed to limit in any way any right to serve process in any manner permitted by law. Nothing contained herein shall be deemed to operate to preclude the Holder from bringing suit or taking other legal action against the Company in any other jurisdiction to collect on the Company's obligations to the Holder, to realize on any collateral or any other security for such obligations, or to enforce a judgment or other court ruling in favor of the Holder. **THE COMPANY HEREBY IRREVOCABLY WAIVES ANY RIGHT IT MAY HAVE TO, AND AGREES NOT TO REQUEST, A JURY TRIAL FOR THE ADJUDICATION OF ANY DISPUTE HEREUNDER OR IN CONNECTION WITH OR ARISING OUT OF THIS WARRANT OR ANY TRANSACTION CONTEMPLATED HEREBY.**

12. CONSTRUCTION; HEADINGS. This Warrant shall be deemed to be jointly drafted by the Company and the Holder and shall not be construed against any Person as the drafter hereof. The headings of this Warrant are for convenience of reference and shall not form part of, or affect the interpretation of, this Warrant.

13. DISPUTE RESOLUTION.

(a) Submission to Dispute Resolution.

(i) In the case of a dispute relating to the Exercise Price, the Closing Sale Price, the Bid Price, Black Scholes Value or fair market value or the arithmetic calculation of the number of Warrant Shares (as the case may be) (including, without limitation, a dispute relating to the determination of any of the foregoing), the Company or the Holder (as the case may be) shall submit the dispute to the other party via facsimile or electronic mail (A) if by the Company, within two (2) Business Days after the occurrence of the circumstances giving rise to such dispute or (B) if by the Holder, at any time after the Holder learned of the circumstances giving rise to such dispute. If the Holder and the Company are unable to promptly resolve such dispute relating to such Exercise Price, such Closing Sale Price, such Bid Price, Black Scholes Value or such fair market value or such arithmetic calculation of the number of Warrant Shares (as the case may be), at any time after the second (2<sup>nd</sup>) Business Day following such initial notice by the Company or the Holder (as the case may be) of such dispute to the Company or the Holder (as the case may be), then the Holder may, at its sole option, select an independent, reputable investment bank to resolve such dispute.

(ii) The Holder and the Company shall each deliver to such investment bank (A) a copy of the initial dispute submission so delivered in accordance with the first sentence of this Section 13 and (B) written documentation supporting its position with respect to such dispute, in each case, no later than 5:00 p.m. (New York time) by the fifth (5<sup>th</sup>) Business Day immediately following the date on which the Holder selected such investment bank (the "**Dispute Submission Deadline**") (the documents referred to in the immediately preceding clauses (A) and (B) are collectively referred to herein as the "**Required Dispute Documentation**") (it being understood and agreed that if either the Holder or the Company fails to so deliver all of the Required Dispute Documentation by the Dispute Submission Deadline, then the party who fails to so submit all of the Required Dispute Documentation shall no longer be entitled to (and hereby waives its right to) deliver or submit any written documentation or other support to such investment bank with respect to such dispute and such investment bank shall resolve such dispute based solely on the Required Dispute Documentation that was delivered to such investment bank prior to the Dispute Submission Deadline). Unless otherwise agreed to in writing by both the Company and the Holder or otherwise requested by such investment bank, neither the Company nor the Holder shall be entitled to deliver or submit any written documentation or other support to such investment bank in connection with such dispute (other than the Required Dispute Documentation).

(iii) The Company and the Holder shall cause such investment bank to determine the resolution of such dispute and notify the Company and the Holder of such resolution no later than ten (10) Business Days immediately following the Dispute Submission Deadline. The fees and expenses of such investment bank shall be borne solely by the Company, and such investment bank's resolution of such dispute shall be final and binding upon all parties absent manifest error.

(b) Miscellaneous. The Company expressly acknowledges and agrees that (i) this Section 13 constitutes an agreement to arbitrate between the Company and the Holder (and constitutes an arbitration agreement) under the rules then in effect under § 7501, et seq. of the New York Civil Practice Law and Rules ("**CPLR**") and that the Holder is

authorized to apply for an order to compel arbitration pursuant to CPLR § 7503(a) in order to compel compliance with this Section 13, (ii) the terms of this Warrant shall serve as the basis for the selected investment bank's resolution of the applicable dispute, such investment bank shall be entitled (and is hereby expressly authorized) to make all findings, determinations and the like that such investment bank determines are required to be made by such investment bank in connection with its resolution of such dispute and in resolving such dispute such investment bank shall apply such findings, determinations and the like to the terms of this Warrant, (iii) the Holder (and only the Holder), in its sole discretion, shall have the right to submit any dispute described in this Section 13 to any state or federal court sitting in The City of New York, Borough of Manhattan in lieu of utilizing the procedures set forth in this Section 13 and (iv) nothing in this Section 13 shall limit the Holder from obtaining any injunctive relief or other equitable remedies (including, without limitation, with respect to any matters described in this Section 13).

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14. REMEDIES, CHARACTERIZATION, OTHER OBLIGATIONS, BREACHES AND INJUNCTIVE RELIEF. The remedies provided in this Warrant shall be cumulative and in addition to all other remedies available under this Warrant, at law or in equity (including a decree of specific performance and/or other injunctive relief), and nothing herein shall limit the right of the Holder to pursue actual and consequential damages for any failure by the Company to comply with the terms of this Warrant. The Company covenants to the Holder that there shall be no characterization concerning this instrument other than as expressly provided herein. Amounts set forth or provided for herein with respect to payments, exercises and the like (and the computation thereof) shall be the amounts to be received by the Holder and shall not, except as expressly provided herein, be subject to any other obligation of the Company (or the performance thereof). The Company acknowledges that a breach by it of its obligations hereunder will cause irreparable harm to the Holder and that the remedy at law for any such breach may be inadequate. The Company therefore agrees that, in the event of any such breach or threatened breach, the holder of this Warrant shall be entitled, in addition to all other available remedies, to specific performance and/or temporary, preliminary and permanent injunctive or other equitable relief from any court of competent jurisdiction in any such case without the necessity of proving actual damages and without posting a bond or other security. The Company shall provide all information and documentation to the Holder that is requested by the Holder to enable the Holder to confirm the Company's compliance with the terms and conditions of this Warrant (including, without limitation, compliance with Section 2 hereof). The issuance of shares and certificates for shares as contemplated hereby upon the exercise of this Warrant shall be made without charge to the Holder or such shares for any issuance tax or other costs in respect thereof, provided that the Company shall not be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of any certificate in a name other than the Holder or its agent on its behalf.

15. PAYMENT OF COLLECTION, ENFORCEMENT AND OTHER COSTS. If (a) this Warrant is placed in the hands of an attorney for collection or enforcement or is collected or enforced through any legal proceeding or the holder otherwise takes action to collect amounts due under this Warrant or to enforce the provisions of this Warrant or (b) there occurs any bankruptcy, reorganization, receivership of the company or other proceedings affecting company creditors' rights and involving a claim under this Warrant, then the Company shall pay the costs incurred by the Holder for such collection, enforcement or action or in connection with such bankruptcy, reorganization, receivership or other proceeding, including, without limitation, attorneys' fees and disbursements.

16. TRANSFER. This Warrant may be offered for sale, sold, transferred or assigned without the consent of the Company.

17. CERTAIN DEFINITIONS. For purposes of this Warrant, the following terms shall have the following meanings:

(a) "**1933 Act**" means the Securities Act of 1933, as amended, and the rules and regulations thereunder.

(b) "**1934 Act**" means the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder.

(c) "**Affiliate**" means, with respect to any Person, any other Person that directly or indirectly controls, is controlled by, or is under common control with, such Person, it being understood for purposes of this definition that "control" of a Person means the power directly or indirectly either to vote 10% or more of the shares having ordinary voting power for the election of directors of such Person or direct or cause the direction of the management and policies of such Person whether by contract or otherwise.

(d) "**Attribution Parties**" means, collectively, the following Persons and entities: (i) any investment vehicle, including, any funds, feeder funds or managed accounts, currently, or from time to time after the Issuance Date, directly or indirectly managed or advised by the Holder's investment manager or any of its Affiliates or principals, (ii) any direct or indirect Affiliates of the Holder or any of the foregoing, (iii) any Person acting or who could be deemed to be acting as a Group together with the Holder or any of the foregoing and (iv) any other Persons whose beneficial ownership of the Company's Common Stock would or could be aggregated with the Holder's and the other Attribution Parties for purposes of Section 13(d) of the 1934 Act. For clarity, the purpose of the foregoing is to subject collectively the Holder and all other Attribution Parties to the Maximum Percentage.

(e) "**Bid Price**" means, for any security as of the particular time of determination, the bid price for such security on the Principal Market as reported by Bloomberg as of such time of determination, or, if the Principal Market is not the principal securities exchange or trading market for such security, the bid price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg as of such time of determination, or if the foregoing does not apply, the bid price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg as of such time of determination, or, if no bid price is reported for such security by Bloomberg as of such time of determination, the average of the bid prices of any market makers for such security as reported in the "pink sheets" by OTC Markets Group Inc. (formerly Pink Sheets LLC) as of such time of determination. If the Bid Price cannot be calculated for a security as of the particular time of determination on any of the foregoing bases, the Bid Price of such security as of such time of determination shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved in accordance with the procedures in Section 13. All such determinations shall be appropriately adjusted for any shares dividend, share split, share combination or other similar transaction during such period.

(g) "**Bloomberg**" means Bloomberg, L.P.

(h) "**Business Day**" means any day other than Saturday, Sunday or other day on which commercial banks in The City of New York are authorized or required by law to remain closed; provided, however, for clarification, commercial banks shall not be deemed to be authorized or required by law to remain closed due to "stay at home", "shelter-in-place", "non-essential employee" or any other similar orders or restrictions or the closure of any physical branch locations at the direction of any governmental authority so long as the electronic funds transfer systems (including for wire transfers) of commercial banks in The City of New York generally are open for use by customers on such day.

(i) "**Closing Sale Price**" means, for any security as of any date, the last closing trade price for such security on the Principal Market, as reported by Bloomberg, or, if the Principal Market begins to operate on an extended hours basis and does not designate the closing trade price, then the last trade price of such security prior to 4:00:00 p.m., New York time, as reported by Bloomberg, or, if the Principal Market is not the principal securities exchange or trading market for such security, the last trade price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg, or if the foregoing does not apply, the last trade price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg, or, if no last trade price is reported for such security by Bloomberg, the average of the ask prices of any market makers for such security as reported in the "pink sheets" by OTC Markets Group Inc. (formerly Pink Sheets LLC). If the Closing Sale Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Closing Sale Price of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved in accordance with the procedures in Section 13. All such determinations shall be appropriately adjusted for any share dividend, share split, share combination or other similar transaction during such period.

(j) “**Common Stock**” means (i) the Company’s common stock, par value \$0.001 per share, and (ii) any capital shares into which such common stock shall have been changed or any share capital resulting from a reclassification of such common stock.

(k) “**Convertible Securities**” means any shares or other security (other than Options) that is at any time and under any circumstances, directly or indirectly, convertible into, exercisable or exchangeable for, or which otherwise entitles the holder thereof to acquire, any Common Stock.

(l) “**Eligible Market**” means The New York Stock Exchange, the NYSE American, the Nasdaq Global Select Market, the Nasdaq Global Market, the Nasdaq Capital Market or the Principal Market.

(m) “**Expiration Date**” means the date that is the fifth (5th) anniversary of the Issuance Date or, if such date falls on a day other than a Business Day or on which trading does not take place on the Principal Market (a “**Holiday**”), the next date that is not a Holiday.

(n) Intentionally Omitted.

(o) “**Group**” means a “group” as that term is used in Section 13(d) of the 1934 Act and as defined in Rule 13d-5 thereunder.

(p) “**Options**” means any rights, warrants or options to subscribe for or purchase Common Stock or Convertible Securities.

(q) “**Parent Entity**” of a Person means an entity that, directly or indirectly, controls the applicable Person and whose common stock or equivalent equity security is quoted or listed on an Eligible Market, or, if there is more than one such Person or Parent Entity, the Person or Parent Entity with the largest public market capitalization as of the date of consummation of the Fundamental Transaction.

(r) “**Person**” means an individual, a limited liability company, a partnership, a joint venture, a corporation, a trust, an unincorporated organization, any other entity or a government or any department or agency thereof.

(s) “**Principal Market**” means the Nasdaq Capital Market.

(t) “**SEC**” means the United States Securities and Exchange Commission or the successor thereto.

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(u) “**Spot Price**” means, as applicable: (i) the Closing Sale Price of the Common Stock on the Trading Day immediately preceding the date of the applicable Exercise Notice if such Exercise Notice is (1) both executed and delivered pursuant to Section 1(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 1(a) hereof on a Trading Day prior to the opening of “regular trading hours” (as defined in Rule 600(b)(64) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) the Bid Price of the Common Stock as of the time of the Holder’s execution of the applicable Exercise Notice if such Exercise Notice is executed during “regular trading hours” on a Trading Day and is delivered within two (2) hours thereafter pursuant to Section 1(a) hereof, or (iii) the Closing Sale Price of the Common Stock on the date of the applicable Exercise Notice if the date of such Exercise Notice is a Trading Day and such Exercise Notice is both executed and delivered pursuant to Section 1(a) hereof after the close of “regular trading hours” on such Trading Day.

(v) “**Subject Entity**” means any Person, Persons or Group or any Affiliate or associate of any such Person, Persons or Group.

(w) “**Trading Day**” means, as applicable, (x) with respect to all price or trading volume determinations relating to the Common Stock, any day on which the Common Stock is traded on the Principal Market, or, if the Principal Market is not the principal trading market for the Common Stock, then on the principal securities exchange or securities market on which the Common Stock is then traded, provided that “Trading Day” shall not include any day on which the Common Stock is scheduled to trade on such exchange or market for less than 4.5 hours or any day that the Common Stock is suspended from trading during the final hour of trading on such exchange or market (or if such exchange or market does not designate in advance the closing time of trading on such exchange or market, then during the hour ending at 4:00:00 p.m., New York time) unless such day is otherwise designated as a Trading Day in writing by the Holder or (y) with respect to all determinations other than price determinations relating to the Common Stock, any day on which The New York Stock Exchange (or any successor thereto) is open for trading of securities.

(x) “**VWAP**” means, for any security as of any date, the dollar volume-weighted average price for such security on the Principal Market (or, if the Principal Market is not the principal trading market for such security, then on the principal securities exchange or securities market on which such security is then traded) during the period beginning at 9:30:01 a.m., New York time, and ending at 4:00:00 p.m., New York time, as reported by Bloomberg through its “HP” function (set to weighted average) or, if the foregoing does not apply, the dollar volume-weighted average price of such security in the over-the-counter market on the electronic bulletin board for such security during the period beginning at 9:30:01 a.m., New York time, and ending at 4:00:00 p.m., New York time, as reported by Bloomberg, or, if no dollar volume-weighted average price is reported for such security by Bloomberg for such hours, the average of the highest closing bid price and the lowest closing ask price of any of the market makers for such security as reported in the “pink sheets” by OTC Markets Group Inc. (formerly Pink Sheets LLC). If the VWAP cannot be calculated for such security on such date on any of the foregoing bases, the VWAP of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved in accordance with the procedures in Section 13. All such determinations shall be appropriately adjusted for any share dividend, share split, share combination, recapitalization or other similar transaction during such period.

*(Signature Page Follows)*

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IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

**BULLFROG AI HOLDINGS, INC.**

By: \_\_\_\_\_  
Vininder Singh  
Chief Executive Officer

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**EXHIBIT A**

**NOTICE OF EXERCISE**

TO:BULLFROG AI HOLDINGS, INC.

(1) The undersigned hereby elects to purchase \_\_\_\_\_ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

- in lawful money of the United States; or
- if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 1(d), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 1(d).

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

\_\_\_\_\_

The Warrant Shares shall be delivered to the following DWAC Account Number:

[SIGNATURE OF HOLDER]

Name of Investing Entity: \_\_\_\_\_

Signature of Authorized Signatory of Investing Entity: \_\_\_\_\_

Name of Authorized Signatory: \_\_\_\_\_

Title of Authorized Signatory: \_\_\_\_\_

**NOTICE OF EXERCISE**

**TO BE EXECUTED BY THE REGISTERED HOLDER TO EXERCISE THIS  
WARRANT TO PURCHASE COMMON STOCK**

Date: \_\_\_\_\_, 20\_\_

TO: BULLFROG AI HOLDINGS, INC.

The undersigned holder hereby exercises the right to purchase \_\_\_\_\_ shares of Common Stock ("**Warrant Shares**") of Bullfrog AI Holdings, Inc., a Nevada corporation (the "**Company**"), evidenced by Warrant to Purchase Common Stock No. \_\_\_\_\_ (the "**Warrant**"). Capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Warrant.

1. Form of Exercise Price. The Holder intends that payment of the Aggregate Exercise Price shall be made as:

\_\_\_\_\_ a "Cash Exercise" with respect to \_\_\_\_\_ Warrant Shares; and/or

\_\_\_\_\_ a "Cashless Exercise" with respect to \_\_\_\_\_ Warrant Shares.

In the event that the Holder has elected a Cashless Exercise with respect to some or all of the Warrant Shares to be issued pursuant hereto, the Holder hereby represents and warrants that (i) this Exercise Notice was executed by the Holder at \_\_\_\_\_ [a.m.][p.m.] on the date set forth below and (ii) if applicable, the Bid Price as of such time of execution of this Exercise Notice was \$\_\_\_\_\_.

2. Payment of Exercise Price. In the event that the Holder has elected a Cash Exercise with respect to some or all of the Warrant Shares to be issued pursuant hereto, the Holder shall pay the Aggregate Exercise Price in the sum of \$\_\_\_\_\_ to the Company in accordance with the terms of the Warrant.

3. Delivery of Warrant Shares. The Company shall deliver to Holder, or its designee or agent as specified below, \_\_\_\_\_ Warrant Shares in accordance with the terms of the Warrant. Delivery shall be made to Holder, or for its benefit, as follows:

[ ] Check here if requesting delivery as a certificate to the following name and to the following address:

Issue to: \_\_\_\_\_

[ ] Check here if requesting delivery by Deposit/Withdrawal at Custodian as follows:

DTC Participant: \_\_\_\_\_  
DTC Number: \_\_\_\_\_  
Account Number: \_\_\_\_\_

\_\_\_\_\_  
Name of Registered Holder

By: \_\_\_\_\_ Tax ID: \_\_\_\_\_  
Name: \_\_\_\_\_ Email: \_\_\_\_\_  
Title: \_\_\_\_\_ Telephone: \_\_\_\_\_  
Facsimile: \_\_\_\_\_



**EXHIBIT B**

**WIRE INSTRUCTIONS**

Bank Name:  
Account Name:  
Account Number:  
Routing Number:  
Bank Address:  
Account Address:

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**EXHIBIT C**

**ACKNOWLEDGMENT**

The Company hereby acknowledges this Exercise Notice and hereby directs \_\_\_\_\_ to issue the above indicated number of shares of Common Stock in accordance with the Warrant Agent Instructions dated \_\_\_\_\_, 20\_\_, from the Company and acknowledged and agreed to by \_\_\_\_\_.

**BULLFROG AI HOLDINGS, INC.**

By: \_\_\_\_\_  
Vininder Singh  
Chief Executive Officer

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**EXHIBIT D**

**ASSIGNMENT FORM**

*(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to purchase shares.)*

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name: \_\_\_\_\_  
(Please Print)

Address: \_\_\_\_\_  
\_\_\_\_\_  
(Please Print)

Phone Number: \_\_\_\_\_  
Email Address: \_\_\_\_\_  
Dated: \_\_\_\_\_  
Holder's Signature: \_\_\_\_\_  
Holder's Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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## [FORM OF NON-TRADEABLE WARRANT]

THE NUMBER OF SHARES OF COMMON STOCK ISSUABLE UPON EXERCISE OF THIS WARRANT MAY BE LESS THAN THE AMOUNTS SET FORTH ON THE FACE HEREOF PURSUANT TO SECTION 1(d) OF THIS WARRANT.

## BULLFROG AI HOLDINGS, INC.

## Non-tradeable Warrant To Purchase Common Stock

Warrant No.:

Date of Issuance: [ \* ], 2023 (“**Issuance Date**”)

Bullfrog AI Holdings, Inc., a Nevada corporation (the “**Company**”), hereby certifies that, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, [ \* ], the registered holder hereof or its permitted assigns (the “**Holder**”), is entitled, subject to the terms set forth below, to purchase from the Company, at the Exercise Price (as defined below) then in effect, upon exercise of this Warrant to Purchase shares of Common Stock (including any Warrants to Purchase shares of Common Stock issued in exchange, transfer or replacement hereof, the “**Warrant**”), at any time or times on or after the Issuance Date, but not after 11:59 p.m., New York time, on the Expiration Date (as defined below), [ \* ] (subject to adjustment as provided herein) fully paid and non-assessable shares of Common Stock (as defined below) (the “**Warrant Shares**”, and such number of Warrant Shares, the “**Warrant Number**”). Except as otherwise defined herein, capitalized terms in this Warrant shall have the meanings set forth in Section 17. This Warrant is one of the Non-tradeable Warrants to Purchase Common Stock (the “**Unregistered Warrants**”) issued pursuant to (i) the first paragraph of that certain Underwriting Agreement, dated as of [ \* ], 2023 (the “**Offering Date**”), by and among the Company and the underwriter(s) referred to therein, as amended from time to time (the “**Underwriting Agreement**”) and (ii) the Company’s Registration Statement on Form S-1 (File number 333-267951) (the “**Registration Statement**”).

1. EXERCISE OF WARRANT.

(a) Mechanics of Exercise. Subject to the terms and conditions hereof (including, without limitation, the limitations set forth in Section 1(f)), this Warrant may be exercised by the Holder on any day on or after the Issuance Date (an “**Exercise Date**”), in whole or in part, by delivery (whether via facsimile, electronic mail or otherwise) of a written notice, in the form attached hereto as **Exhibit A** (the “**Exercise Notice**”), of the Holder’s election to exercise this Warrant. Within one (1) Trading Day following an exercise of this Warrant as aforesaid, the Holder shall deliver payment to the Company of an amount equal to the Exercise Price in effect on the date of such exercise multiplied by the number of Warrant Shares as to which this Warrant was so exercised (the “**Aggregate Exercise Price**”) in cash or via wire transfer of immediately available funds to the account specified by the Company in the wire instructions attached hereto as **Exhibit B** if the Holder did not notify the Company in such Exercise Notice that such exercise was made pursuant to a Cashless Exercise (as defined in Section 1(d)). The Holder shall not be required to deliver the original of this Warrant in order to effect an exercise hereunder. Execution and delivery of an Exercise Notice with respect to less than all of the Warrant Shares shall have the same effect as cancellation of the original of this Warrant and issuance of a new Warrant evidencing the right to purchase the remaining number of Warrant Shares. Execution and delivery of an Exercise Notice for all of the then-remaining Warrant Shares shall have the same effect as cancellation of the original of this Warrant after delivery of the Warrant Shares in accordance with the terms hereof. On or before the first (1st) Trading Day following the date on which the Company has received an Exercise Notice, the Company shall transmit by facsimile or electronic mail an acknowledgment of confirmation of receipt of such Exercise Notice, in the form attached hereto as **Exhibit C**, to the Holder and the Company’s Warrant Agent (the “**Warrant Agent**”), which confirmation shall constitute an instruction to the Warrant Agent to process such Exercise Notice in accordance with the terms herein. On or before the second (2nd) Trading Day following the date on which the Company has received such Exercise Notice (or such earlier date as required pursuant to the 1934 Act or other applicable law, rule or regulation for the settlement of a trade of such Warrant Shares initiated on the applicable Exercise Date), the Company shall (i) provided that the Warrant Agent is participating in The Depository Trust Company (“**DTC**”) Fast Automated Securities Transfer Program (“**FAST Program**”), upon the request of the Holder, credit such aggregate number of shares of Common Stock to which the Holder is entitled pursuant to such exercise to the Holder’s or its designee’s balance account with DTC through its Deposit/Withdrawal at Custodian system, or (ii) if the Warrant Agent is not participating in the DTC FAST Program, upon the request of the Holder, issue and deliver (via reputable overnight courier) to the address as specified in the Exercise Notice, a certificate, registered in the name of the Holder or its designee, for the number of shares of Common Stock to which the Holder shall be entitled pursuant to such exercise, which shares of Common Stock shall be freely tradeable pursuant to all applicable securities laws. Upon delivery of an Exercise Notice, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date such Warrant Shares are credited to the Holder’s DTC account or the date of delivery of the certificates evidencing such Warrant Shares (as the case may be). If this Warrant is submitted in connection with any exercise pursuant to this Section 1(a) and the number of Warrant Shares represented by this Warrant submitted for exercise is greater than the number of Warrant Shares being acquired upon an exercise and upon surrender of this Warrant to the Company by the Holder, then, at the request of the Holder, the Company shall as soon as practicable and in no event later than two (2) Business Days after any exercise and at its own expense, issue and deliver to the Holder (or its designee) a new Warrant (in accordance with Section 7(d)) representing the right to purchase the number of Warrant Shares purchasable immediately prior to such exercise under this Warrant, less the number of Warrant Shares with respect to which this Warrant is exercised. No fractional shares of Common Stock are to be issued upon the exercise of this Warrant, but rather the number of shares of Common Stock to be issued shall be rounded up to the nearest whole number. The Company shall pay any and all transfer, stamp, issuance and similar taxes, costs and expenses (including, without limitation, fees and expenses of the Warrant Agent) that may be payable with respect to the issuance and delivery of Warrant Shares upon exercise of this Warrant. Notwithstanding the foregoing, except in the case where an exercise of this Warrant is validly made pursuant to a Cashless Exercise, the Company’s failure to deliver Warrant Shares to the Holder on or prior to the later of (A) two (2) Trading Days after receipt of the applicable Exercise Notice (or such earlier date as required pursuant to the 1934 Act or other applicable law, rule or regulation for the settlement of a trade of such Warrant Shares initiated on the applicable Exercise Date) and (B) one (1) Trading Day after the Company’s receipt of the Aggregate Exercise Price (or valid notice of a Cashless Exercise) (such later date, the “**Share Delivery Date**”) shall not be deemed to be a breach of this Warrant. From the Issuance Date through and including the Expiration Date, the Company shall maintain a Warrant Agent that participates in the DTC FAST Program. Notwithstanding any other provision in this Agreement, the Holder may elect, at its sole discretion, to receive unregistered Warrant Shares issued in response to an Exercise Notice instead of Warrant Shares (i) registered pursuant to the Registration Statement or any other registration statement or (ii) issued pursuant to Section 1(c).

(b) Exercise Price. For purposes of this Warrant, “**Exercise Price**” means \$8.125 subject to adjustment as provided herein.

(c) Company’s Failure to Timely Deliver Securities. If the Company shall fail, for any reason or for no reason, on or prior to the Share Delivery Date, either (I) if the Warrant Agent is not participating in the DTC FAST Program, to issue and deliver to the Holder (or its designee) a certificate for the number of Warrant Shares to which the Holder is entitled and register such Warrant Shares on the Company’s share register or, if the Warrant Agent is participating in the DTC FAST Program, to credit the balance account of the Holder or the Holder’s designee with DTC for such number of Warrant Shares to which the Holder is entitled upon the Holder’s exercise of this Warrant (as the case may be) or (II) if the Registration Statement (or prospectus contained therein) covering the issuance of the Warrant Shares that are the subject of the Exercise Notice (the “**Unavailable Warrant Shares**”) is not available for the issuance of such Unavailable Warrant Shares and the Company fails to promptly (x) so notify the Holder and (y) deliver the Warrant Shares electronically without any restrictive legend by crediting such aggregate number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the Holder’s or its designee’s balance account with DTC through its Deposit/Withdrawal At Custodian system (the event described in the immediately foregoing clause (II) is hereinafter referred to as a “**Notice Failure**” and together with the event described in clause (I) above, a “**Delivery Failure**”), the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Warrant Shares subject to such exercise (based on the VWAP of the Common Stock on the date of the applicable Exercise Notice), \$10 per Trading Day (increasing to \$20 per Trading Day on the fifth (5<sup>th</sup>) Trading Day after such liquidated damages begin to accrue) for each Trading Day after such Warrant Share Delivery Date until such Warrant Shares are delivered or Holder rescinds such exercise, and if on or after such Share Delivery Date the Holder purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by the Holder of all or any portion of the number of shares of Common Stock issuable upon such exercise that the Holder is entitled to receive from the Company (a “**Buy-In**”), then, in addition to all other remedies available to

the Holder, the Company shall, within two (2) Business Days after the Holder's request and in the Holder's discretion, either (i) as an indemnity for loss hereunder, pay cash to the Holder in an amount equal to the Holder's total purchase price (including brokerage commissions and other out-of-pocket expenses, if any) for the shares of Common Stock so purchased (including, without limitation, by any other Person in respect, or on behalf, of the Holder) (the "**Buy-In Price**"), at which point the Company's obligation to so issue and deliver such certificate (and to issue such shares of Common Stock) or credit the balance account of such Holder or such Holder's designee, as applicable, with DTC for the number of Warrant Shares to which the Holder is entitled upon the Holder's exercise hereunder (as the case may be) (and to issue such Warrant Shares) shall terminate, or (ii) promptly honor its obligation to so issue and deliver to the Holder a certificate or certificates representing such Warrant Shares or credit the balance account of such Holder or such Holder's designee, as applicable, with DTC for the number of Warrant Shares to which the Holder is entitled upon the Holder's exercise hereunder (as the case may be) and, as an indemnity for loss hereunder, pay cash to the Holder in an amount equal to the excess (if any) of the Holder's total purchase price (including brokerage commissions and other out-of-pocket expenses, if any) for the shares of Common Stock so purchased (including, without limitation, by any other Person in respect, or on behalf, of the Holder) (the "**Buy-In Price**") over the product of (A) such number of Warrant Shares multiplied by (B) the lowest Closing Sale Price of the shares of Common Stock on any Trading Day during the period commencing on the date of the applicable Exercise Notice and ending on the date of such issuance and payment under this clause (ii) (the "**Buy-In Payment Amount**"). Nothing shall limit the Holder's right to pursue any other remedies available to it hereunder, at law or in equity, including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver certificates representing shares of Common Stock (or to electronically deliver such shares of Common Stock) upon the exercise of this Warrant as required pursuant to the terms hereof. While this Warrant is outstanding, the Company shall cause its Warrant Agent to participate in the DTC FAST Program. In addition to the foregoing rights, (i) if the Company fails to deliver the applicable number of Warrant Shares upon an exercise pursuant to Section 1 by the applicable Share Delivery Date, then the Holder shall have the right to rescind such exercise in whole or in part and retain and/or have the Company return, as the case may be, any portion of this Warrant that has not been exercised pursuant to such Exercise Notice; provided that the rescission of an exercise shall not affect the Company's obligation to make any payments that have accrued prior to the date of such notice pursuant to this Section 1(c) or otherwise except with respect to any returned portion of an exercise under this subclause (i), and (ii) if a registration statement (which may be the Registration Statement) covering the issuance or resale of the Warrant Shares that are subject to an Exercise Notice is not available for the issuance or resale, as applicable, of such Exercise Notice Warrant Shares and the Holder has submitted an Exercise Notice prior to receiving notice of the non-availability of such registration statement and the Company has not already delivered the Warrant Shares underlying such Exercise Notice electronically without any restrictive legend by crediting such aggregate number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the Holder's or its designee's balance account with DTC through its Deposit / Withdrawal At Custodian system, the Holder shall have the option, by delivery of notice to the Company, to (x) rescind such Exercise Notice in whole or in part and retain or have returned, as the case may be, any portion of this Warrant that has not been exercised pursuant to such Exercise Notice; provided that the rescission of an Exercise Notice shall not affect the Company's obligation to make any payments that have accrued prior to the date of such notice pursuant to this Section 1(c) or otherwise, and/or (y) switch some or all of such Exercise Notice from a cash exercise to a Cashless Exercise.

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(d) **Cashless Exercise.** Notwithstanding anything contained herein to the contrary (other than Section 1(f) below), if at the time of exercise hereof the Registration Statement is not effective (or the prospectus contained therein is not available for use) for the issuance of all of the Warrant Shares, then the Holder may, in its sole discretion, exercise this Warrant in whole or in part and, in lieu of making the cash payment otherwise contemplated to be made to the Company upon such exercise in payment of the Aggregate Exercise Price, elect instead to receive upon such exercise the "Net Number" of Warrant Shares determined according to the following formula (a "**Cashless Exercise**"):

$$\text{Net Number} = \frac{[(A-B) \times (X)]}{A}$$

For purposes of the foregoing formula:

A= As applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Exercise Notice if such Exercise Notice is (1) both executed and delivered pursuant to Section 1 hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 1 hereof on a Trading Day prior to the opening of "regular trading hours" (as defined in Rule 600(b)(68) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) at the option of the Holder, either (y) the VWAP on the Trading Day immediately preceding the date of the applicable Exercise Notice or (z) the Bid Price of the Common Stock on the principal Trading Market as reported by Bloomberg L.P. as of the time of the Holder's execution of the applicable Exercise Notice if such Exercise Notice is executed during "regular trading hours" on a Trading Day and is delivered within two (2) hours thereafter (including until two (2) hours after the close of "regular trading hours" on a Trading Day) pursuant to Section 1 hereof, or (iii) the VWAP on the date of the applicable Exercise Notice if the date of such Exercise Notice is a Trading Day and such Exercise Notice is both executed and delivered pursuant to Section 1 hereof after the close of "regular trading hours" on such Trading Day.

B= The Exercise Price then in effect for the applicable Warrant Shares at the time of such exercise.

X= The number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

For purposes of Rule 144(d) promulgated under the 1933 Act, as in effect on the Initial Exercise Date, it is intended that the Warrant Shares issued in a Cashless Exercise shall be deemed to have been acquired by the Holder, and the holding period for the Warrant Shares shall be deemed to have commenced, on the date this Warrant was originally issued pursuant to the Underwriting Agreement. Notwithstanding anything herein to the contrary, on the Expiration Date, this Warrant shall be automatically exercised via cashless exercise pursuant to this Section 1(d).

(e) **Disputes.** In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the number of Warrant Shares to be issued pursuant to the terms hereof, the Company shall promptly issue to the Holder the number of Warrant Shares that are not disputed and resolve such dispute in accordance with Section 13.

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(f) **Limitations on Exercises.** The Company shall not effect the exercise of any portion of this Warrant, and the Holder shall not have the right to exercise any portion of this Warrant, pursuant to the terms and conditions of this Warrant and any such exercise shall be null and void and treated as if never made, to the extent that after giving effect to such exercise, the Holder together with the other Attribution Parties collectively would beneficially own in excess of 4.99% (the "**Maximum Percentage**") of the shares of Common Stock outstanding immediately after giving effect to such exercise. For purposes of the foregoing sentence, the aggregate number of shares of Common Stock beneficially owned by the Holder and the other Attribution Parties shall include the number of shares of Common Stock held by the Holder and all other Attribution Parties plus the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which the determination of such sentence is being made, but shall exclude shares of Common Stock which would be issuable upon (A) exercise of the remaining, unexercised portion of this Warrant beneficially owned by the Holder or any of the other Attribution Parties and (B) exercise or conversion of the unexercised or unconverted portion of any other securities of the Company (including, without limitation, any convertible notes or convertible preferred shares or warrants, including other Unregistered Warrants) beneficially owned by the Holder or any other Attribution Party subject to a limitation on conversion or exercise analogous to the limitation contained in this Section 1(f). For purposes of this Section 1(f), beneficial ownership shall be calculated in accordance with Section 13(d) of the 1934 Act. For purposes of determining the number of outstanding shares of Common Stock the Holder may acquire upon the exercise of this Warrant without exceeding the Maximum Percentage, the Holder may rely on the number of outstanding shares of Common Stock as reflected in (x) the Company's most recent Annual Report on Form 10-K, Quarterly Report on Form 10-Q, Current Report on Form 8-K or other public filing with the SEC, as the case may be, (y) a more recent public announcement by the Company or (z) any other written notice by the Company or the Warrant Agent, if any, setting forth the number of shares of Common Stock outstanding (the "**Reported Outstanding Share Number**"). If the Company receives an Exercise Notice from the Holder at a time when the actual number of outstanding shares of Common Stock is less than the Reported Outstanding Share Number, the Company shall (i) notify the Holder in writing of the number of shares of Common Stock

then outstanding and, to the extent that such Exercise Notice would otherwise cause the Holder's beneficial ownership, as determined pursuant to this Section 1(f), to exceed the Maximum Percentage, the Holder must notify the Company of a reduced number of Warrant Shares to be acquired pursuant to such Exercise Notice (the number of shares by which such purchase is reduced, the "**Reduction Shares**") and (ii) as soon as reasonably practicable, the Company shall return to the Holder any exercise price paid by the Holder for the Reduction Shares. For any reason at any time, upon the written or oral request of the Holder, the Company shall within one (1) Business Day confirm orally and in writing or by electronic mail to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder and any other Attribution Party since the date as of which the Reported Outstanding Share Number was reported. In the event that the issuance of shares of Common Stock to the Holder upon exercise of this Warrant results in the Holder and the other Attribution Parties being deemed to beneficially own, in the aggregate, more than the Maximum Percentage of the number of outstanding shares of Common Stock (as determined under Section 13(d) of the 1934 Act), the number of shares so issued by which the Holder's and the other Attribution Parties' aggregate beneficial ownership exceeds the Maximum Percentage (the "**Excess Shares**") shall be deemed null and void and shall be cancelled ab initio, and the Holder shall not have the power to vote or to transfer the Excess Shares. As soon as reasonably practicable after the issuance of the Excess Shares has been deemed null and void, the Company shall return to the Holder the exercise price paid by the Holder for the Excess Shares. Upon delivery of a written notice to the Company, the Holder may from time to time increase (with such increase not effective until the sixty-first (61<sup>st</sup>) day after delivery of such notice) or decrease the Maximum Percentage to any other percentage not in excess of 9.99% as specified in such notice; provided that (i) any such increase in the Maximum Percentage will not be effective until the sixty-first (61<sup>st</sup>) day after such notice is delivered to the Company and (ii) any such increase or decrease will apply only to the Holder and the other Attribution Parties and not to any other holder of Unregistered Warrants that is not an Attribution Party of the Holder. For purposes of clarity, the shares of Common Stock issuable pursuant to the terms of this Warrant in excess of the Maximum Percentage shall not be deemed to be beneficially owned by the Holder for any purpose including for purposes of Section 13(d) or Rule 16a-1(a)(1) of the 1934 Act. No prior inability to exercise this Warrant pursuant to this paragraph shall have any effect on the applicability of the provisions of this paragraph with respect to any subsequent determination of exercisability. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 1(f) to the extent necessary to correct this paragraph or any portion of this paragraph which may be defective or inconsistent with the intended beneficial ownership limitation contained in this Section 1(f) or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitation contained in this paragraph may not be waived and shall apply to a successor holder of this Warrant.

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(g) Reservation of Shares.

(i) Required Reserve Amount. So long as this Warrant remains outstanding, the Company shall at all times keep reserved for issuance under this Warrant a number of shares of Common Stock at least equal to 100% of the maximum number of shares of Common Stock as shall be necessary to satisfy the Company's obligation to issue shares of Common Stock under the Unregistered Warrants then outstanding (without regard to any limitations on exercise) (the "**Required Reserve Amount**"); provided that at no time shall the number of shares of Common Stock reserved pursuant to this Section 1(g)(i) be reduced other than proportionally in connection with any exercise of Unregistered Warrants or such other event covered by Section 2(a) below. The Required Reserve Amount (including, without limitation, each increase in the number of shares so reserved) shall be allocated pro rata among the holders of the Unregistered Warrants based on number of shares of Common Stock issuable upon exercise of Unregistered Warrants held by each holder on the Issuance Date (without regard to any limitations on exercise) or increase in the number of reserved shares, as the case may be (the "**Authorized Share Allocation**"). In the event that a holder shall sell or otherwise transfer any of such holder's Unregistered Warrants, each transferee shall be allocated a pro rata portion of such holder's Authorized Share Allocation. Any shares of Common Stock reserved and allocated to any Person which ceases to hold any Unregistered Warrants shall be allocated to the remaining holders of Unregistered Warrants, pro rata based on the number of shares of Common Stock issuable upon exercise of the Unregistered Warrants then held by such holders (without regard to any limitations on exercise).

(ii) Insufficient Authorized Shares. If, notwithstanding Section 1(g)(i) above, and not in limitation thereof, at any time while any of the Unregistered Warrants remain outstanding, the Company does not have a sufficient number of authorized and unreserved shares of Common Stock to satisfy its obligation to reserve the Required Reserve Amount (an "**Authorized Share Failure**"), then the Company shall immediately take all action necessary to increase the Company's authorized shares of Common Stock to an amount sufficient to allow the Company to reserve the Required Reserve Amount for all the Unregistered Warrants then outstanding. Without limiting the generality of the foregoing sentence, as soon as practicable after the date of the occurrence of an Authorized Share Failure, but in no event later than sixty (60) days after the occurrence of such Authorized Share Failure, the Company shall hold a meeting of its shareholders for the approval of an increase in the number of authorized shares of Common Stock. In connection with such meeting, the Company shall provide each shareholder with a proxy statement and shall use its best efforts to solicit its shareholders' approval of such increase in authorized shares of Common Stock and to cause its board of directors to recommend to the shareholders that they approve such proposal. In the event that the Company is prohibited from issuing shares of Common Stock upon an exercise of this Warrant due to the failure by the Company to have sufficient shares of Common Stock available out of the authorized but unissued shares of Common Stock (such unavailable number of Common Shares, the "**Authorization Failure Shares**"), in lieu of delivering such Authorization Failure Shares to the Holder, the Company shall pay cash in exchange for the cancellation of such portion of this Warrant exercisable into such Authorization Failure Shares at a price equal to the sum of (i) the product of (x) such number of Authorization Failure Shares and (y) the greatest Closing Sale Price of the Common Stock on any Trading Day during the period commencing on the date the Holder delivers the applicable Exercise Notice with respect to such Authorization Failure Shares to the Company and ending on the date of such issuance and payment under this Section 1(f); and (ii) to the extent the Holder purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by the Holder of Authorization Failure Shares, any Buy-In Payment Amount, brokerage commissions and other out-of-pocket expenses, if any, of the Holder incurred in connection therewith.

(h) Warrant Agent Agreement. If this Warrant is held in global form through DTC (or any successor depository), this Warrant is issued subject to the Warrant Agent Agreement, dated [ \* ], 2023 by and between the Company and VStock Transfer, LLC (the "**Warrant Agent Agreement**"). To the extent any provision of this Warrant conflicts with the express provisions of the Warrant Agent Agreement, the provisions of this Warrant shall govern and be controlling.

2. ADJUSTMENT OF EXERCISE PRICE AND NUMBER OF WARRANT SHARES. The Exercise Price and number of Warrant Shares issuable upon exercise of this Warrant are subject to adjustment from time to time as set forth in this Section 2.

(a) Share Dividends and Splits. Without limiting any provision of Section 4, if the Company, at any time on or after the Offering Date, (i) pays a share dividend on one or more classes of its then outstanding shares of Common Stock or otherwise makes a distribution on any class of capital shares that is payable in shares of Common Stock, (ii) subdivides (by any share split, share dividend, recapitalization or otherwise) one or more classes of its then outstanding shares of Common Stock into a larger number of shares or (iii) combines (by combination, reverse share split or otherwise) one or more classes of its then outstanding shares of Common Stock into a smaller number of shares, then in each such case the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event. Any adjustment made pursuant to clause (i) of this paragraph shall become effective immediately after the record date for the determination of shareholders entitled to receive such dividend or distribution, and any adjustment pursuant to clause (ii) or (iii) of this paragraph shall become effective immediately after the effective date of such subdivision or combination.

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(b) Number of Warrant Shares. Simultaneously with any adjustment to the Exercise Price pursuant to this Section 2, the number of Warrant Shares that may be purchased upon exercise of this Warrant shall be increased or decreased proportionately, so that after such adjustment the aggregate Exercise Price payable hereunder for the adjusted number of Warrant Shares shall be the same as the aggregate Exercise Price in effect immediately prior to such adjustment (without regard to any limitations on exercise contained herein).

(c) Other Events. In the event that the Company, or any subsidiary of the Company (a "**Subsidiary**"), shall take any action to which the provisions hereof are not

strictly applicable, or, if applicable, would not operate to protect the Holder from dilution or if any event occurs of the type contemplated by the provisions of this Section 2 but not expressly provided for by such provisions (including, without limitation, the granting of share appreciation rights, phantom share rights or other rights with equity features), then the Company's board of directors shall in good faith determine and implement an appropriate adjustment in the Exercise Price and the number of Warrant Shares (if applicable) so as to protect the rights of the Holder, provided that no such adjustment pursuant to this Section 2(c) will increase the Exercise Price or decrease the number of Warrant Shares as otherwise determined pursuant to this Section 2, provided further that if the Holder does not accept such adjustments as appropriately protecting its interests hereunder against such dilution, then the Company's board of directors and the Holder shall agree, in good faith, upon an independent investment bank of nationally recognized standing to make such appropriate adjustments, whose determination shall be final and binding absent manifest error and whose fees and expenses shall be borne by the Company.

(d) Calculations. All calculations under this Section 2 shall be made by rounding to the nearest cent or the nearest 1/100th of a share, as applicable. The number of shares of Common Stock outstanding at any given time shall not include shares owned or held by or for the account of the Company, and the disposition of any such shares shall be considered an issuance or sale of shares of Common Stock.

3. RIGHTS UPON DISTRIBUTION OF ASSETS. In addition to any adjustments pursuant to Section 2 above, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to holders of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, shares or other securities, property, options, evidence of indebtedness or any other assets by way of a dividend, spin off, reclassification, corporate rearrangement, plan of arrangement or other similar transaction) (a "**Distribution**"), at any time after the issuance of this Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations or restrictions on exercise of this Warrant, including without limitation, the Maximum Percentage) immediately before the date on which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of Common Stock are to be determined for the participation in such Distribution (provided, however, that to the extent that the Holder's right to participate in any such Distribution would result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, then the Holder shall not be entitled to participate in such Distribution to the extent of the Maximum Percentage (and shall not be entitled to beneficial ownership of such shares of Common Stock as a result of such Distribution (and beneficial ownership) to the extent of any such excess) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time or times, if ever, as its right thereto would not result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, at which time or times the Holder shall be granted such Distribution (and any Distributions declared or made on such initial Distribution or on any subsequent Distribution held similarly in abeyance) to the same extent as if there had been no such limitation).

#### 4. PURCHASE RIGHTS; FUNDAMENTAL TRANSACTIONS.

(a) Purchase Rights. In addition to any adjustments pursuant to Section 2 above, if at any time the Company grants, issues or sells any Options, Convertible Securities or rights to purchase shares, warrants, securities or other property pro rata to the record holders of any class of Common Stock (the "**Purchase Rights**"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations or restrictions on exercise of this Warrant, including without limitation, the Maximum Percentage) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of Common Stock are to be determined for the grant, issuance or sale of such Purchase Rights (provided, however, that to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, then the Holder shall not be entitled to participate in such Purchase Right to the extent of the Maximum Percentage (and shall not be entitled to beneficial ownership of such shares of Common Stock as a result of such Purchase Right (and beneficial ownership) to the extent of any such excess) and such Purchase Right to such extent shall be held in abeyance for the benefit of the Holder until such time or times, if ever, as its right thereto would not result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, at which time or times the Holder shall be granted such right (and any Purchase Right granted, issued or sold on such initial Purchase Right or on any subsequent Purchase Right held similarly in abeyance) to the same extent as if there had been no such limitation).

(b) Fundamental Transactions. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company or any Subsidiary, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding shares of Common Stock, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the shares of Common Stock are effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, merger or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires more than 50% of the outstanding shares of Common Stock (not including any shares of Common Stock held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock or share purchase agreement or other business combination) (each a "**Fundamental Transaction**"), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction, at the option of the Holder (without regard to any limitation in Section 1(f) on the exercise of this Warrant), the number of shares of common stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (the "**Alternate Consideration**") receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Warrant is exercisable immediately prior to such Fundamental Transaction (without regard to any limitation in Section 1(f) on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. Notwithstanding anything to the contrary, in the event of a Fundamental Transaction, the Company or any Successor Entity (as defined below) shall, at the Holder's option, exercisable at any time concurrently with, or within thirty (30) days after, the consummation of the Fundamental Transaction (or, if later, the date of the public announcement of the applicable Fundamental Transaction), purchase this Warrant from the Holder by paying to the Holder an amount of cash equal to the Black Scholes Value (as defined below) of the remaining unexercised portion of this Warrant on the date of the consummation of such Fundamental Transaction; provided, however, that, if the Fundamental Transaction is not within the Company's control, including not approved by the Company's Board of Directors, Holder shall only be entitled to receive from the Company or any Successor Entity the same type or form of consideration (and in the same proportion), at the Black Scholes Value of the unexercised portion of this Warrant, that is being offered and paid to the holders of Common Stock of the Company in connection with the Fundamental Transaction, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of Common Stock are given the choice to receive from among alternative forms of consideration in connection with the Fundamental Transaction; provided, further, that if holders of Common Stock of the Company are not offered or paid any consideration in such Fundamental Transaction, such holders of Common Stock will be deemed to have received common stock of the Successor Entity (which Entity may be the Company following such Fundamental Transaction) in such Fundamental Transaction. "**Black Scholes Value**" means the value of this Warrant based on the Black Scholes Option Pricing Model obtained from the "OV" function on Bloomberg, L.P. ("**Bloomberg**") determined as of the day of consummation of the applicable Fundamental Transaction for pricing purposes and reflecting (A) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Expiration Date, (B) an expected volatility equal to the greater of 100% and the 100 day volatility obtained from the HVT function on Bloomberg (determined utilizing a 365 day annualization factor) as of the Trading Day immediately following the public announcement of the applicable Fundamental Transaction, (C) the underlying price per share used in such calculation shall be the greater of (i) the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in such Fundamental Transaction and (ii) the highest VWAP during the period beginning on the Trading Day immediately preceding the announcement of the applicable Fundamental Transaction (or the consummation of the applicable Fundamental Transaction, if earlier) and ending on the Trading Day of the Holder's request pursuant to this Section 4(b) and (D) a remaining option time equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Expiration Date

and (E) a zero cost of borrow. The payment of the Black Scholes Value will be made by wire transfer of immediately available funds within five Business Days of the Holder's election (or, if later, on the effective date of the Fundamental Transaction). The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the "**Successor Entity**") to assume in writing all of the obligations of the Company under this Warrant and the other transaction documents in accordance with the provisions of this Section 4(b) pursuant to written agreements in form and substance reasonably satisfactory to the Holder and approved by the Holder (without unreasonable delay) prior to such Fundamental Transaction and shall, at the option of the Holder, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for (so that from and after the date of such Fundamental Transaction, the provisions of this Warrant and the other transaction documents referring to the "Company" shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Warrant and the other transaction documents with the same effect as if such Successor Entity had been named as the Company herein.

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(c) [RESERVED.]

(d) Application. The provisions of this Section 4 shall apply similarly and equally to successive Fundamental Transactions and Corporate Events and shall be applied as if this Warrant (and any such subsequent warrants) were fully exercisable and without regard to any limitations on the exercise of this Warrant (provided that the Holder shall continue to be entitled to the benefit of the Maximum Percentage, applied however with respect to capital shares registered under the 1934 Act and thereafter receivable upon exercise of this Warrant (or any such other warrant)).

5. NONCIRCUMVENTION. The Company hereby covenants and agrees that the Company will not, by amendment of its certificate of incorporation or other organizational documents or through any reorganization, transfer of assets, consolidation, merger, amalgamation, plan of arrangement, dissolution, issuance or sale of securities, or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, and will at all times in good faith carry out all the provisions of this Warrant and take all action as may be required to protect the rights of the Holder. Without limiting the generality of the foregoing, the Company (a) shall not increase the par value of any shares of Common Stock receivable upon the exercise of this Warrant above the Exercise Price then in effect, and (b) shall take all such actions as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and non-assessable shares of Common Stock upon the exercise of this Warrant, which shares of Common Stock shall be freely tradeable pursuant to all applicable securities laws. Notwithstanding anything herein to the contrary, if after the sixty (60) calendar day anniversary of the Issuance Date, the Holder is not permitted to exercise this Warrant in full for any reason (other than pursuant to restrictions set forth in Section 1(f) hereof), the Company shall use its best efforts to promptly remedy such failure, including, without limitation, obtaining such consents or approvals as necessary to permit such exercise into shares of Common Stock.

6. WARRANT HOLDER NOT DEEMED A SHAREHOLDER. Except as otherwise specifically provided herein, the Holder, solely in its capacity as a holder of this Warrant, shall not be entitled to vote or receive dividends or be deemed the holder of share capital of the Company for any purpose, nor shall anything contained in this Warrant be construed to confer upon the Holder, solely in its capacity as the Holder of this Warrant, any of the rights of a shareholder of the Company or any right to vote, give or withhold consent to any corporate action (whether any reorganization, issue of shares, reclassification of shares, consolidation, merger, conveyance or otherwise), receive notice of meetings, receive dividends or subscription rights, or otherwise, prior to the issuance to the Holder of the Warrant Shares which it is then entitled to receive upon the due exercise of this Warrant. In addition, nothing contained in this Warrant shall be construed as imposing any liabilities on the Holder to purchase any securities (upon exercise of this Warrant or otherwise) or as a shareholder of the Company, whether such liabilities are asserted by the Company or by creditors of the Company. Notwithstanding this Section 6, the Company shall provide the Holder with copies of the same notices and other information given to the shareholders of the Company generally, contemporaneously with the giving thereof to the shareholders.

#### 7. REISSUANCE OF WARRANTS.

(a) Transfer of Warrant. If this Warrant is to be transferred, the Holder shall surrender this Warrant to the Company, together with a properly completed and duly executed written assignment of this Warrant substantially in the form attached hereto as **Exhibit D**, whereupon the Company will forthwith issue and deliver upon the order of the Holder a new Warrant (in accordance with Section 7(d)), representing the right to purchase the number of Warrant Shares being transferred by the Holder and, if less than the total number of Warrant Shares then underlying this Warrant is being transferred, a new Warrant (in accordance with Section 7(d)) to the Holder representing the right to purchase the number of Warrant Shares not being transferred.

(b) Lost, Stolen or Mutilated Warrant. Upon receipt by the Company of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant (as to which a written certification and the indemnification contemplated below shall suffice as such evidence), and, in the case of loss, theft or destruction, of any indemnification undertaking by the Holder to the Company in customary and reasonable form and, in the case of mutilation, upon surrender and cancellation of this Warrant, the Company shall execute and deliver to the Holder a new Warrant (in accordance with Section 7(d)) representing the right to purchase the Warrant Shares then underlying this Warrant.

(c) Exchangeable for Multiple Warrants. This Warrant is exchangeable, upon the surrender hereof by the Holder at the principal office of the Company, for a new Warrant or Warrants (in accordance with Section 7(d)) representing in the aggregate the right to purchase the number of Warrant Shares then underlying this Warrant, and each such new Warrant will represent the right to purchase such portion of such Warrant Shares as is designated by the Holder at the time of such surrender; provided, however, no warrants for fractional shares of Common Stock shall be given.

(d) Issuance of New Warrants. Whenever the Company is required to issue a new Warrant pursuant to the terms of this Warrant, such new Warrant (i) shall be of like tenor with this Warrant, (ii) shall represent, as indicated on the face of such new Warrant, the right to purchase the Warrant Shares then underlying this Warrant (or in the case of a new Warrant being issued pursuant to Section 7(a) or Section 7(c), the Warrant Shares designated by the Holder which, when added to the number of shares of Common Stock underlying the other new Warrants issued in connection with such issuance, does not exceed the number of Warrant Shares then underlying this Warrant), (iii) shall have an issuance date, as indicated on the face of such new Warrant which is the same as the Issuance Date, and (iv) shall have the same rights and conditions as this Warrant.

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8. NOTICES. (a) General. Whenever notice is required to be given under this Warrant, unless otherwise provided herein, such notice shall be given in writing, (i) if delivered (a) from within the domestic United States, by first-class registered or certified airmail, or nationally recognized overnight express courier, postage prepaid, electronic mail or by facsimile or (b) from outside the United States, by International Federal Express, electronic mail or facsimile, and (ii) will be deemed given (A) if delivered by first-class registered or certified mail domestic, three (3) Business Days after so mailed, (B) if delivered by nationally recognized overnight carrier, one (1) Business Day after so mailed, (C) if delivered by International Federal Express, two (2) Business Days after so mailed and (D) if delivered by electronic mail, when sent (provided that such sent email is kept on file (whether electronically or otherwise) by the sending party and the sending party does not receive an automatically generated message from the recipient's email server that such e-mail could not be delivered to such recipient) and (E) if delivered by facsimile, upon electronic confirmation of receipt of such facsimile, and will be delivered and addressed as follows:

(i) if to the Company, to:

[\*]

with a copy (which shall not constitute notice) to:

[\*]

(ii) if to the Holder, at such address or other contact information delivered by the Holder to Company or as is on the books and records of the Company.

(b) Required Notices. The Company shall provide the Holder with prompt written notice of all actions taken pursuant to this Warrant (other than the issuance of shares of Common Stock upon exercise in accordance with the terms hereof), including in reasonable detail a description of such action and the reason therefor. Without limiting the generality of the foregoing, the Company will give written notice to the Holder (i) immediately upon each adjustment of the Exercise Price and the number of Warrant Shares, setting forth in reasonable detail, and certifying, the calculation of such adjustment(s), (ii) at least ten (10) Trading Days prior to the date on which the Company closes its books or takes a record (A) with respect to any dividend or distribution upon the Common Stock, (B) with respect to any grants, issuances or sales of any Options, Convertible Securities or rights to purchase shares, warrants, securities or other property to holders of Common Stock or (C) for determining rights to vote with respect to any Fundamental Transaction, dissolution or liquidation, provided in each case that such information shall be made known to the public prior to or in conjunction with such notice being provided to the Holder, and (iii) at least ten (10) Trading Days prior to the consummation of any Fundamental Transaction. To the extent that any notice provided hereunder constitutes, or contains, material, non-public information regarding the Company or any of its Subsidiaries, the Company shall simultaneously file such notice with the SEC pursuant to a Current Report on Form 8-K. It is expressly understood and agreed that the time of execution specified by the Holder in each Exercise Notice shall be definitive and may not be disputed or challenged by the Company.

9. AMENDMENT AND WAIVER. Except as otherwise provided herein, the provisions of this Warrant (other than Section 1(f)) may be amended and the Company may take any action herein prohibited, or omit to perform any act herein required to be performed by it, only if the Company has obtained the written consent of the Holder. No waiver shall be effective unless it is in writing and signed by an authorized representative of the waiving party.

10. SEVERABILITY. If any provision of this Warrant is prohibited by law or otherwise determined to be invalid or unenforceable by a court of competent jurisdiction, the provision that would otherwise be prohibited, invalid or unenforceable shall be deemed amended to apply to the broadest extent that it would be valid and enforceable, and the invalidity or unenforceability of such provision shall not affect the validity of the remaining provisions of this Warrant so long as this Warrant as so modified continues to express, without material change, the original intentions of the parties as to the subject matter hereof and the prohibited nature, invalidity or unenforceability of the provision(s) in question does not substantially impair the respective expectations or reciprocal obligations of the parties or the practical realization of the benefits that would otherwise be conferred upon the parties. The parties will endeavor in good faith negotiations to replace the prohibited, invalid or unenforceable provision(s) with a valid provision(s), the effect of which comes as close as possible to that of the prohibited, invalid or unenforceable provision(s).

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11. GOVERNING LAW. This Warrant shall be governed by and construed and enforced in accordance with, and all questions concerning the construction, validity, interpretation and performance of this Warrant shall be governed by, the internal laws of the State of New York, without giving effect to any choice of law or conflict of law provision or rule (whether of the State of New York or any other jurisdictions) that would cause the application of the laws of any jurisdictions other than the State of New York. The Company hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof to the Company at its principal executive office and agrees that such service shall constitute good and sufficient service of process and notice thereof. The Company hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in The City of New York, Borough of Manhattan, for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is brought in an inconvenient forum or that the venue of such suit, action or proceeding is improper. Nothing contained herein shall be deemed to limit in any way any right to serve process in any manner permitted by law. Nothing contained herein shall be deemed or operate to preclude the Holder from bringing suit or taking other legal action against the Company in any other jurisdiction to collect on the Company's obligations to the Holder, to realize on any collateral or any other security for such obligations, or to enforce a judgment or other court ruling in favor of the Holder. **THE COMPANY HEREBY IRREVOCABLY WAIVES ANY RIGHT IT MAY HAVE TO, AND AGREES NOT TO REQUEST, A JURY TRIAL FOR THE ADJUDICATION OF ANY DISPUTE HEREUNDER OR IN CONNECTION WITH OR ARISING OUT OF THIS WARRANT OR ANY TRANSACTION CONTEMPLATED HEREBY.**

12. CONSTRUCTION; HEADINGS. This Warrant shall be deemed to be jointly drafted by the Company and the Holder and shall not be construed against any Person as the drafter hereof. The headings of this Warrant are for convenience of reference and shall not form part of, or affect the interpretation of, this Warrant.

13. DISPUTE RESOLUTION.

(a) Submission to Dispute Resolution.

(i) In the case of a dispute relating to the Exercise Price, the Closing Sale Price, the Bid Price, Black Scholes Value or fair market value or the arithmetic calculation of the number of Warrant Shares (as the case may be) (including, without limitation, a dispute relating to the determination of any of the foregoing), the Company or the Holder (as the case may be) shall submit the dispute to the other party via facsimile or electronic mail (A) if by the Company, within two (2) Business Days after the occurrence of the circumstances giving rise to such dispute or (B) if by the Holder, at any time after the Holder learned of the circumstances giving rise to such dispute. If the Holder and the Company are unable to promptly resolve such dispute relating to such Exercise Price, such Closing Sale Price, such Bid Price, Black Scholes Value or such fair market value or such arithmetic calculation of the number of Warrant Shares (as the case may be), at any time after the second (2<sup>nd</sup>) Business Day following such initial notice by the Company or the Holder (as the case may be) of such dispute to the Company or the Holder (as the case may be), then the Holder may, at its sole option, select an independent, reputable investment bank to resolve such dispute.

(ii) The Holder and the Company shall each deliver to such investment bank (A) a copy of the initial dispute submission so delivered in accordance with the first sentence of this Section 13 and (B) written documentation supporting its position with respect to such dispute, in each case, no later than 5:00 p.m. (New York time) by the fifth (5<sup>th</sup>) Business Day immediately following the date on which the Holder selected such investment bank (the "Dispute Submission Deadline") (the documents referred to in the immediately preceding clauses (A) and (B) are collectively referred to herein as the "Required Dispute Documentation") (it being understood and agreed that if either the Holder or the Company fails to so deliver all of the Required Dispute Documentation by the Dispute Submission Deadline, then the party who fails to so submit all of the Required Dispute Documentation shall no longer be entitled to (and hereby waives its right to) deliver or submit any written documentation or other support to such investment bank with respect to such dispute and such investment bank shall resolve such dispute based solely on the Required Dispute Documentation that was delivered to such investment bank prior to the Dispute Submission Deadline). Unless otherwise agreed to in writing by both the Company and the Holder or otherwise requested by such investment bank, neither the Company nor the Holder shall be entitled to deliver or submit any written documentation or other support to such investment bank in connection with such dispute (other than the Required Dispute Documentation).

(iii) The Company and the Holder shall cause such investment bank to determine the resolution of such dispute and notify the Company and the Holder of such resolution no later than ten (10) Business Days immediately following the Dispute Submission Deadline. The fees and expenses of such investment bank shall be borne solely by the Company, and such investment bank's resolution of such dispute shall be final and binding upon all parties absent manifest error.

(b) Miscellaneous. The Company expressly acknowledges and agrees that (i) this Section 13 constitutes an agreement to arbitrate between the Company and the Holder (and constitutes an arbitration agreement) under the rules then in effect under § 7501, et seq. of the New York Civil Practice Law and Rules (“CPLR”) and that the Holder is authorized to apply for an order to compel arbitration pursuant to CPLR § 7503(a) in order to compel compliance with this Section 13, (ii) the terms of this Warrant shall serve as the basis for the selected investment bank’s resolution of the applicable dispute, such investment bank shall be entitled (and is hereby expressly authorized) to make all findings, determinations and the like that such investment bank determines are required to be made by such investment bank in connection with its resolution of such dispute and in resolving such dispute such investment bank shall apply such findings, determinations and the like to the terms of this Warrant, (iii) the Holder (and only the Holder), in its sole discretion, shall have the right to submit any dispute described in this Section 13 to any state or federal court sitting in The City of New York, Borough of Manhattan in lieu of utilizing the procedures set forth in this Section 13 and (iv) nothing in this Section 13 shall limit the Holder from obtaining any injunctive relief or other equitable remedies (including, without limitation, with respect to any matters described in this Section 13).

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14. REMEDIES, CHARACTERIZATION, OTHER OBLIGATIONS, BREACHES AND INJUNCTIVE RELIEF. The remedies provided in this Warrant shall be cumulative and in addition to all other remedies available under this Warrant, at law or in equity (including a decree of specific performance and/or other injunctive relief), and nothing herein shall limit the right of the Holder to pursue actual and consequential damages for any failure by the Company to comply with the terms of this Warrant. The Company covenants to the Holder that there shall be no characterization concerning this instrument other than as expressly provided herein. Amounts set forth or provided for herein with respect to payments, exercises and the like (and the computation thereof) shall be the amounts to be received by the Holder and shall not, except as expressly provided herein, be subject to any other obligation of the Company (or the performance thereof). The Company acknowledges that a breach by it of its obligations hereunder will cause irreparable harm to the Holder and that the remedy at law for any such breach may be inadequate. The Company therefore agrees that, in the event of any such breach or threatened breach, the holder of this Warrant shall be entitled, in addition to all other available remedies, to specific performance and/or temporary, preliminary and permanent injunctive or other equitable relief from any court of competent jurisdiction in any such case without the necessity of proving actual damages and without posting a bond or other security. The Company shall provide all information and documentation to the Holder that is requested by the Holder to enable the Holder to confirm the Company’s compliance with the terms and conditions of this Warrant (including, without limitation, compliance with Section 2 hereof). The issuance of shares and certificates for shares as contemplated hereby upon the exercise of this Warrant shall be made without charge to the Holder or such shares for any issuance tax or other costs in respect thereof, provided that the Company shall not be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of any certificate in a name other than the Holder or its agent on its behalf.

15. PAYMENT OF COLLECTION, ENFORCEMENT AND OTHER COSTS. If (a) this Warrant is placed in the hands of an attorney for collection or enforcement or is collected or enforced through any legal proceeding or the holder otherwise takes action to collect amounts due under this Warrant or to enforce the provisions of this Warrant or (b) there occurs any bankruptcy, reorganization, receivership of the company or other proceedings affecting company creditors’ rights and involving a claim under this Warrant, then the Company shall pay the costs incurred by the Holder for such collection, enforcement or action or in connection with such bankruptcy, reorganization, receivership or other proceeding, including, without limitation, attorneys’ fees and disbursements.

16. TRANSFER. This Warrant may be offered for sale, sold, transferred or assigned without the consent of the Company.

17. CERTAIN DEFINITIONS. For purposes of this Warrant, the following terms shall have the following meanings:

(a) “**1933 Act**” means the Securities Act of 1933, as amended, and the rules and regulations thereunder.

(b) “**1934 Act**” means the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder.

(c) “**Affiliate**” means, with respect to any Person, any other Person that directly or indirectly controls, is controlled by, or is under common control with, such Person, it being understood for purposes of this definition that “control” of a Person means the power directly or indirectly either to vote 10% or more of the shares having ordinary voting power for the election of directors of such Person or direct or cause the direction of the management and policies of such Person whether by contract or otherwise.

(d) “**Attribution Parties**” means, collectively, the following Persons and entities: (i) any investment vehicle, including, any funds, feeder funds or managed accounts, currently, or from time to time after the Issuance Date, directly or indirectly managed or advised by the Holder’s investment manager or any of its Affiliates or principals, (ii) any direct or indirect Affiliates of the Holder or any of the foregoing, (iii) any Person acting or who could be deemed to be acting as a Group together with the Holder or any of the foregoing and (iv) any other Persons whose beneficial ownership of the Company’s Common Stock would or could be aggregated with the Holder’s and the other Attribution Parties for purposes of Section 13(d) of the 1934 Act. For clarity, the purpose of the foregoing is to subject collectively the Holder and all other Attribution Parties to the Maximum Percentage.

(e) “**Bid Price**” means, for any security as of the particular time of determination, the bid price for such security on the Principal Market as reported by Bloomberg as of such time of determination, or, if the Principal Market is not the principal securities exchange or trading market for such security, the bid price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg as of such time of determination, or if the foregoing does not apply, the bid price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg as of such time of determination, or, if no bid price is reported for such security by Bloomberg as of such time of determination, the average of the bid prices of any market makers for such security as reported in the “pink sheets” by OTC Markets Group Inc. (formerly Pink Sheets LLC) as of such time of determination. If the Bid Price cannot be calculated for a security as of the particular time of determination on any of the foregoing bases, the Bid Price of such security as of such time of determination shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved in accordance with the procedures in Section 13. All such determinations shall be appropriately adjusted for any shares dividend, share split, share combination or other similar transaction during such period.

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(g) “**Bloomberg**” means Bloomberg, L.P.

(h) “**Business Day**” means any day other than Saturday, Sunday or other day on which commercial banks in The City of New York are authorized or required by law to remain closed; provided, however, for clarification, commercial banks shall not be deemed to be authorized or required by law to remain closed due to “stay at home”, “shelter-in-place”, “non-essential employee” or any other similar orders or restrictions or the closure of any physical branch locations at the direction of any governmental authority so long as the electronic funds transfer systems (including for wire transfers) of commercial banks in The City of New York generally are open for use by customers on such day.

(i) “**Closing Sale Price**” means, for any security as of any date, the last closing trade price for such security on the Principal Market, as reported by Bloomberg, or, if the Principal Market begins to operate on an extended hours basis and does not designate the closing trade price, then the last trade price of such security prior to 4:00:00 p.m., New York time, as reported by Bloomberg, or, if the Principal Market is not the principal securities exchange or trading market for such security, the last trade price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg, or if the foregoing does not apply, the last trade price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg, or, if no last trade price is reported for such security by Bloomberg, the average of the ask prices of any market makers for such security as reported in the “pink sheets” by OTC Markets Group Inc. (formerly Pink Sheets LLC). If the Closing Sale Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Closing Sale Price of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security,



then such dispute shall be resolved in accordance with the procedures in Section 13. All such determinations shall be appropriately adjusted for any share dividend, share split, share combination or other similar transaction during such period.

(j) “**Common Stock**” means (i) the Company’s common stock, par value \$0.001 per share, and (ii) any capital shares into which such common stock shall have been changed or any share capital resulting from a reclassification of such common stock.

(k) “**Convertible Securities**” means any shares or other security (other than Options) that is at any time and under any circumstances, directly or indirectly, convertible into, exercisable or exchangeable for, or which otherwise entitles the holder thereof to acquire, any Common Stock.

(l) “**Eligible Market**” means The New York Stock Exchange, the NYSE American, the Nasdaq Global Select Market, the Nasdaq Global Market, the Nasdaq Capital Market or the Principal Market.

(m) “**Expiration Date**” means the date that is the fifth (5th) anniversary of the Issuance Date or, if such date falls on a day other than a Business Day or on which trading does not take place on the Principal Market (a “**Holiday**”), the next date that is not a Holiday.

(n) Intentionally Omitted.

(o) “**Group**” means a “group” as that term is used in Section 13(d) of the 1934 Act and as defined in Rule 13d-5 thereunder.

(p) “**Options**” means any rights, warrants or options to subscribe for or purchase Common Stock or Convertible Securities.

(q) “**Parent Entity**” of a Person means an entity that, directly or indirectly, controls the applicable Person and whose common stock or equivalent equity security is quoted or listed on an Eligible Market, or, if there is more than one such Person or Parent Entity, the Person or Parent Entity with the largest public market capitalization as of the date of consummation of the Fundamental Transaction.

(r) “**Person**” means an individual, a limited liability company, a partnership, a joint venture, a corporation, a trust, an unincorporated organization, any other entity or a government or any department or agency thereof.

(s) “**Principal Market**” means the Nasdaq Capital Market.

(t) “**SEC**” means the United States Securities and Exchange Commission or the successor thereto.

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(u) “**Spot Price**” means, as applicable: (i) the Closing Sale Price of the Common Stock on the Trading Day immediately preceding the date of the applicable Exercise Notice if such Exercise Notice is (1) both executed and delivered pursuant to Section 1(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 1(a) hereof on a Trading Day prior to the opening of “regular trading hours” (as defined in Rule 600(b)(64) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) the Bid Price of the Common Stock as of the time of the Holder’s execution of the applicable Exercise Notice if such Exercise Notice is executed during “regular trading hours” on a Trading Day and is delivered within two (2) hours thereafter pursuant to Section 1(a) hereof, or (iii) the Closing Sale Price of the Common Stock on the date of the applicable Exercise Notice if the date of such Exercise Notice is a Trading Day and such Exercise Notice is both executed and delivered pursuant to Section 1(a) hereof after the close of “regular trading hours” on such Trading Day.

(v) “**Subject Entity**” means any Person, Persons or Group or any Affiliate or associate of any such Person, Persons or Group.

(w) “**Trading Day**” means, as applicable, (x) with respect to all price or trading volume determinations relating to the Common Stock, any day on which the Common Stock is traded on the Principal Market, or, if the Principal Market is not the principal trading market for the Common Stock, then on the principal securities exchange or securities market on which the Common Stock is then traded, provided that “Trading Day” shall not include any day on which the Common Stock is scheduled to trade on such exchange or market for less than 4.5 hours or any day that the Common Stock is suspended from trading during the final hour of trading on such exchange or market (or if such exchange or market does not designate in advance the closing time of trading on such exchange or market, then during the hour ending at 4:00:00 p.m., New York time) unless such day is otherwise designated as a Trading Day in writing by the Holder or (y) with respect to all determinations other than price determinations relating to the Common Stock, any day on which The New York Stock Exchange (or any successor thereto) is open for trading of securities.

(x) “**VWAP**” means, for any security as of any date, the dollar volume-weighted average price for such security on the Principal Market (or, if the Principal Market is not the principal trading market for such security, then on the principal securities exchange or securities market on which such security is then traded) during the period beginning at 9:30:01 a.m., New York time, and ending at 4:00:00 p.m., New York time, as reported by Bloomberg through its “HP” function (set to weighted average) or, if the foregoing does not apply, the dollar volume-weighted average price of such security in the over-the-counter market on the electronic bulletin board for such security during the period beginning at 9:30:01 a.m., New York time, and ending at 4:00:00 p.m., New York time, as reported by Bloomberg, or, if no dollar volume-weighted average price is reported for such security by Bloomberg for such hours, the average of the highest closing bid price and the lowest closing ask price of any of the market makers for such security as reported in the “pink sheets” by OTC Markets Group Inc. (formerly Pink Sheets LLC). If the VWAP cannot be calculated for such security on such date on any of the foregoing bases, the VWAP of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved in accordance with the procedures in Section 13. All such determinations shall be appropriately adjusted for any share dividend, share split, share combination, recapitalization or other similar transaction during such period.

*(Signature Page Follows)*

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IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

**BULLFROG AI HOLDINGS, INC.**

By: \_\_\_\_\_  
Vininder Singh  
Chief Executive Officer

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**EXHIBIT A**

**NOTICE OF EXERCISE**

TO: BULLFROG AI HOLDINGS, INC.

(1) The undersigned hereby elects to purchase \_\_\_\_\_ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

- in lawful money of the United States; or
- if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 1(d), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 1(d).

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

\_\_\_\_\_

The Warrant Shares shall be delivered to the following DWAC Account Number:

[SIGNATURE OF HOLDER]

Name of Investing Entity: \_\_\_\_\_

Signature of Authorized Signatory of Investing Entity: \_\_\_\_\_

Name of Authorized Signatory: \_\_\_\_\_

Title of Authorized Signatory: \_\_\_\_\_

**NOTICE OF EXERCISE**

**TO BE EXECUTED BY THE REGISTERED HOLDER TO EXERCISE THIS  
WARRANT TO PURCHASE COMMON STOCK**

Date: \_\_\_\_\_, 20\_\_

TO: BULLFROG AI HOLDINGS, INC.

The undersigned holder hereby exercises the right to purchase \_\_\_\_\_ shares of Common Stock (“**Warrant Shares**”) of Bullfrog AI Holdings, Inc., a Nevada corporation (the “**Company**”), evidenced by Warrant to Purchase Common Stock No. \_\_\_\_\_ (the “**Warrant**”). Capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Warrant.

1. Form of Exercise Price. The Holder intends that payment of the Aggregate Exercise Price shall be made as:

\_\_\_\_\_ a “Cash Exercise” with respect to \_\_\_\_\_ Warrant Shares; and/or

\_\_\_\_\_ a “Cashless Exercise” with respect to \_\_\_\_\_ Warrant Shares.

In the event that the Holder has elected a Cashless Exercise with respect to some or all of the Warrant Shares to be issued pursuant hereto, the Holder hereby represents and warrants that (i) this Exercise Notice was executed by the Holder at \_\_\_\_\_ [a.m.][p.m.] on the date set forth below and (ii) if applicable, the Bid Price as of such time of execution of this Exercise Notice was \$ \_\_\_\_\_.

2. Payment of Exercise Price. In the event that the Holder has elected a Cash Exercise with respect to some or all of the Warrant Shares to be issued pursuant hereto, the Holder shall pay the Aggregate Exercise Price in the sum of \$ \_\_\_\_\_ to the Company in accordance with the terms of the Warrant.

3. Delivery of Warrant Shares. The Company shall deliver to Holder, or its designee or agent as specified below, \_\_\_\_\_ Warrant Shares in accordance with the terms of the Warrant. Delivery shall be made to Holder, or for its benefit, as follows:

Check here if requesting delivery as a certificate to the following name and to the following address:

Issue to: \_\_\_\_\_  
\_\_\_\_\_

Check here if requesting delivery by Deposit/Withdrawal at Custodian as follows:

DTC Participant: \_\_\_\_\_  
DTC Number: \_\_\_\_\_  
Account Number: \_\_\_\_\_

\_\_\_\_\_  
Name of Registered Holder

By: \_\_\_\_\_ Tax ID: \_\_\_\_\_  
Name: \_\_\_\_\_ Email: \_\_\_\_\_  
Title: \_\_\_\_\_ Telephone: \_\_\_\_\_  
Facsimile: \_\_\_\_\_

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**EXHIBIT B**

**WIRE INSTRUCTIONS**

Bank Name:  
Account Name:  
Account Number:  
Routing Number:  
Bank Address:  
Account Address:

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**EXHIBIT C**

**ACKNOWLEDGMENT**

The Company hereby acknowledges this Exercise Notice and hereby directs \_\_\_\_\_ to issue the above indicated number of shares of Common Stock in accordance with the Warrant Agent Instructions dated \_\_\_\_\_, 20\_\_, from the Company and acknowledged and agreed to by \_\_\_\_\_.

**BULLFROG AI HOLDINGS, INC.**

By: \_\_\_\_\_  
Vininder Singh  
Chief Executive Officer

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**EXHIBIT D**

**ASSIGNMENT FORM**

*(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to purchase shares.)*

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name: \_\_\_\_\_  
(Please Print)

Address: \_\_\_\_\_  
\_\_\_\_\_  
(Please Print)

Phone Number: \_\_\_\_\_  
Email Address: \_\_\_\_\_  
Dated: \_\_\_\_\_

Holder's Signature: \_\_\_\_\_  
Holder's Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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January 9, 2023

Bullfrog AI Holdings, Inc.  
325 Ellington Blvd., Unit 317  
Gaithersburg, MD 20878

**Re: Bullfrog AI Holdings, Inc. S-1 Registration Statement (File No. 333-267951)**

Ladies and Gentlemen:

We refer to the above-captioned registration statement on Form S-1 (the "Registration Statement") under the Securities Act of 1933, as amended (the "Act"), filed by Bullfrog AI Holdings, Inc., a Nevada corporation (the "Company"), with the Securities and Exchange Commission.

The Registration Statement pertains to an underwritten offering (the "Offering") and relates to the issuance and sale by the Company of (i) units (the "Units") consisting of (a) one share of common stock, par value \$0.00001 (the "Shares"), (b) one tradeable warrant (a "Tradeable Warrant") exercisable for the purchase of one share of common stock, and (c) one non-tradeable warrant (a "Non-tradeable Warrant"; together with each Tradeable Warrant, the "Warrants") exercisable for the purchase of one share of common stock, and (ii) shares of common stock issuable upon exercise of the Warrants ("Warrant Shares"). We understand that the Units and Warrants are to be sold as described in the Registration Statement.

We have examined the originals, photocopies, certified copies or other evidence of such records of the Company, certificates of officers of the Company and public officials, and other documents as we have deemed relevant and necessary as a basis for the opinion hereinafter expressed. In such examination, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as certified copies or photocopies and the authenticity of the originals of such latter documents.

Based on the foregoing, and subject to the assumptions, limitations and qualifications set forth herein, we are of the opinion that:

1. the issuance and sale of the Units and Warrants, has been duly authorized by all necessary corporate action on the part of the Company and, when issued and sold in the manner described in the Registration Statement, the Units and Warrants, will be validly issued, fully paid and non-assessable; and
2. the issuance and sale of the Warrants has been duly authorized, and when issued and sold in the manner described in the Registration Statement, the Warrants will be validly issued and will constitute the valid and binding obligations of the Company in accordance with the terms thereof; and the Warrant Shares have been duly authorized and, when issued in the manner described in the Registration Statement and in accordance with the terms and conditions of the Warrants, respectively, (including the due payment of any exercise price therefor specified in the Warrants) the Warrant Shares will be validly issued, fully paid and non-assessable.

Without limiting any of the other limitations, exceptions and qualifications stated elsewhere herein, we express no opinion with regard to the applicability or effect of the laws of any jurisdiction other than the corporate laws of the State of Nevada and the laws of the State of New York, as currently in effect (based solely upon our review of a standard compilation thereof). This opinion letter deals only with the specified legal issues expressly addressed herein, and you should not infer any opinion that is not explicitly stated herein from any matter addressed in this opinion letter.

We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement and to the reference to our firm under "Legal Matters" in the related Prospectus. In giving the foregoing consent, we do not hereby admit that we are in the category of persons whose consent is required under Section 7 of the Act, or the rules and regulations of the Securities and Exchange Commission.

Very truly yours,

/s/ Sichenzia Ross FERENCE LLP

1185 Avenue of the Americas | 31st Floor | New York, NY | 10036  
T (212) 930 9700 | F (212) 930 9725 |  
WWW.SRF.LAW



**CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

We hereby consent to the inclusion in this Registration Statement on Form S-1/A of our report dated June 10, 2022, of Bullfrog AI Holdings, Inc. relating to the audit of the financial statements for the period ended December 31, 2021 and 2020 and the reference to our firm under the caption "Experts" in the Registration Statement.

/s/ M&K CPAS, PLLC

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www.mkacpas.com  
Houston, Texas

January 10, 2023

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## Calculation of Filing Fee Tables

**Form S-1**  
(Form Type)

**Bullfrog AI Holdings, Inc.**  
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered Securities

	<u>Security Type</u>	<u>Security Class Title</u>	<u>Fee Calculation or Carry Forward Rule</u>	<u>Amount Registered</u>	<u>Proposed Maximum Offering Price Per Unit</u>	<u>Maximum Aggregate Offering Price</u>	<u>Fee Rate</u>	<u>Amount of Registration Fee</u>
Primary Offering								
Fees to be Paid	Equity	Units consisting of shares of Common Stock, par value \$0.00001 per share ("Common Stock"), Warrants to purchase Common Stock (1)	457(o)	1,515,294	—	\$ 9,849,411(2)	0.00011020	\$ 1,085.41
	Equity	Common Stock, par value \$0.0001 per share, included as part of the Units	457(o)	—	—	Included with above Units.	—	—
	Other	Tradeable Warrants to purchase Common Stock, included as part of the Units	457(o) and 457(g)	—	—	Included with above Units.	—	—
	Other	Non-tradeable Warrants to purchase Common Stock, included as part of the Units	457(o) and 457(g)	—	—	Included with above Units.	—	—
	Equity	Common Stock issuable upon exercise of the Tradeable Warrants included as part of the Units	457(o)	1,515,294	—	\$ 11,819,293(2)	0.00011020	\$ 1,302.49
	Equity	Common Stock issuable upon exercise of the Non-Tradeable Warrants included as part of the Units	457(o)	1,515,294	—	12,311,764(2)	0.00011020	\$ 1,356.76
Secondary Offering								
Fees to be Paid	Equity	Common Stock, par value \$0.00001 per share	457(o)	1,985,373	—	\$ 12,904,925(3)	0.00011020	\$ 1,422.13
		<b>Total Primary Offering Amount</b>				\$ 33,980,468	—	\$ 3,744.66
		<b>Total Secondary Offering Amount</b>				\$ 12,656,370.38	—	\$ 1,422.13
		<b>Total Fees Previously Paid</b>						\$ 3,455.34
		<b>Net Fee Due</b>						\$ 1,711.45

(1) This registration statement also includes an indeterminate number of securities that may become offered, issuable or sold to prevent dilution resulting from stock splits, stock dividends and similar transactions, which are included pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act").

(2) Estimated solely for the purpose of computing the registration fee in accordance with Rule 457(o) under the Securities Act.

(3) For purposes of calculating the proposed maximum aggregate offering price, we have multiplied 1,985,373 representing the number of shares covered by the resale prospectus by an assumed price of \$6.5 per Unit.

