

Prospectus

BULLFROG AI HOLDINGS, INC.
Up to 5,000,000 Shares of Common Stock

This prospectus relates to the resale, from time to time, of up to 5,000,000 shares of our common stock, par value \$0.00001 per share, by Lincoln Park Capital Fund, LLC, which we refer to in this prospectus as “Lincoln Park” or the “selling stockholder.”

The shares of common stock to which this prospectus relates are shares that have been or may be issued by us to Lincoln Park pursuant to the purchase agreement dated September 15, 2025, that we entered into with Lincoln Park (the “Purchase Agreement”). See “The Lincoln Park Transaction” for a description of that agreement and “Selling Stockholder” for additional information regarding Lincoln Park.

We are not selling any securities under this prospectus and will not receive any of the proceeds from the sale of shares by the selling stockholder. However, we may receive up to \$10,000,000 in aggregate gross proceeds under the Purchase Agreement from any sales of common stock we make to Lincoln Park pursuant to the Purchase Agreement, from time to time in our discretion, after the date of the registration statement of which this prospectus is a part is declared effective and the other conditions in the Purchase Agreement have been satisfied.

The selling stockholder may sell or otherwise dispose of the shares of common stock described in this prospectus in a number of different ways and at varying prices. See “Plan of Distribution” beginning on page 25 of this prospectus for more information about how the selling stockholder may sell or otherwise dispose of the shares of our common stock being offered through this prospectus. The selling stockholder is an “underwriter” within the meaning of Section 2(a)(11) of the Securities Act of 1933, as amended (the “Securities Act”).

The selling stockholder will pay all brokerage fees and commissions and similar expenses in connection with any resale or other disposition of the common stock described in this prospectus by the selling stockholder. We will pay the expenses incurred in registering, under the Securities Act, the offer and resale of such shares of common stock by the selling stockholder, including legal and accounting fees. See “Plan of Distribution”.

Our common stock is listed on the Nasdaq Capital Market LLC (“Nasdaq”) under the symbol “BFRG”. The last reported sale price of our common stock on Nasdaq on November 25, 2025 was \$1.01 per share.

Investing in our common stock is highly speculative and involves a significant degree of risk. Please consider carefully the specific factors set forth under “Risk Factors” beginning on page 11 of this prospectus and in our filings with the Securities and Exchange Commission.

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 November 25, 2025.

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ABOUT THIS PROSPECTUS

The registration statement we filed with the Securities and Exchange Commission (the “SEC”) includes exhibits that provide more detail of the matters discussed in this prospectus. You should read this prospectus, the related exhibits filed with the SEC, and the documents incorporated by reference herein before making your investment decision. You should rely only on the information provided in this prospectus or any amendment thereto. In addition, this prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the heading “Where You Can Find More Information.”

The selling stockholder named in this prospectus may sell up to 5,000,000 shares of our common stock previously issued and issuable pursuant to the Purchase Agreement from time to time. This prospectus also covers any shares of common stock that may become issuable as a result of share splits, share dividends, or similar transactions. We have agreed to pay the expenses incurred in registering these shares, including legal and accounting fees.

We have not, and the selling stockholder has not, authorized anyone to provide any information or to make any representations other than those contained in this prospectus, the documents incorporated by reference herein or in any free writing prospectuses prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The information contained in this prospectus, the documents incorporated

by reference herein or in any applicable free writing prospectus is current only as of its date, regardless of its time of delivery or any sale of our securities. Our business, financial condition, results of operations and prospects may have changed since that date.

The selling stockholder is offering to sell, and seeking offers to buy, shares of our common stock only under circumstances and in jurisdictions where it is lawful to do so. The selling stockholder is not making an offer to sell these securities in any state or jurisdiction where the offer or sale is not permitted.

Unless the context otherwise requires, “BullFrog,” “BFRG,” “the Company,” “we,” “us,” “our” and similar terms refer to BullFrog AI Holdings, Inc.

Industry and Market Data

This prospectus or the documents incorporated by reference herein includes statistical and other industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information.

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PROSPECTUS SUMMARY

This summary is not complete and does not contain all of the information that you should consider before investing in the securities offered by this prospectus. You should read this summary together with the entire prospectus carefully, including “Risk Factors” and our financial statements and the related notes incorporated by reference into this prospectus, before making an investment decision. See “Risk Factors” for a discussion of the risks involved in investing in our securities.

Business Overview

BullFrog AI Holdings, Inc. was incorporated in the State of Nevada in February 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 founding AI/ML platform (trade name: bfLEAP™) was created from technology originally developed at The Johns Hopkins University Applied Physics Laboratory (“JHU-APL”). Subsequently, we have developed new tools and capabilities composed of an ensemble of machine learning and artificial intelligence models.

In February 2018, the Company secured an original exclusive, worldwide, royalty-bearing license from JHU-APL for the technology underlying our bfLEAP™ platform. 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. In consideration of the rights granted to the Company under the original License Agreement, the Company granted JHU-APL 178,571 warrants exercisable to purchase shares of common stock at \$2.10 per share. We entered into a new license agreement with JHU-APL in July 2022 that provides the Company with new intellectual property and also encompasses most of the intellectual property from the February 2018 license. In consideration for the new license entered into in July 2022 with JHU-APL, the Company issued to JHU-APL 39,879 shares of common stock. Under the terms of the new license agreement, JHU-APL will be entitled to eight (8%) percent of net sales for the services provided by the Company to other parties and three (3%) percent for internally developed drug projects in which the JHU-APL license was utilized. The new license also contains tiered sub licensing fees that start at fifty (50%) percent and decline to twenty-five (25%) percent based on revenues. The Company and JHU-APL entered into Amendment Number 1 of the July 2022 license agreement pursuant to which the Company gained access to certain improvements including additional patents and know-how in exchange for a series of payments totaling \$275,000. The first of these payments for \$75,000 was paid in July 2023, the second of these payments for \$75,000 was paid in June 2025, and the remaining payments of \$75,000 and \$50,000 are due in 2026 and 2027, respectively. The amendment also reduced the 2023 minimum annual royalty payment to \$60,000; all other financial terms remain the same. As a result of this amendment, the minimum annual payments are \$30,000 for 2022, \$60,000 for 2023, and \$300,000 for 2024 and beyond, all of which are creditable against royalties paid by us. As of June 30, 2025, all minimum annual royalty payments through 2024 have been paid, the Company has accrued \$150,000 of the \$300,000 minimum annual royalty for 2025, and the Company has accrued \$6,250 of the \$75,000 annual license fee due in June 2026.

Our objective is to utilize bfLEAP™, our AI/ML platform, with 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 in order to lead to faster, less expensive drug approvals. We intend to continue to evolve and improve bfLEAP™, either in-house or with development partners like JHU-APL. 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.

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We operate and have staffed our business using funds from our initial public offering and subsequent financings, have entered into partnerships and relationships, completed our first commercial service contract with a leading rare disease non-profit organization for AI/ML analysis of late-stage clinical data in 2023, and we completed our collaboration agreement for clinical trial optimization with a Phase III oncology company focused on novel chemotherapeutic treatments for rare cancers. We have also acquired the rights to a series of preclinical and early clinical drug assets from universities, as well as entered into 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 (“JHU”) 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. In addition, we signed three-year strategic data and commercialization agreements with the Lieber Institute for Brain Development (“LIBD”) whom we believe has a repository of the largest collection of postmortem brains in the world, including molecular, clinical, and other data. The objective of this collaboration with LIBD is for the Company to analyze these rich data sets using its proprietary AI/ML tools and models and then go to market with the discoveries with the ultimate goal of securing revenue generating strategic partnership deals with biopharmaceutical companies. We intend to secure the rights to other proprietary data sets and repeat this strategy. 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 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 drug product for our research and development and clinical trials, and, in some cases, may also require the establishment of third-party arrangements to obtain finished drug product that is manufactured appropriately under good manufacturing practices, and packaged for clinical use or sale. Since we are a company focused on using our AI/ML 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.

Since completing our initial public offering in February 2023 (the “IPO”), aided by the receipt of the IPO proceeds in addition to the proceeds from our February 2024 and October 2024 offerings and our ongoing At-The-Market Sales Agreement with BTIG, LLC (the “ATM Agreement”), we have implemented several initiatives including: investor relations and marketing to raise awareness for the Company in the financial and business sectors, research and development, collaboration with the J Craig Venter Institute (“JCVI”), and initiation of preclinical studies with our in-licensed drug programs. The Company is actively engaged in developing and pursuing new intellectual property as it strives to continuously evolve its AI/ML platform.

Internally, the Company has added incremental staff to accelerate execution and development of processes and custom scripts for use in performing new drug target discovery and analytical services for customers, while also launching initiatives targeting large public health data sources and seeking access to proprietary health data sources, such as our

agreement with the LIBD. We are also transitioning our accounting and financial reporting systems and processes to enhance our internal control environment as a public company. Capital from the IPO was also used to retire two notes that were sold to fund the Company through the IPO as well as other debts accrued over time to our staff, employees and consultants, and obligations related to the acquisition of our licensed drug programs.

Risk Factor Summary

Investing in our securities involves a high degree of risk. You should carefully consider the risks described below, as well as other information and risk factors included in our Quarterly Report on Form 10-Q for the period ended June 30, 2025, and our Annual Report on Form 10-K for the fiscal year ended December 31, 2024, including our financial statements and the related notes, and the section titled “*Management’s Discussion and Analysis of Financial Condition and Results of Operations*,” any of which may be relevant to decisions regarding an investment in or ownership of our securities. The occurrence of any of these risks could have a significant adverse effect on our reputation, business, financial condition, results of operations, growth and ability to accomplish our strategic objectives. We have organized the description of these risks into groupings in an effort to enhance readability, but many of the risks interrelate or could be grouped or ordered in other ways, so no special significance should be attributed to the groupings or order below.

Risks Related to This Offering

- We have broad discretion in the use of our existing cash, cash equivalents, and the net proceeds from this offering and may not use them effectively.

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- The sale or availability for sale of shares issuable pursuant to this prospectus may depress the price of our common stock, dilute the interest of our existing stockholders, and encourage short sales by third parties, which could further depress the price of our common stock.
- If you purchase shares of common stock in this offering, you may experience future dilution as a result of future equity offerings.
- Future sales or issuances of our common stock in public markets, or the perception of such sales, could depress the trading price of our common stock.
- We do not currently intend to pay dividends on our common stock, and, consequently, investors’ ability to achieve a return on their investment will depend on appreciation in the price of our common stock.
- Investors who buy shares at different times will likely pay different prices, and the sale of the shares of common stock acquired by Lincoln Park could cause the price of our common stock to decline.
- We may not have access to the full amount available under the Purchase Agreement with Lincoln Park.
- We may require additional financing to sustain our operations, without which we may not be able to continue operations, and the terms of subsequent financings may adversely impact our stockholders.
- We are currently listed on the Nasdaq Capital Market. If we are unable to maintain listing of our securities on Nasdaq or any stock exchange, our stock price could be adversely affected and the liquidity of our stock and our ability to obtain financing could be impaired and it may be more difficult for our shareholders to sell their securities.
- Our independent registered public accounting firm has included an explanatory paragraph relating to our ability to continue as a going concern in its report on our audited financial statements included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2024.

Company 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. 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.

Implications of Being an Emerging Growth Company and a Smaller Reporting Company

We qualify as an “emerging growth company” as defined in Section 2(a)(19) of the Securities Act of 1933, as modified by the Jumpstart Our Business Startups Act of 2012, or the “JOBS Act.” As such, we take advantage of certain exemptions from various reporting requirements applicable to other public companies that are not emerging growth companies for as long as we continue to be an emerging growth company, including (i) the exemption from the auditor attestation requirements with respect to internal control over financial reporting under Section 404 of the Sarbanes-Oxley Act of 2002 (the “Sarbanes-Oxley Act”), (ii) the exemptions from say-on-pay, say-on-frequency and say-on-golden parachute voting requirements and (iii) reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements. As a result, our stockholders may not have access to certain information they deem important. We will remain an emerging growth company until the earliest of (i) the last day of the fiscal year (a) following the fifth anniversary of the date of the first sale of the Company’s common stock, (b) in which we have total annual gross revenue of at least \$1.235 billion or (c) in which BullFrog is deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds \$700 million as of the last business day of our prior second fiscal quarter, and (ii) the date on which we have issued more than \$1.0 billion in non-convertible debt during the prior three-year period.

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In addition, Section 107 of the JOBS Act also provides that an emerging growth company can take advantage of the exemption from complying with new or revised accounting standards provided in Section 7(a)(2)(B) of the Securities Act of 1933, as long as it is an emerging growth company. An emerging growth company can therefore delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. The JOBS Act provides that a company can elect to opt out of the extended transition period and comply with the requirements that apply to non-emerging growth companies, but any such election to opt out is irrevocable. The Company has elected not to opt out of such extended transition period, which means that when a standard is issued or revised and it has different application dates for public or private companies, we, as an emerging growth company, can adopt the new or revised standard at the time private companies adopt the new or revised standard. This may make comparison of our financial statements with another public company which is neither an emerging growth company nor an emerging growth company which has opted out of using the extended transition period difficult or impossible because of the potential differences in accounting standards used.

Recent Developments

ATM Sales

On April 25, 2025, we entered into an At-The-Market (“ATM”) Sales Agreement (the “ATM Agreement”) with BTIG, LLC, as sales agent (the “Agent”), with respect to an

ATM offering program under which we may offer and sell through the Agent, from time to time at our sole discretion, shares (the “Shares”) of our common stock, par value \$0.00001 per share (the “Common Stock”). From April 25, 2025 through October 6, 2025, we sold 755,116 shares of our Common Stock through our ATM program for aggregate net proceeds of \$1.15 million.

Eleison Pharmaceuticals Collaboration

On February 27, 2025, the Company entered into a collaboration agreement with Eleison Pharmaceuticals Inc. (“Eleison”), a Phase III oncology company developing novel chemotherapeutic treatments for rare cancers. Under this agreement, BullFrog will utilize its proprietary BullFrog Data Networks™ platform, powered by the bfLEAP® engine, to support Eleison’s clinical development programs. The collaboration is designed to enhance clinical trial efficiency, extract actionable insights from historical and ongoing data, and improve the strategic planning of Eleison’s oncology pipeline.

As part of the collaboration, the Company will deliver services that focus on clustering patients using available clinical features to identify patient subsets and understand their relative responses to drug treatment. Additionally, BullFrog will perform real-time analysis of safety data from Eleison’s ongoing Phase III clinical trial of glufosfamide. The bfLEAP® platform will be utilized to support three primary objectives: (1) assess the current trajectory of the ongoing trial with respect to safety endpoints; (2) identify digital biomarkers from previous glufosfamide studies that serve as indicators of efficacy and safety performance for future decision-making; and (3) generate insights that inform Eleison’s clinical strategy for its additional investigational therapies, inhaled lipid-complexed cisplatin (ILC) and dibromodulcitol (DBD). Glufosfamide is a third-generation alkylating agent under evaluation in a pivotal Phase III international randomized trial for the treatment of second-line pancreatic cancer. This compound was designed to improve tumor-specific uptake while reducing systemic toxicity.

By integrating BullFrog’s proprietary platform into Eleison’s drug development process, the parties intend to generate deeper insights into patient safety and therapeutic response trends, thereby improving clinical trial execution and pipeline planning. The application of AI to cluster patients and extract digital biomarkers from existing data is expected to not only strengthen the glufosfamide development program but also accelerate the progression of Eleison’s broader oncology portfolio.

Sygnature Discovery Limited Joint Collaboration

On June 12, 2025, the Company entered into a strategic collaboration with Sygnature Discovery (“Sygnature”), a UK-based contract research organization specializing in drug discovery. Under this collaboration, Sygnature will introduce BullFrog Data Networks™, the Company’s proprietary AI-driven data insights platform powered by the bfLEAP™ engine, to Sygnature’s global biopharma client base.

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BullFrog Data Networks™ is designed to facilitate the analysis of complex, multi-modal biomedical datasets, enabling the identification of novel biological pathways and disease mechanisms critical to drug discovery. The platform supports applications such as early target identification, mechanism-of-action elucidation, patient stratification, drug repurposing, and clinical trial optimization. Delivered through a user-friendly, disease-focused interface, BullFrog Data Networks™ aims to enable researchers to make informed and timely strategic decisions. Sygnature Discovery intends to leverage this platform to complement its existing drug discovery services and provide its clients with enhanced tools for data interpretation and target discovery, thereby improving research and development efficiency and success rates.

The collaboration establishes a joint marketing arrangement focused on the licensing and sale of BullFrog Data Networks™. Sygnature’s objectives include enhancing its service offerings through the partnership and actively promoting BullFrog’s product to customers engaged in target identification and clinical trial optimization projects. This collaboration positions BullFrog and Sygnature to accelerate innovation in drug discovery by combining advanced AI technology with expert research services, targeting diverse therapeutic areas and expanding access to cutting-edge solutions within the biopharma sector.

Nasdaq Compliance Matters

As previously disclosed, on August 21, 2025, BullFrog received written notice from The Nasdaq Stock Market LLC (“Nasdaq”) that, based on the Company’s stockholders’ equity of \$2,188,110 as reported on its Quarterly Report on Form 10-Q for the quarter ended June 30, 2025, the Company is no longer in compliance with Nasdaq Listing Rule 5550(b)(1), which requires companies listed on the Nasdaq Capital Market to maintain a minimum of \$2,500,000 in stockholders’ equity for continued listing (the “Stockholder Equity Requirement”). The Nasdaq deficiency letter has no immediate effect on the listing of the Company’s common stock and tradable warrants. As such, the Company’s common stock will continue to trade on The Nasdaq Capital Market under the symbol “BFRG”, and its tradable warrants will continue to trade on the Nasdaq Capital Market under the symbol “BFRGW”.

In accordance with Nasdaq’s listing rules, the Company has 45 calendar days from receipt of the letter to provide a plan to Nasdaq to regain compliance with the Stockholder Equity Requirement. If this plan is accepted by Nasdaq, the Company may be granted an extension of 180 calendar days from the receipt of the letter to evidence compliance. If the Company does not regain compliance with the Stockholder Equity Requirement by the end of the compliance period, the Company’s common stock will become subject to delisting. In the event that the Company receives notice that its common stock is being delisted, the Nasdaq listing rules permit the Company to appeal a delisting determination by the Nasdaq’s staff to a Nasdaq hearings panel.

The Company intends to take all reasonable measures available to regain compliance with the Nasdaq listing rules and remain listed on Nasdaq. The Company is currently evaluating various options to regain compliance and plans to timely submit a plan to Nasdaq to regain compliance with the Nasdaq Stockholder Equity Requirement. There can, however, be no assurance that the Company’s plan will be accepted by Nasdaq or that, if it is, the Company will be able to regain compliance.

The Company must satisfy Nasdaq’s continued listing requirements, including, among other things, a minimum stockholders’ equity of \$2.5 million and a minimum closing bid price of \$1.00 per share or risk delisting, which could have a material adverse effect on our business. If our common stock is delisted from Nasdaq, it could materially reduce the liquidity of our common stock and result in a corresponding material reduction in the price of our common stock as a result of the loss of market efficiencies associated with Nasdaq and the loss of federal preemption of state securities laws. In addition, delisting could harm our ability to raise capital through alternative financing sources on terms acceptable to us, or at all, and may result in the potential loss of confidence by investors, suppliers, customers and employees and fewer business development opportunities. If our common stock is delisted, it could be more difficult to buy or sell our common stock or to obtain accurate quotations, and the price of our common stock could suffer a material decline. Delisting could also impair our ability to raise capital on acceptable terms, if at all.

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Special Meeting of Stockholders

On September 26, 2025, the Company commenced mailing of its proxy statement for a Special Meeting of Stockholders to be held on October 22, 2025 at 10:00 a.m. Eastern Time (the “Special Meeting”). At the Special Meeting, the stockholders will vote on a proposal to approve a reverse stock split of the Company’s common stock at a ratio of not less than 1-to-2 and not more than 1-to-15. If the reverse stock split is approved at the Special Meeting, the final ratio will be determined by the Board of Directors. Amounts in this prospectus do not reflect the impact of any reverse stock split.

The Lincoln Park Transaction

On September 15, 2025, we entered into the Purchase Agreement with Lincoln Park, pursuant to which Lincoln Park has agreed to purchase from us up to an aggregate of \$10

million of our common stock. Pursuant to the Purchase Agreement, we issued 147,682 shares of common stock to Lincoln Park as a fee for making its irrevocable commitment to purchase our common stock under the Purchase Agreement (the "Commitment Shares"). Also on September 15, 2025, concurrently with our execution of the Purchase Agreement, we entered into a registration rights agreement with Lincoln Park, dated as of September 15, 2025 (the "Registration Rights Agreement"), pursuant to which we filed with the Securities and Exchange Commission (the "SEC"), the registration statement that includes this prospectus to register for resale under the Securities Act of 1933, as amended, or the Securities Act, the shares of our common stock that are described in this prospectus that have been or may be issued by us to Lincoln Park under the Purchase Agreement.

This prospectus covers the resale by the selling stockholder of up to 5,000,000 shares of our common stock, comprised of: (i) up to 4,852,318 shares of our common stock that we have reserved for sale to Lincoln Park under the Purchase Agreement from time to time after the date of this prospectus, if and when we determine to sell shares of our common stock to Lincoln Park under the Purchase Agreement (the "Purchase Shares") and (ii) 147,682 Commitment Shares that we have already issued to Lincoln Park as consideration for its commitment to purchase our common stock from time to time at our direction under the Purchase Agreement. We will not receive any cash consideration for issuing the Commitment Shares to Lincoln Park.

Sales of common stock by the Company pursuant to the Purchase Agreement, if any, are subject to certain limitations set forth in the Purchase Agreement, and may occur from time to time at the Company's sole discretion over the 36-month period commencing on the date that the conditions to Lincoln Park's purchase obligation set forth in the Purchase Agreement are satisfied, including that the registration statement that includes this prospectus is declared effective by the SEC and a final prospectus relating thereto is filed with the SEC (the date on which all of such conditions were satisfied, the "Commencement Date"). From and after the Commencement Date, we may, from time to time and at our sole discretion for a period of up to 36-months, on any business day that we select on which the closing sales price of our common stock equals or exceeds \$0.50 per share, direct Lincoln Park to purchase up to 30,000 shares of our common stock, which amount may be increased incrementally depending on the market price of our common stock at the time of sale to up to 100,000 shares, subject to a maximum commitment of \$500,000 per purchase, which we refer to in this prospectus as "Regular Purchases."

In addition to Regular Purchases, provided that we have directed Lincoln Park to purchase the maximum number of shares that we are then able to sell to Lincoln Park in a Regular Purchase, we may, in our sole discretion, also direct Lincoln Park to purchase additional shares of common stock in "accelerated purchases," and "additional accelerated purchases" as set forth in the Purchase Agreement.

We will control the timing and amount of any sales of our common stock to Lincoln Park. The purchase price of the shares of our common stock that we may sell to Lincoln Park in Regular Purchases, accelerated purchases and additional accelerated purchases under the Purchase Agreement will be based on the market prices of our common stock at or around the time of sale and shall be calculated as set forth in the Purchase Agreement. The purchase price per share will be equitably adjusted as provided in the Purchase Agreement for any reorganization, recapitalization, non-cash dividend, stock split, or other similar transaction as set forth in the Purchase Agreement. We may at any time in our sole discretion terminate the Purchase Agreement without fee, penalty or cost upon one business day notice. In the event of bankruptcy proceedings by or against us that are not discharged within 90 days, the Purchase Agreement will automatically terminate without action of any party. No termination of the Purchase Agreement will be effective during the pendency of any Regular Purchase, accelerated purchase or additional accelerated purchase that has not then fully settled in accordance with the Purchase Agreement.

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There are no restrictions on future financings, rights of first refusal, participation rights, penalties or liquidated damages in the Purchase Agreement or Registration Rights Agreement, except the Company is prohibited (with certain specified exceptions set forth in the Purchase Agreement) from effecting or entering into an agreement to effect an "equity line of credit" or other substantially similar offering whereby an investor is irrevocably bound to purchase securities over a period of time from the Company at a price based on the market price of the common stock at the time of each such purchase. Lincoln Park has represented to us that at no time prior to the time of execution of the Purchase Agreement has Lincoln Park or its agents, representatives or affiliates engaged in or effected, in any manner whatsoever, directly or indirectly, any short sale (as such term is defined in Rule 200 of Regulation SHO under the Exchange Act) of our common stock or any hedging transaction, which establishes a net short position with respect to our common stock. Lincoln Park agreed that during the term of the Purchase Agreement, it, its agents, representatives or affiliates will not enter into or effect, directly or indirectly, any of the foregoing transactions.

Under applicable Nasdaq rules, in no event may we issue or sell to Lincoln Park under the Purchase Agreement shares of our common stock in excess of 2,048,936 shares (including the Commitment Shares), which represented 19.99% of the shares of our common stock outstanding immediately prior to the execution of the Purchase Agreement (the "Exchange Cap"), unless (i) we obtain stockholder approval to issue shares of our common stock in excess of the Exchange Cap or (ii) the average price of all applicable sales of our common stock to Lincoln Park under the Purchase Agreement equals or exceeds \$1.4053 (the "Base Price"), representing the lower of (A) the official closing price of our common stock on Nasdaq on the trading day immediately preceding the date of the Purchase Agreement and (B) the average official closing price of our common stock on Nasdaq for the five consecutive trading days ending on the trading day immediately preceding the date of the Purchase Agreement, as adjusted under applicable Nasdaq rules to take into account the issuance of the Commitment Shares to Lincoln Park for non-cash consideration, so that the Exchange Cap would not apply under applicable Nasdaq rules to issuances and sales of our common stock to Lincoln Park under the Purchase Agreement.

At a special meeting of our stockholders to be held on October 22, 2025, among other things, we are seeking the requisite stockholder approval in accordance with applicable Nasdaq listing rules to issue and sell shares of our common stock in excess of the 2,048,936 share Exchange Cap referred to above, if we so choose, to Lincoln Park under the Purchase Agreement. Accordingly, if such requisite stockholder approval is obtained, we would be able to issue and sell to Lincoln Park, in addition to the 147,682 Commitment Shares we have already issued to Lincoln Park on September 15, 2025, all of the 4,852,318 Purchase Shares under the Purchase Agreement that are being registered under the Securities Act for resale by Lincoln Park under the registration statement that includes this prospectus, at purchase prices averaging less than the Base Price, without any further aggregate share issuance limitations under Nasdaq rules. However, we cannot guarantee that we will obtain such requisite stockholder approval the special meeting of our stockholders to be held on October 22, 2025, and therefore, there can be no assurance that we will be able to issue and sell to Lincoln Park, in addition to the 147,682 Commitment Shares we have already issued to Lincoln Park on September 15, 2025, all of the 4,852,318 Purchase Shares under the Purchase Agreement that are being registered under the Securities Act for resale by Lincoln Park under the registration statement that includes this prospectus. The Exchange Cap will continue to be applicable to issuances and sales of shares of our common stock under the Purchase Agreement, unless and until we obtain the requisite stockholder approval in accordance with applicable Nasdaq listing rules to issue and sell shares of our common stock in excess of the Exchange Cap unless clause (ii) of the preceding paragraph is satisfied.

The Purchase Agreement also prohibits us from directing Lincoln Park to purchase any shares of our common stock if those shares of our common stock, when aggregated with all other shares of our common stock then beneficially owned by Lincoln Park and its affiliates, would result in Lincoln Park having beneficial ownership, at any single point in time, of more than 4.99% of the then total outstanding shares of our common stock, as calculated pursuant to Section 13(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and Rule 13d-3 thereunder (the "Beneficial Ownership Cap").

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As of the date of this prospectus, we have issued to Lincoln Park 147,682 Commitment Shares in consideration for Lincoln Park's commitment to purchase shares of common stock at our discretion under the Purchase Agreement. Although the Purchase Agreement provides that we may sell up to \$10 million of our common stock to Lincoln Park, only 4,852,318 additional shares of common stock can be issued to Lincoln Park from and after the date of this prospectus, if and when we elect to sell such shares to Lincoln Park under the Purchase Agreement, as that is the quantity being registered under the Securities Act for resale by Lincoln Park under the registration statement that includes this prospectus. Depending on the market price of our common stock at the time we elect to issue and sell shares of our common stock to Lincoln Park under the Purchase Agreement, we may need to register for resale under the Securities Act additional shares of our common stock in order to receive aggregate gross proceeds equal to the \$10,000,000 available to us under the Purchase Agreement.

As of August 29, 2025, there were 10,249,805 shares of our common stock outstanding, of which 7,794,378 shares were held by non-affiliates. If all of the 5,000,000 shares of

our common stock that may be sold to Lincoln Park in the future under the Purchase Agreement that are being registered for resale hereunder were issued and outstanding as of August 29, 2025 without taking into account the Beneficial Ownership Cap described above), such shares of our common stock, would represent approximately 32.79% of the total number of shares of our common stock outstanding, and approximately 39.08% of the total number of outstanding shares held by non-affiliates of the Company, in each case as of August 29, 2025.

If we elect to issue and sell to Lincoln Park more than the 5,000,000 shares of our common stock that we may elect to issue and sell to Lincoln Park under the Purchase Agreement that are being registered for resale by Lincoln Park under the registration statement that includes this prospectus, which we have the right, but not the obligation, to do, we must first file with the SEC one or more additional registration statements to register under the Securities Act for resale by Lincoln Park any such additional shares of our common stock we wish to sell from time to time under the Purchase Agreement, which the SEC must declare effective, in each case, before we may elect to sell any additional shares of our common stock to Lincoln Park under the Purchase Agreement. The number of shares of our common stock ultimately offered for resale by Lincoln Park is dependent upon the number of shares of our common stock we ultimately decide to sell to Lincoln Park under the Purchase Agreement.

Issuances of our common stock to Lincoln Park under the Purchase Agreement will not affect the rights or privileges of our existing stockholders, except that the economic and voting interests of each of our existing stockholders will be diluted as a result of any such issuance. Although the number of shares of our common stock that our existing stockholders own will not decrease, the shares of our common stock owned by our existing stockholders will represent a smaller percentage of the total outstanding shares of our common stock after any such issuance of shares of our common stock to Lincoln Park under the Purchase Agreement. There are substantial risks to our stockholders as a result of the sale and issuance of common stock to Lincoln Park under the Purchase Agreement. See “Risk Factors.”

Going Concern

We have a history of operating losses since inception and expect to incur additional near-term losses. As discussed further in “Management’s Discussion and Analysis of Financial Condition and Results of Operations - Liquidity and Capital Resources,” included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2024, which is incorporated herein by reference, our independent registered public accounting firm, in its audit report to the financial statements included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2024, expressed substantial doubt about our ability to continue as a going concern. See also our Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2025, as incorporated by reference into this prospectus, including the discussion therein under “Management’s Discussion and Analysis of Financial Condition and Results of Operations - Liquidity and Capital Resources.” Our consolidated financial statements do not include any adjustments that may result from the outcome of this uncertainty. Following this offering, we may need to raise additional capital to fund our operations and continue to support our planned development and commercialization activities. If we cannot secure the financing needed to continue as a viable business, our stockholders may lose some or all of their investment in us.

Corporate Information

Our principal executive offices are located at 325 Ellington Blvd, Unit 317, Gaithersburg, MD 20878. Our telephone number is (240) 658-6710. Our website address is 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. We have included our website address in this prospectus as an inactive textual reference only and not as an active hyperlink.

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THE OFFERING

<i>Shares of our common stock offered by the selling stockholder</i>	Up to 5,000,000 shares of common stock consisting of: <ul style="list-style-type: none">• Up to 4,852,318 Purchase Shares that we may issue and sell to Lincoln Park from time to time under the Purchase Agreement from and after the commencement; and• 147,682 Commitment Shares issued to Lincoln Park in consideration for its commitment to purchase shares of our common stock under the Purchase Agreement (for which we will not receive cash consideration).
<i>Selling stockholder</i>	Lincoln Park Capital Fund, LLC. See “Selling Stockholder” on page 23 of this prospectus.
<i>Common stock outstanding prior to this offering</i>	10,249,805 shares, which includes the Commitment Shares.
<i>Common stock outstanding immediately after this offering</i>	15,249,805 shares, assuming the sale of 5,000,000 shares. The actual number of shares issued will vary depending on the sales prices in this offering.
<i>Use of Proceeds</i>	We will receive no proceeds from the sale of shares of our common stock by Lincoln Park pursuant to this prospectus. We may receive up to \$10,000,000 in aggregate gross proceeds under the Purchase Agreement from any sales of shares of our common stock we make to Lincoln Park pursuant to the Purchase Agreement after the commencement, assuming that we sell the full amount of our common stock remaining available to us that we have the right, but not the obligation, to sell to Lincoln Park under the Purchase Agreement. Any proceeds that we receive from sales of shares of our common stock to Lincoln Park under the Purchase Agreement will be used for working capital and general corporate purposes. See “Use of Proceeds.”
<i>Nasdaq Capital Markets Symbols</i>	Our common stock is listed on Nasdaq under the symbol “BFRG”.
<i>Risk Factors</i>	Investment in our securities involves a high degree of risk and could result in a loss of your entire investment. See “Risk Factors” beginning on page 11, and the other information included in or incorporated by reference in this prospectus for a discussion of the factors you should consider carefully before deciding to invest in our securities.

The number of shares of our common stock to be outstanding immediately after this offering is based on 10,249,805 shares of our common stock outstanding as of August 29, 2025, and excludes, as of such date, the following:

- Up to 7,214,328 shares of common stock issuable upon the exercise of outstanding warrants with a weighted-average exercise price of \$4.91 per share;
- Up to 821,412 shares of common stock issuable upon the exercise of outstanding stock options, which options have a weighted average exercise price of \$3.51 per share;
- Up to 342,030 shares of common stock issuable upon vesting of outstanding restricted stock units; and
- Up to an aggregate of 59,348 shares of common stock reserved for future issuance under the 2022 Plan.

The number of outstanding options, restricted stock units and shares of common stock available for future issuances under the 2022 Plan does not reflect:

- Up to 45,000 shares of common stock issuable upon exercise of outstanding stock options with an exercise price of \$1.43 per share granted since August 29, 2025.

RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the risks and uncertainties described below and in the documents incorporated by reference in this prospectus, as well as other information we include or incorporate by reference into this prospectus, before making an investment decision. Our business, financial condition and results of operations could be materially adversely affected by the materialization of any of these risks. The trading price of our securities could decline due to the materialization of any of these risks, and you may lose all or part of your investment. This prospectus, and the documents incorporated herein by reference also contain forward-looking statements that involve risks and uncertainties. Actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks described in the documents incorporated herein by reference, including our Annual Report on Form 10-K for the fiscal year ended December 31, 2024, which is on file with the SEC and is incorporated herein by reference, as updated by our subsequent annual, quarterly and other reports and documents that are incorporated by reference into this prospectus and other documents we file with the SEC that are deemed incorporated by reference into this prospectus.

We have broad discretion in the use of our existing cash, cash equivalents, and the net proceeds from this offering and may not use them effectively.

Our management will have broad discretion in the application of our existing cash, cash equivalents, and the net proceeds from this offering, including for any of the purposes described in the section titled “Use of Proceeds,” and you will not have the opportunity as part of your investment decision to assess whether such proceeds are being used appropriately. Because of the number and variability of factors that will determine the use of our existing cash and cash equivalents and the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. Our management might not apply our existing cash, cash equivalents, and the net proceeds from this offering in ways that ultimately increase the value of your investment. The failure by our management to apply these funds effectively could harm our business. Pending the use of the net proceeds from this offering, we may invest such net proceeds in short-term, investment-grade, interest-bearing securities. These investments may not yield a favorable return to our stockholders. If we do not invest or apply the net proceeds from this offering in ways that enhance stockholder value, we may fail to achieve expected financial results, which could cause our stock price to decline.

The sale or availability for sale of shares issuable pursuant to this prospectus may depress the price of our common stock, dilute the interest of our existing stockholders, and encourage short sales by third parties, which could further depress the price of our common stock.

As of August 29, 2025, there were 10,249,805 total shares outstanding and the Selling Stockholder may sell up to 5,000,000 shares of common stock pursuant to this prospectus. To the extent that the Selling Stockholder sells shares of our common stock, the market price of our common stock may decrease due to the additional selling pressure in the market. Any downward pressure on the price of our common stock caused by the sale or potential sale of such shares could encourage short sales by third parties. Such sales could place downward pressure on the price of our common stock by increasing the number of shares of our common stock being sold, which could further contribute to any decline in the market price of our common stock.

If you purchase shares of common stock in this offering, you may experience future dilution as a result of 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 at prices that may not be the same as the price per share in this offering. We may sell shares or other securities in any other offering at a price per share that is less than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to those of existing stockholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by investors in this offering.

Future sales or issuances of our common stock in the public markets, or the perception of such sales, could depress the trading price of our common stock.

The sale of a substantial number of shares of our common stock or other securities convertible into or exchangeable for our common stock in the public markets, or the perception that such sales could occur, could depress the market price of our common stock and impair our ability to raise capital through the sale of additional equity securities. We may sell large quantities of our common stock at any time pursuant to this prospectus or in one or more separate offerings. We cannot predict the effect that future sales of common stock or other equity-related securities would have on the market price of our common stock.

We do not currently intend to pay dividends on our common stock, and, consequently, investors’ ability to achieve a return on their investment will depend on appreciation in the price of our common stock.

We have never declared or paid cash dividends on our common stock. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. As a result, capital appreciation, if any, of our common stock will be our stockholders’ sole source of gain for the foreseeable future. There is no guarantee that the price of our common stock will appreciate or remain equal to or above the price at which investors have purchased it.

Investors who buy shares at different times will likely pay different prices, and the sale of the shares of common stock acquired by Lincoln Park could cause the price of our common stock to decline.

Pursuant to the Purchase Agreement, we will have discretion, subject to market demand, to vary the timing, prices, and numbers of shares sold to Lincoln Park. If and when we do elect to sell shares of our common stock to Lincoln Park pursuant to the Purchase Agreement, after Lincoln Park has acquired such shares, Lincoln Park may resell all, some or none of such shares at any time or from time to time in its discretion and at different prices. As a result, investors who purchase shares from Lincoln Park in this offering at different times will likely pay different prices for those shares, and so may experience different levels of dilution and in some cases substantial dilution and different outcomes in their investment results. Investors may experience a decline in the value of the shares they purchase from Lincoln Park in this offering as a result of future sales made by us to Lincoln Park at prices lower than the prices such investors paid for their shares in this offering. Further, the sale of a substantial number of shares of our common stock by Lincoln Park, or anticipation of such sales, could cause the trading price of our common stock to decline or make it more difficult for us to sell equity or equity-related securities in the future at a time and at a price that we might otherwise desire.

We may not have access to the full amount available under the Purchase Agreement with Lincoln Park.

We may direct Lincoln Park to purchase up to \$10 million worth of shares of our common stock from time to time under the Purchase Agreement over a 36-month period beginning on the Commencement Date, generally, in amounts up to 30,000 shares of our common stock, which may be increased to up to 50,000 shares, 75,000 shares, or up to 100,000 shares, in each case depending on the closing sale price of our common stock at the time of sale, provided that Lincoln Park’s maximum purchase obligation under any single Regular Purchase shall not exceed \$500,000. Moreover, under certain circumstances as set forth in the Purchase Agreement, we may, in our sole discretion, also direct Lincoln Park to purchase additional shares of common stock in “accelerated purchases,” and “additional accelerated purchases” as set forth in the Purchase Agreement.

We may require additional financing to sustain our operations, without which we may not be able to continue operations, and the terms of subsequent financings may adversely impact our stockholders.

Depending on the prevailing market price of our common stock, we may not be able to sell shares to Lincoln Park for up to the maximum of \$10 million over the term of the Purchase Agreement. Lincoln Park will not be required to purchase any shares of our common stock if such sale would result in Lincoln Park’s beneficial ownership of our common stock exceeding the Beneficial Ownership Cap. Additionally, Lincoln Park will not be required to purchase any shares of our common stock if it would result in

Lincoln Park's ownership exceeding the Exchange Cap, unless our stockholders approve, in accordance with applicable Nasdaq listing rules, the sale of shares in excess of the Exchange Cap. Our inability to access a portion or the full amount available under the Purchase Agreement, in the absence of any other financing sources, could have a material adverse effect on our business.

We are currently listed on the Nasdaq Capital Market. If we are unable to maintain listing of our securities on Nasdaq or any stock exchange, our stock price could be adversely affected and the liquidity of our stock and our ability to obtain financing could be impaired and it may be more difficult for our shareholders to sell their securities.

Although our common stock is currently listed on the Nasdaq Capital Market, we may not be able to continue to meet the exchange's minimum listing requirements or those of any other national exchange. The Listing Rules of Nasdaq require listing issuers to comply with certain standards in order to remain listed on its exchange. If, for any reason, we should fail to maintain compliance with these listing standards and Nasdaq should delist our securities from trading on its exchange and we are unable to obtain listing on another national securities exchange, a reduction in some or all of the following may occur, each of which could have a material adverse effect on our shareholders:

- the liquidity of our common stock;
- the market price of our common stock;
- our ability to obtain financing for the continuation of our operations;
- the number of investors that will consider investing in our common stock;
- the number of market makers in our common stock;
- the availability of information concerning the trading prices and volume of our common stock; and
- the number of broker-dealers willing to execute trades in shares of our common stock.

Our independent registered public accounting firm has included an explanatory paragraph relating to our ability to continue as a going concern in its report on our audited financial statements included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2024.

The report from our independent registered public accounting firm for the year ended December 31, 2024, includes an explanatory paragraph stating that we incur continued net losses from operations and negative cash flows from operations, and that our cash and cash equivalent balance may not sufficiently cover operating expenditures for the next twelve-month period without raising additional funds. These conditions raise substantial doubt about our ability to continue as a going concern. As of June 30, 2025, the Company had a cash balance of approximately \$2.6 million, which includes restricted cash of \$0.1 million. These conditions could materially limit our ability to raise additional funds through the issuance of new debt or equity securities or otherwise. There is no assurance that sufficient financing will be available when needed, or at all, to allow us to continue as a going concern. The perception that we may not be able to continue as a going concern may also make it more difficult to operate our business due to concerns about our ability to meet our contractual obligations. Our ability to continue as a going concern is contingent upon, among other factors, the sale of our securities. There is no assurance that sufficient financing will be available when needed, or at all, to allow us to continue as a going concern.

If we are unable to secure additional capital, we may be required to curtail our clinical and research and development initiatives and take additional measures to reduce costs in order to conserve our cash in amounts sufficient to sustain operations and meet our obligations. These measures could cause significant delays in our clinical and regulatory efforts, which are critical to the realization of our business plan. The consolidated financial statements do not include any adjustments that may be necessary should we be unable to continue as a going concern. It is not possible for us to predict at this time the potential success of our business. The revenue and income potential of our proposed business and operations are currently unknown. If we cannot continue as a viable entity, you may lose some or all of your investment.

Our management will have broad discretion over the use of the net proceeds, if any, from sales of shares of our common stock to Lincoln Park, you may not agree with how we use the proceeds and the proceeds may not be used effectively.

This prospectus relates to shares of our common stock that may be offered and sold from time to time by Lincoln Park. We will not receive any proceeds upon the sale of shares by Lincoln Park. However, we may receive gross proceeds of up to \$10,000,000 from the sale of shares being registered for resale under this prospectus under the Purchase Agreement with Lincoln Park. The anticipated use of net proceeds from the sale of our common stock to Lincoln Park under the Purchase Agreement represents our intentions based upon our current plans and business conditions. Because we have not designated the amount of net proceeds from the sale of shares under the Purchase Agreement to be used for any particular purpose, our management will have broad discretion as to the use of the net proceeds from our sale of shares of common stock to Lincoln Park. Accordingly, you will be relying on the judgment of our management with regard to the use of those net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that, pending their use, we may invest those net proceeds in a way that does not yield a favorable, or any, return for us. Further, our management may use the net proceeds for corporate purposes that may not improve our financial condition or market value. The failure of our management to use such funds effectively could have a material adverse effect on our business, financial condition, operating results and cash flows.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Some of the statements made under the sections entitled "*Prospectus Summary*," "*Use of Proceeds*," and elsewhere in this prospectus, as well as the documents incorporated by reference herein, including in our Annual Report on Form 10-K for the fiscal year ended December 31, 2024, constitute forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. These forward-looking statements are subject to certain risks and uncertainties that could cause actual results to differ materially from historical results or anticipated results.

In some cases, you can identify forward-looking statements by terms such as "may," "intend," "might," "will," "should," "could," "would," "expect," "believe," "anticipate," "estimate," "predict," "potential," or the negative of these terms. These terms and similar expressions are intended to identify forward-looking statements. The forward-looking statements in this report are largely based upon management's current expectations and beliefs about future events and trends affecting our business, which management believes are reasonable. These forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from those anticipated in the forward-looking statements. In addition, we cannot assess the impact of each factor on our business or the extent to which any factor or combination of factors, or factors we are unaware of, may cause actual results to differ materially from those contained in any forward-looking statements. You are cautioned not to place undue reliance on any forward-looking statements. These statements represent our estimates and assumptions only as of the date of this report. Except to the extent required by federal securities laws, we undertake no obligation to update any forward-looking statement to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events.

You should be aware that our actual results could differ materially from those contained in the forward-looking statements due to a number of factors, including:

- 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, and the development of, digital transformation technology and bio health businesses and their respective market trends;
- our ability to attract and retain customers for our products and services;
- the availability of financing for smaller publicly traded companies like us;
- our current and future capital requirements to support the continued development and commercialization of our products and services;
- 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.

Other risks and uncertainties include such factors, among others, as market acceptance and market demand for our products and services, pricing, the changing regulatory environment, the effect of our accounting policies, industry trends, adequacy of our financial resources to execute our business plan, our ability to attract, retain and motivate key personnel, and other risks described from time to time in periodic and current reports we file with the SEC. All subsequent written and oral forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by the applicable cautionary statements. Except as required by law, we undertake no obligation to publicly revise our forward-looking statements to reflect events or circumstances that arise after the filing of this prospectus or any supplement or free writing prospectus, or documents incorporated by reference herein and therein, that include forward-looking statements.

THE LINCOLN PARK TRANSACTION

This prospectus covers the resale by the selling stockholder of up to 5,000,000 shares of our common stock, comprised of: (i) up to 4,852,318 shares of our common stock that we have reserved for sale to Lincoln Park under the Purchase Agreement from time to time after the date of this prospectus, if and when we determine to sell additional shares of our common stock to Lincoln Park under the Purchase Agreement and (ii) 147,682 Commitment Shares that we have already issued to Lincoln Park as consideration for its commitment to purchase our common stock from time to time at our direction under the Purchase Agreement. We will not receive any cash consideration for issuing the Commitment Shares to Lincoln Park.

General

On September 15, 2025, we entered into the Purchase Agreement with Lincoln Park, pursuant to which Lincoln Park has committed to purchase up to \$10 million of our common stock, subject to certain limitations and conditions set forth in the Purchase Agreement, at our direction in our sole discretion from time to time during the 36 month period commencing from the Commencement Date, unless the Purchase Agreement is terminated prior to such date. Pursuant to the Purchase Agreement we issued 147,682 Commitment Shares to Lincoln Park as consideration for its commitment to purchase our common stock from time to time at our direction under the Purchase Agreement.

On September 15, 2025, concurrently with our execution of the Purchase Agreement, we entered into the Registration Rights Agreement, pursuant to which we filed with the SEC this registration statement that includes this prospectus to register for resale under the Securities Act, the shares of our common stock that have been or may be issued to Lincoln Park under the Purchase Agreement.

The purpose of this registration statement on Form S-1 is to register 5,000,000 shares of common stock for resale by Lincoln Park pursuant to the terms of the Purchase Agreement and Registration Rights Agreement.

Other than the 147,682 Commitment Shares that we issued to Lincoln Park upon execution of the Purchase Agreement, we do not have the right to commence any sales of our common stock to Lincoln Park under the Purchase Agreement until all of the conditions set forth in the Purchase Agreement are satisfied, including that the SEC has declared effective the registration statement which includes this prospectus registering the shares of our common stock, that have been and may be issued and sold to Lincoln Park under the Purchase Agreement, which we refer to in this prospectus as the commencement, or the Commencement Date. From and after the Commencement Date, we may, from time to time and at our sole discretion for a period of up to 36-months, on any business day that we select, direct Lincoln Park to purchase up to 30,000 shares of our common stock, which amount may be increased depending on the market price of our common stock at the time of sale, subject to a maximum commitment of \$500,000 per purchase, which we refer to in this prospectus as “Regular Purchases.” In addition we may, in our sole discretion, also direct Lincoln Park to purchase additional shares of common stock in “accelerated purchases” and “additional accelerated purchases” as set forth in the Purchase Agreement.

We will control the timing and amount of any sales of our common stock to Lincoln Park. The purchase price of the shares of our common stock that may be sold to Lincoln Park in Regular Purchases, accelerated purchases, and additional accelerated purchases under the Purchase Agreement will be based on the market prices of our common stock at or around the time of sale and shall be calculated as set forth in the Purchase Agreement. The purchase price per share will be equitably adjusted as provided in the Purchase Agreement for any reorganization, recapitalization, non-cash dividend, stock split, or other similar transaction as set forth in the Purchase Agreement. We may at any time in our sole discretion terminate the Purchase Agreement without fee, penalty or cost upon one business day notice. Actual sales of shares of Common Stock by the Company to Lincoln Park under the Purchase Agreement will depend on a variety of factors to be determined by the Company from time to time, including, among others, market conditions, the trading price of the Common Stock and determinations by the Company as to the appropriate sources of funding for the Company and its operations.

As of August 29, 2025, there were 10,249,805 shares of our common stock outstanding, of which 7,794,378 shares were held by non-affiliates. Although the Purchase Agreement provides that we may sell up to an aggregate of \$10 million of our common stock to Lincoln Park, only 5,000,000 shares of our common stock are being registered for resale under this prospectus, if and when we sell shares of our common stock to Lincoln Park under the Purchase Agreement. Depending on the market prices of our common stock at the time we elect to issue and sell shares of our common stock to Lincoln Park under the Purchase Agreement, we may need to register for resale under the Securities Act additional shares of our common stock in order to receive aggregate gross proceeds equal to the \$10 million total commitment available to us under the Purchase Agreement. If 4,852,318 shares of our common stock that may be sold to Lincoln Park in the future under the Purchase Agreement that are being registered for resale hereunder were issued and outstanding as of the date of this prospectus (without taking into account the Beneficial Ownership Cap described below), such shares of our common stock, taken together with the 147,682 Commitment Shares that we issued to Lincoln Park upon execution of the Purchase Agreement and outstanding as of the date of this prospectus, would represent approximately 32.79% of the total number of shares of our common stock outstanding and approximately 39.08% of the total number of outstanding shares held by non-affiliates of the Company, in each case as of August 29, 2025. If we elect to issue and sell to Lincoln Park under the Purchase Agreement more than the additional 5,000,000 shares of our common stock being registered for resale by Lincoln Park under this prospectus, which we have the right, but not the obligation, to do, we must first register for resale under the Securities Act any such additional shares of our common stock, which could cause additional substantial dilution to our stockholders. The number of shares of our common stock ultimately offered for resale by Lincoln Park is dependent upon the number of shares of our common stock we ultimately decide to sell to Lincoln Park under the Purchase Agreement.

Under applicable Nasdaq rules, in no event may we issue or sell to Lincoln Park under the Purchase Agreement shares of our common stock, including the Commitment Shares, in excess of 2,048,936 share Exchange Cap, which represented 19.99% of the shares of our common stock outstanding immediately prior to the execution of the Purchase Agreement, unless (i) we obtain stockholder approval to issue shares of our common stock in excess of the Exchange Cap or (ii) the average price of all applicable sales of our common stock to Lincoln Park under the Purchase Agreement equals or exceeds the \$1.4053 Base Price, representing the lower of (A) the official closing price of our common stock on Nasdaq on the trading day immediately preceding the date of the Purchase Agreement and (B) the average official closing price of our common stock on Nasdaq for the five consecutive trading days ending on the trading day immediately preceding the date of the Purchase Agreement, as adjusted under applicable Nasdaq rules to take into account the issuance of the Commitment Shares to Lincoln Park for non-cash consideration, so that the Exchange Cap would not apply under applicable Nasdaq rules to issuances and sales of our common stock to Lincoln Park under the Purchase Agreement.

At a special meeting of our stockholders to be held on October 22, 2025, among other things, we are seeking the requisite stockholder approval in accordance with applicable Nasdaq listing rules to issue and sell shares of our common stock in excess of the 2,048,936 share Exchange Cap referred to above, if we so choose, to Lincoln Park under the Purchase Agreement. Accordingly, if such requisite stockholder approval is obtained, we would be able to issue and sell to Lincoln Park, in addition to the 147,682 Commitment Shares we have already issued to Lincoln Park on September 15, 2025, all of the 4,852,318 shares of common stock as “purchase shares” under the Purchase Agreement that are being registered under the Securities Act for resale by Lincoln Park under the registration statement that includes this prospectus, at purchase prices

averaging less than the Base Price, without any further aggregate share issuance limitations under Nasdaq rules. However, we cannot guarantee that we will obtain such requisite stockholder approval the special meeting of our stockholders to be held on October 22, 2025, and therefore, there can be no assurance that we will be able to issue and sell to Lincoln Park, in addition to the 147,682 Commitment Shares we have already issued to Lincoln Park on September 15, 2025, all of the 4,852,318 shares of common stock as “purchase shares” under the Purchase Agreement that are being registered under the Securities Act for resale by Lincoln Park under the registration statement that includes this prospectus. The Exchange Cap will continue to be applicable to issuances and sales of shares of our common stock under the Purchase Agreement, unless and until we obtain the requisite stockholder approval in accordance with applicable Nasdaq listing rules to issue and sell shares of our common stock in excess of the Exchange Cap.

The Purchase Agreement also prohibits us from directing Lincoln Park to purchase any shares of our common stock if those shares of our common stock, when aggregated with all other shares of our common stock then beneficially owned by Lincoln Park and its affiliates, would result in Lincoln Park having beneficial ownership, at any single point in time, of more than the Beneficial Ownership Cap equal to 4.99% of the then total outstanding shares of our common stock, as calculated pursuant to Section 13(d) of the Exchange Act and Rule 13d-3 thereunder.

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Issuances of our common stock to Lincoln Park under the Purchase Agreement will not affect the rights or privileges of our existing stockholders, except that the economic and voting interests of each of our existing stockholders will be diluted as a result of any such issuance. Although the number of shares of our common stock that our existing stockholders own will not decrease, the shares of our common stock owned by our existing stockholders will represent a smaller percentage of the total outstanding shares of our common stock after any such issuance of shares of our common stock to Lincoln Park under the Purchase Agreement. There are substantial risks to our stockholders as a result of the sale and issuance of common stock to Lincoln Park under the Purchase Agreement. See “Risk Factors.”

Purchase of Shares of our Common Stock Under the Purchase Agreement

Regular Purchases

From and after the Commencement Date, on any business day selected by the Company (and provided (i) the closing sale price of the common stock is not less than the Floor Price (as defined in the Purchase Agreement as described below), and (ii) all shares of common stock subject to all prior Regular Purchases, accelerated purchases and additional accelerated purchases initiated by the Company pursuant to the Purchase Agreement, as applicable, have been properly delivered to Lincoln Park in accordance with the Purchase Agreement), the Company may, by written notice delivered by us to Lincoln Park, direct Lincoln Park to purchase up to 30,000 shares of our common stock on such business day in a Regular Purchase, provided, however, that the maximum number of shares we may sell to Lincoln Park in a Regular Purchase may be increased to up to (i) 50,000 shares of our common stock, provided that the closing sale price of our common stock is not below \$1.00 on the purchase date (ii) 75,000 shares of our common stock, provided that the closing sale price of our common stock is not below \$02.00 on the purchase date, and (iii) 100,000 shares, provided that the closing sale price of our common stock is not below \$2.50 (such share amount limitation, the “Regular Purchase Share Limit”). In each case, Lincoln Park’s maximum commitment in any single Regular Purchase may not exceed \$500,000. For purposes of the Purchase Agreement, “Floor Price” means, with respect to a Regular Purchase effected pursuant to the applicable terms thereof, \$0.50, which shall be appropriately adjusted for any reorganization, recapitalization, non-cash dividend, stock split or other similar transaction and, effective upon the consummation of any such reorganization, recapitalization, non-cash dividend, stock split or other similar transaction, the Floor Price shall mean the lower of (i) the adjusted price and (ii) \$0.50.

The purchase price per share for each such Regular Purchase will be equal to 97% of the lower of:

- the lowest sale price for our common stock on the purchase date for such shares of our common stock; and
- the arithmetic average of the three lowest closing sale prices for our common stock during the 10 consecutive business days ending on the business day immediately preceding the purchase date of such shares of our common stock.

Accelerated Purchases

In addition to Regular Purchases described above, we may also direct Lincoln Park, on any Purchase Date for a Regular Purchase on which we have properly submitted a Regular Purchase notice directing Lincoln Park to purchase the maximum number of shares of our common stock that we are then permitted to include in a single Regular Purchase notice (and provided all shares of common stock subject to all prior Regular Purchases, Accelerated Purchases and Additional Accelerated Purchases effected prior to such Purchase Date have been properly delivered to Lincoln Park in accordance with the Purchase Agreement), to purchase an additional amount of our common stock, which we refer to as an Accelerated Purchase, on the next business day following such Purchase Date for such corresponding Regular Purchase, which we refer to as the Accelerated Purchase Date, not to exceed the lesser of:

- 30% of the aggregate number of shares of our common stock traded during all or, if certain trading volume or market price thresholds specified in the Purchase Agreement are crossed on the applicable Accelerated Purchase Date, the portion of the normal trading hours on the applicable Accelerated Purchase Date prior to such time that any one of such thresholds is crossed, which period of time on the applicable Accelerated Purchase Date we refer to as the Accelerated Purchase Measurement Period; and
- 300% of the number of purchase shares purchased pursuant to the corresponding Regular Purchase.

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The purchase price per share for the shares subject to an Accelerated Purchase will be equal to 97% of the lower of:

- the volume-weighted average price of our common stock during the Accelerated Purchase Measurement Period on the applicable Accelerated Purchase Date; and
- the closing sale price of our common stock on the applicable Accelerated Purchase Date.

Additional Accelerated Purchases

We may also direct Lincoln Park, by written notice delivered to Lincoln Park, not later than 1:00 p.m., eastern time, on the same Accelerated Purchase Date on which an Accelerated Purchase Measurement Period for an Accelerated Purchase has ended prior to such time (and provided all shares of common stock subject to all prior Regular Purchases, Accelerated Purchases and Additional Accelerated Purchases, including those prior Accelerated Purchases and Additional Accelerated Purchases effected on the same Accelerated Purchase Date as the applicable Additional Accelerated Purchase have been properly delivered to Lincoln Park in accordance with the Purchase Agreement prior to such time), to purchase an additional amount of our common stock on such same Accelerated Purchase Date, which we refer to as an Additional Accelerated Purchase, of up to the lesser of:

- 30% of the aggregate number of shares of our common stock traded during the portion of the normal trading hours on the applicable Accelerated Purchase Date determined in accordance with the Purchase Agreement, which period of time on the applicable Accelerated Purchase Date we refer to as the Additional Accelerated Purchase Measurement Period; and
- 300% of the number of purchase shares purchased pursuant to the Regular Purchase corresponding to the Accelerated Purchase effected on such same Accelerated Purchase Date.

The purchase price per share for the shares subject to an Additional Accelerated Purchase will be equal to 97% of the lower of:

- the volume-weighted average price of our common stock during the applicable Additional Accelerated Purchase Measurement Period for such Additional Accelerated Purchase; and
- the closing sale price of our common stock on the applicable same Accelerated Purchase Date.

We may, in our sole discretion, submit multiple Additional Accelerated Purchase notices to Lincoln Park prior to 1:00 p.m., eastern time, on a single Accelerated Purchase Date, again provided all shares of common stock subject to all prior Regular Purchases, Accelerated Purchases and Additional Accelerated Purchases, including those prior Accelerated Purchases and Additional Accelerated Purchases effected on the same Accelerated Purchase Date as the applicable Additional Accelerated Purchase have been properly delivered to Lincoln Park in accordance with the Purchase Agreement prior to such time.

In the case of Regular Purchases, Accelerated Purchases and Additional Accelerated Purchases, the purchase price per share will be equitably adjusted for any reorganization, recapitalization, non-cash dividend, stock split, reverse stock split or other similar transaction occurring during the business days used to compute the purchase price.

Other than as described above, there are no trading volume requirements or restrictions under the Purchase Agreement, and we will control the timing and amount of any sales of our common stock to Lincoln Park.

Suspension Events

Suspension events under the Purchase Agreement include the following:

- the effectiveness of the registration statement of which this prospectus forms a part lapses for any reason (including, without limitation, the issuance of a stop order), or any required prospectus supplement and accompanying prospectus are unavailable for the resale by Lincoln Park of our common stock offered hereby, and such lapse or unavailability continues for a period of 10 consecutive business days or for more than an aggregate of 30 business days in any 365-day period;
- suspension by our principal market of our common stock from trading for a period of one business day;

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- the delisting of our common stock from Nasdaq, our principal market, provided our common stock is not immediately thereafter trading on the New York Stock Exchange, the Nasdaq Global Market, the Nasdaq Global Select Market, the NYSE American, the NYSE Arca, or the OTCQX Best Market or the OTCQB Venture Market operated by OTC Markets Group Inc. (or any nationally recognized successor thereto);
- the failure of our transfer agent to issue to Lincoln Park shares of our common stock within two business days after the applicable date on which Lincoln Park is entitled to receive such shares of our common stock;
- any breach of the representations or warranties or covenants contained in the Purchase Agreement or Registration Rights Agreement that has or could have a material adverse effect on Lincoln Park and, in the case of a breach of a covenant that is reasonably curable, that is not cured within five business days;
- any voluntary or involuntary participation or threatened participation in insolvency or bankruptcy proceedings by or against us;
- if at any time we are not eligible to transfer our common stock electronically; or
- if at any time Lincoln Park's broker is unable to accept Commitment Shares or Purchase Shares for deposit for reasons not within Lincoln Park's control.

Following the Commencement Date, Lincoln Park does not have the right to terminate the Purchase Agreement upon any of the suspension events set forth above, although the Purchase Agreement would automatically terminate in the event of any voluntary or involuntary participation or threatened participation in insolvency or bankruptcy proceedings by or against us that are not discharged within 90 days. So long as a suspension event has occurred and is continuing, or if any event which, after notice and/or lapse of time, would reasonably be expected to become a suspension event has occurred and is continuing, we may not direct Lincoln Park to purchase any shares of our common stock under the Purchase Agreement.

Our Termination Rights

We have the unconditional right, at any time, for any reason and without any payment or liability to us, to terminate the Purchase Agreement upon one business day's prior written notice to Lincoln Park. In the event of any voluntary or involuntary bankruptcy proceedings by or against the Company that are not discharged within 90 days, the Purchase Agreement would automatically terminate without any action of the Company or Lincoln Park. No termination of the Purchase Agreement will be effective during the pendency of any Regular Purchase, Accelerated Purchase or Additional Accelerated Purchase that has not then fully settled in accordance with the Purchase Agreement.

No Short-Selling or Hedging by Lincoln Park

Lincoln Park has represented to us that at no time prior to the time of execution of the Purchase Agreement has Lincoln Park or its agents, representatives or affiliates engaged in or effected, in any manner whatsoever, directly or indirectly, any short sale (as such term is defined in Rule 200 of Regulation SHO under the Exchange Act) of our Common Stock or any hedging transaction, which establishes a net short position with respect to our Common Stock. Lincoln Park agreed that during the term of the Purchase Agreement, it, its agents, representatives or affiliates will not enter into or effect, directly or indirectly, any of the foregoing transactions.

Prohibitions on Certain Transactions

There are no restrictions on future financings, rights of first refusal, participation rights, penalties or liquidated damages in the Purchase Agreement or Registration Rights Agreement, except the Company is prohibited (with certain specified exceptions set forth in the Purchase Agreement) from effecting or entering into an agreement to effect an "equity line of credit" in which the Company may issue and sell common stock, from time to time over a certain period of time, at future determined prices based on the market prices of the common stock at the time of each such issuance and sale.

Effect of Performance of the Purchase Agreement on Our Stockholders

All of the shares of our common stock being registered for resale hereunder which have been or may be issued or sold by us to Lincoln Park under the Purchase Agreement are expected to be freely tradable. It is anticipated that shares registered in this offering will be sold from time to time over a period of up to 36-months beginning on the Commencement Date. The sale by Lincoln Park of a significant amount of shares of our common stock registered in this offering at any given time could cause the market price of our common stock to decline and to be highly volatile. Sales of our common stock to Lincoln Park, if any, will depend upon market conditions and other factors to be determined by us. We may ultimately decide to sell to Lincoln Park all, some or none of the additional shares of our common stock that may be available for us to sell pursuant to the Purchase Agreement. If and when we do sell additional shares of our common stock to Lincoln Park, after Lincoln Park has acquired the shares of our common stock, Lincoln Park may resell all, some or none of those shares of our common stock at any time or from time to time in its discretion. Therefore, sales to Lincoln Park by us under the Purchase Agreement may result in substantial dilution to the interests of other holders of our common stock. In addition, if we sell a substantial number of shares of our common stock to Lincoln Park under the Purchase Agreement, or if investors expect that we will do so, the actual sales of shares of our common stock or the mere existence of our arrangement with Lincoln Park may make it more difficult for us to sell equity or equity-related securities in the future at a time and at a price that we might otherwise wish to effect such sales. However, we have the right to control the timing and amount of any additional sales of our common stock to Lincoln Park and the Purchase Agreement may be terminated by us at any time at our discretion without any cost to us.

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Pursuant to the terms of the Purchase Agreement, from and after the Commencement Date, we have the right, but not the obligation, from time to time to direct Lincoln Park to purchase up to \$10 million of our common. Depending on the price per share at which we sell our common stock to Lincoln Park pursuant to the Purchase Agreement, we may need to sell to Lincoln Park under the Purchase Agreement more shares of our common stock than are being offered under this prospectus in order to receive aggregate gross proceeds equal to the \$10,000,000 available to us under the Purchase Agreement. If we choose to do so, we must first register for resale under the Securities Act such additional shares of our common stock, which could cause additional substantial dilution to our stockholders. The number of shares of our common stock ultimately offered for resale by Lincoln Park under this prospectus is dependent upon the number of shares of our common stock we direct Lincoln Park to purchase under the Purchase Agreement.

The following table sets forth the amount of gross proceeds we would receive from Lincoln Park from our sale of common stock to Lincoln Park under the Purchase Agreement at varying purchase prices:

Assumed Average Purchase Price Per Share	Number of Registered Shares of our Common Stock to be Issued if Full Purchase(1)	Percentage of Outstanding Shares of our Common Stock After Giving Effect to the Issuance to Lincoln Park(2)	Gross Proceeds from the Sale of Shares of our Common Stock to Lincoln Park Under the Purchase Agreement(1)
\$ 0.50	5,000,000	32.79%	\$ 2,426,159
\$ 1.00	5,000,000	32.79%	\$ 4,852,318
\$ 1.43(3)	5,000,000	32.79%	\$ 6,938,815
\$ 1.50	5,000,000	32.79%	\$ 7,278,477
\$ 2.00	5,000,000	32.79%	\$ 9,704,636
\$ 2.50	4,147,682	28.81%	\$ 10,000,000

(1) Although the Purchase Agreement provides that we may sell up to \$10.0 million of our common stock to Lincoln Park, we are only registering 5,000,000 of our common stock for resale under this prospectus, including 147,682 Commitment Shares that we have already issued to Lincoln Park as a fee for making its irrevocable commitment to purchase our common stock under the Purchase Agreement (for which we have not and will not receive any cash consideration), which may or may not cover all the shares of our common stock we ultimately sell to Lincoln Park under the Purchase Agreement, depending on the purchase price per share. Accordingly, the gross proceeds reflected in the fourth column from the left are calculated by multiplying only the 4,852,318 shares of common stock that may be issued and sold by us to Lincoln Park in the future as Purchase Shares under the Purchase Agreement that are being registered under the Securities Act for resale by Lincoln Park in the registration statement that includes this prospectus, by the assumed average price per share set forth in the first column on the left, because we have not and will not receive any cash consideration for the 147,682 shares of common stock that we issued to Lincoln Park as Commitment Shares on September 15, 2025. Additionally, under applicable Nasdaq rules, in no event may we issue or sell to Lincoln Park under the Purchase Agreement shares of our common stock (including the Commitment Shares) in excess of the Exchange Cap (or 2,048,936 shares of common stock, representing 19.99% of the shares of our common stock outstanding immediately prior to the execution of the Purchase Agreement), unless (i) we obtain stockholder approval to issue shares of our common stock to Lincoln Park under the Purchase Agreement in excess of the Exchange Cap or (ii) the average price of all applicable sales of our common stock to Lincoln Park under the Purchase Agreement equals or exceeds the \$1.4053 Base Price, so that the Exchange Cap would not apply under applicable Nasdaq rules to issuances and sales of our common stock to Lincoln Park under the Purchase Agreement. At a special meeting of our stockholders to be held on October 22, 2025, among other things, we are seeking the requisite stockholder authorization in accordance with applicable Nasdaq listing rules to issue and sell shares of our common stock in excess of the 2,048,936 share Exchange Cap referred to above, if we so choose, to Lincoln Park under the Purchase Agreement. Accordingly, if such requisite stockholder approval is obtained, we would be able to issue and sell to Lincoln Park, in addition to the 147,682 Commitment Shares we have already issued to Lincoln Park on September 15, 2025, all of the 4,852,318 shares of common stock as Purchase Shares under the Purchase Agreement that are being registered under the Securities Act for resale by Lincoln Park under the registration statement that includes this prospectus, at purchase prices averaging less than the Base Price, without any further aggregate share issuance limitations under Nasdaq rules. The number of registered shares of common stock to be issued reflected in the second column from the left does not give effect to the limitations on the number of shares we may be permitted to issue to Lincoln Park from time to time under the Purchase Agreement as a result of the Beneficial Ownership Cap or the Exchange Cap.

(2) The denominator is based on 10,249,805 shares of our common stock outstanding as of August 29, 2025 and the shares of common stock set forth in the adjacent column to the left that we would have sold to Lincoln Park as Purchase Shares pursuant to the Purchase Agreement, assuming such Purchase Shares are sold to Lincoln Park at the assumed average purchase price per share set forth in the first column on the left. The numerator is based on the number of shares of our common stock issuable under the Purchase Agreement at the corresponding assumed average purchase price per share set forth in the first column on the left, without giving effect to the Exchange Cap or the Beneficial Ownership Cap.

(3) The closing sale price per share of our common stock on October 9, 2025.

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USE OF PROCEEDS

This prospectus relates to shares of our common stock that may be offered and sold from time to time by Lincoln Park. See “Plan of Distribution” elsewhere in this prospectus for more information. We are not selling any securities under this prospectus and we will not receive any proceeds from the sale of shares by Lincoln Park under this prospectus.

We may receive up to \$10 million in aggregate gross proceeds from sales of shares of our common stock we make to Lincoln Park under the Purchase Agreement. We may choose to sell fewer than \$10 million shares of our common stock, or, due to the Beneficial Ownership Cap, we may not be able to sell all \$10 million in shares of our common stock under the Purchase Agreement, in which case we would raise less than \$10 million in aggregate gross proceeds under the Purchase Agreement. It is also possible that we do not sell any shares under the Purchase Agreement.

We will have broad discretion in the use of the net proceeds from any sale of shares of our common stock to Lincoln Park under the Purchase Agreement. Based upon our current plans and business conditions, we intend to use net proceeds from such sales for working capital and general corporate purposes. We have not determined the amount of net proceeds to be used specifically for such purposes. The amounts and timing of our actual expenditures may vary significantly and will depend on numerous factors, including market conditions, cash generated or used by our operations, business developments and opportunities that may arise. We may find it necessary or advisable to use portions of the proceeds we receive from our sale of shares of common stock to Lincoln Park under the Purchase Agreement for other purposes. Pending the use of any net proceeds, we expect to invest the net proceeds in interest-bearing, fixed income securities.

We will bear all of the costs, fees and expenses incurred in effecting the registration of the shares covered by this prospectus, including, without limitation, the registration and filing fees, printing fees, and fees and expenses of our counsel and our accountants, but all selling and other expenses incurred by the selling stockholder will be paid by the selling stockholder.

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DILUTION

The sale of common stock to Lincoln Park pursuant to the Purchase Agreement will have a dilutive impact on our stockholders. In addition, the lower our stock price is at the time we elect to sell shares to Lincoln Park under the Purchase Agreement, the more shares of our common stock we will have to sell to Lincoln Park to achieve the same gross

proceeds amount, in which case our existing stockholders would experience greater dilution.

The amount that Lincoln Park will receive for our common stock when resold pursuant to this prospectus will depend upon the timing of sales and will fluctuate based on the trading price of our common stock.

As of August 29, 2025, we had a historical net tangible book value of \$2,188,110, or \$0.21 per share of common stock, based on shares of common stock outstanding at August 29, 2025. Our historical net tangible book value per share is the amount of our total tangible assets less our total liabilities, at August 29, 2025, divided by 10,249,805 shares of common stock.

After giving effect to the sale of 4,852,318 shares to Lincoln Park pursuant to the Purchase Agreement at an assumed price of \$1.43 per share, the closing price of our common stock on Nasdaq on October 9, 2025, deducting estimated offering expenses of approximately \$109,015, which includes \$30,000 paid to Lincoln Park as reimbursement for certain expenses incurred in connection with the offering, and without giving effect to the Beneficial Ownership Cap under the Purchase Agreement, our as adjusted net tangible book value as of August 29, 2025, would have been approximately \$9.0 million, or \$0.60 per share. This represents an immediate increase in the net tangible book value of \$0.39 per share to our existing stockholders and an immediate dilution of \$0.83 per share to new investors.

Assumed offering price per share			1.43
Net tangible book value per share of common stock as of August 29, 2025	\$	0.21	
Increase in net tangible book value per share attributable to this offering	\$	0.39	
As adjusted net tangible book value per share as of August 29, 2025, after giving effect to this offering	\$		0.60
Dilution per share to new investors participating in this offering	\$		0.83

The number of shares of our common stock to be outstanding immediately after this offering is based on 10,249,805 shares of our common stock outstanding as of August 29, 2025, and excludes, as of such date, the following:

- Up to 7,214,328 shares of common stock issuable upon the exercise of outstanding warrants with a weighted-average exercise price of \$4.91 per share;
- Up to 821,412 shares of common stock issuable upon the exercise of outstanding stock options, which options have a weighted average exercise price of \$3.51 per share;
- Up to 342,030 shares of common stock issuable upon vesting of outstanding restricted stock units; and
- Up to an aggregate of 59,348 shares of common stock reserved for future issuance under the 2022 Plan.

The number of outstanding options, restricted stock units and shares of common stock available for future issuances under the 2022 Plan does not reflect:

- Up to 45,000 shares of common stock issuable upon exercise of outstanding stock options with an exercise price of \$1.43 per share granted since August 29, 2025.

To the extent that outstanding options or warrants have been or may be exercised, new equity awards were or are issued, or we otherwise issued or issue additional shares of common stock, including in our “at the market” offering program, investors purchasing our common stock in this offering may experience further dilution.

SELLING STOCKHOLDER

This prospectus relates to the possible resale by the selling stockholder, Lincoln Park, of additional shares of our common stock that may be issued to Lincoln Park pursuant to the Purchase Agreement. We are filing the registration statement of which this prospectus is a part pursuant to the provisions of the Registration Rights Agreement, which we entered into with Lincoln Park on September 15, 2025 concurrently with our execution of the Purchase Agreement, in which we agreed to provide certain registration rights with respect to sales by Lincoln Park of the shares of our common stock that have been and may be issued to Lincoln Park under the Purchase Agreement.

Lincoln Park, as the selling stockholder, may, from time to time, offer and sell pursuant to this prospectus up to 5,000,000 shares that we have issued or may issue to Lincoln Park. The selling stockholder may sell some, all or none of the shares of common stock. We do not know how long the selling stockholder will hold the shares of our common stock before selling them, and we currently have no agreements, arrangements or understandings with the selling stockholder regarding the sale of any of the shares of common stock. See “Plan of Distribution.”

The table below sets forth, to our knowledge, information concerning the beneficial ownership of shares of our common stock by the selling stockholder as of August 29, 2025. The percentages of shares owned before and after the offering are based on 10,249,805 shares of common stock outstanding as of August 29, 2025. The information in the table below with respect to the selling stockholder has been obtained from the selling stockholder. Other than as described under “The Lincoln Park Transaction,” above, neither Lincoln Park nor any of its affiliates has held a position or office, or had any other material relationship, with us or any of our predecessors or affiliates. Beneficial ownership is determined in accordance with Section 13(d) of the Exchange Act and Rule 13d-3 thereunder.

Throughout this prospectus, when we refer to the shares of common stock being offered for resale by the selling stockholder through this prospectus, we are referring to the shares of common stock that have been and may be issued and sold by us to Lincoln Park pursuant to the Purchase Agreement, unless otherwise indicated.

Name of Selling Stockholder	Number of Shares of Common Stock Owned Prior to Offering ⁽²⁾		Maximum Number of Shares of Common Stock to be Offered Pursuant to this Prospectus ⁽³⁾	Number of Shares of Common Stock Owned After Offering ⁽⁴⁾	
	Number	Percent		Number	Percent
	Lincoln Park Capital Fund, LLC ⁽¹⁾	147,682		1.44%	5,000,000

(1) Josh Scheinfeld and Jonathan Cope, the Managing Members of Lincoln Park Capital, LLC, the manager of Lincoln Park, are deemed to be beneficial owners of all of the shares of common stock owned directly by Lincoln Park. Messrs. Cope and Scheinfeld have shared voting and investment power over the shares of common stock being offered under the registration statement filed with the SEC in connection with the transactions contemplated under the Purchase Agreement and Registration Rights Agreement. Neither Lincoln Park Capital, LLC nor Lincoln Park is a licensed broker dealer or an affiliate of a licensed broker dealer.

(2) Represents the 147,682 Commitment Shares already issued to Lincoln Park upon execution of the Purchase Agreement on September 15, 2025. In accordance with Rule 13d-3(d) under the Exchange Act, we have excluded from the number of shares of our common stock beneficially owned prior to the offering all of the 4,852,318 shares of our common stock that we may issue and sell to Lincoln Park pursuant to the Purchase Agreement from and after commencement that are being registered for resale under the registration statement that includes this prospectus, because the issuance and sale of such shares to Lincoln Park under the Purchase Agreement is solely at our discretion and is subject to certain conditions, the satisfaction of all of which are outside of Lincoln Park’s control, including the registration statement that includes this prospectus becoming and remaining effective under the Securities Act. Furthermore, under the terms of the Purchase Agreement, issuances and sales of shares of our common stock to Lincoln Park under the Purchase Agreement are subject to certain limitations on the amounts we may sell to Lincoln Park at any time, including the Exchange Cap and the Beneficial Ownership Cap.

(3) Although the Purchase Agreement provides that we may sell up to \$10.0 million of our common stock to Lincoln Park, we are only registering 5,000,000 shares of our common stock for resale under this prospectus, including the 147,682 Commitment Shares we issued to Lincoln Park upon execution of the Purchase Agreement on September 15, 2025 (for which we did not receive any cash consideration). Therefore, only 4,852,318 of such shares represent shares that we may issue and sell to Lincoln Park as Purchase Shares for cash consideration under the Purchase Agreement from time to time, at our sole discretion, during the 36-month period commencing on the Commencement Date. Depending on the price per share at which we sell our common stock to Lincoln Park pursuant to the Purchase Agreement, we may need to sell to Lincoln Park under the Purchase Agreement more shares of our common stock than are offered under this prospectus in order to receive aggregate gross proceeds equal to the full \$10.0 million available to us under the Purchase Agreement. If we choose to do so, we must first register for resale under the Securities Act such additional shares. The number of shares ultimately offered for resale by Lincoln Park is dependent upon the number of shares we sell to Lincoln Park under the Purchase Agreement. Additionally, under applicable Nasdaq rules, in no event may we issue or sell to Lincoln Park under the Purchase Agreement shares of our common stock in excess of the 2,048,936 share Exchange Cap (which includes the 147,682 Commitment Shares), representing 19.99% of the shares of our common stock outstanding immediately prior to the execution of the Purchase Agreement, unless (i) we obtain stockholder approval to issue shares of our common stock in excess of the Exchange Cap or (ii) the average price of all applicable sales of our common stock to Lincoln Park under the Purchase Agreement equals or exceeds the \$1.4053 Base Price, so that the Exchange Cap limitation would not apply to issuances and sales of common stock under the Purchase Agreement pursuant to the rules and regulations of Nasdaq. At special meeting of our stockholders to be held on October 22, 2025, among other things, we are seeking the requisite stockholder authorization in accordance with applicable Nasdaq listing rules to issue and sell shares of our common stock in excess of the 2,048,936 share Exchange Cap referred to above, if we so choose, to Lincoln Park under the Purchase Agreement. Accordingly, if such requisite stockholder approval is obtained, we would be able to issue and sell to Lincoln Park, in addition to the 147,682 Commitment Shares we have already issued to Lincoln Park on September 15, 2025, all of the 4,852,318 shares of common stock as Purchase Shares under the Purchase Agreement that are being registered under the Securities Act for resale by Lincoln Park under the registration statement that includes this prospectus, at purchase prices averaging less than the Base Price, without any further aggregate share issuance limitations under Nasdaq rules.

(4) Assumes the sale of all shares of our common stock registered for resale by the selling stockholder pursuant to the registration statement that includes this prospectus, although the selling stockholder is under no obligation known to us to sell any shares of common stock at any particular time.

PRINCIPAL STOCKHOLDERS

The following table sets forth certain information, with respect to the beneficial ownership of our common stock, the sole outstanding class of our voting securities, as of August 29, 2025 by:

- each of our named executive officers;
- each of our directors;
- all of our current directors and named executive officers as a group; and
- each stockholder known by us to own beneficially more than 5% 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 August 29, 2025, pursuant to the exercise of options or warrants, vesting of common stock or conversion of convertible debt, are deemed to be outstanding for the purpose of computing the percentage ownership of such individual or group, but are not deemed to be outstanding for the purpose of computing the percentage ownership of any other person shown in the table. Percentage of ownership is based on 10,249,805 shares of common stock issued and outstanding as of August 29, 2025.

Except as otherwise indicated, all shares are owned directly. Unless otherwise indicated, the address of each of the persons shown is c/o BullFrog AI Holdings, Inc., 325 Ellington Blvd., Unit 317, Gaithersburg, MD 20878.

Title of Class	Name and Address of Beneficial Owners	Amount and Nature of Beneficial Ownership	Percent of Class
Directors and Executive Officers			
Common Stock	Vininder Singh (1) Chief Executive Officer and Director	2,445,376	23.68%
Common Stock	Josh Blacher (2) Chief Financial Officer	4,950	*
Common Stock	R. Donald Elsey (3) Director	57,813	*
Common Stock	William Enright (4) Director	62,813	*
Common Stock	Jason D. Hanson (5) Director	57,813	*
	All executive officers and directors as a group (5 persons)	2,628,765	25.16%
Beneficial owners of more than 5%			
Common Stock	Tivoli Trust (6)	904,391	8.15%

* Represents a percentage that is less than 1%.

- (1) Comprised of 2,367,446 shares of common stock and 77,930 stock options exercisable as of August 29, 2025 or within 60 days of such date.
- (2) Comprised of 4,950 shares of common stock and 0 stock options exercisable as of August 29, 2025 or within 60 days of such date.
- (3) Comprised of 2,813 shares of common stock and 55,000 stock options exercisable as of August 29, 2025 or within 60 days of such date.
- (4) Comprised of 7,813 shares of common stock and 55,000 stock options exercisable as of August 29, 2025 or within 60 days of such date.
- (5) Comprised of 2,813 shares of common stock and 55,000 stock options exercisable as of August 29, 2025 or within 60 days of such date.
- (6) Comprised of 73,449 shares of non-voting Series A Preferred Stock, 115,185 warrants exercisable at \$2.50 per share and 54,714 shares of common stock. 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.

PLAN OF DISTRIBUTION

The shares of our common stock offered by this prospectus are being offered by the selling stockholder, Lincoln Park Capital Fund, LLC. The shares may be sold or distributed

from time to time by the selling stockholder directly to one or more purchasers or through brokers, dealers, or underwriters who may act solely as agents at market prices prevailing at the time of sale, at prices related to the prevailing market prices, at negotiated prices, or at fixed prices, which may be changed. The sale of our common stock offered by this prospectus could be effected in one or more of the following methods:

- ordinary brokers' transactions;
- transactions involving cross or block trades;
- through brokers, dealers, or underwriters who may act solely as agents;
- "at the market" into an existing market for the shares of our common stock;
- in other ways not involving market makers or established business markets, including direct sales to purchasers or sales effected through agents;
- in privately negotiated transactions; or
- any combination of the foregoing.

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In order to comply with the securities laws of certain states, if applicable, the shares of our common stock offered by this prospectus may be sold only through registered or licensed brokers or dealers. In addition, in certain states, the shares of our common stock offered by this prospectus may not be sold unless they have been registered or qualified for sale in the state or an exemption from the state's registration or qualification requirement is available and complied with. Lincoln Park is an "underwriter" within the meaning of Section 2(a)(11) of the Securities Act.

Lincoln Park has informed us that it intends to use an unaffiliated broker-dealer to effectuate all sales, if any, of our common stock that it has acquired and may in the future acquire from us pursuant to the Purchase Agreement. Such sales will be made at prices and at terms then prevailing or at prices related to the then current market price. Each such unaffiliated broker-dealer will be an underwriter within the meaning of Section 2(a)(11) of the Securities Act. Lincoln Park has informed us that each such broker-dealer will receive commissions from Lincoln Park that will not exceed customary brokerage commissions.

Brokers, dealers, underwriters or agents participating in the distribution of the shares of our common stock offered by this prospectus may receive compensation in the form of commissions, discounts, or concessions from the selling stockholder and/or the purchasers, for whom the broker-dealers may act as agent. The compensation paid to any such particular broker-dealer may be less than or in excess of customary commissions. Neither we nor Lincoln Park can presently estimate the amount of compensation that any agent will receive from the selling stockholder or from any purchasers of shares of our common stock sold by Lincoln Park.

We know of no existing arrangements between Lincoln Park or any other stockholder, broker, dealer, underwriter or agent relating to the sale or distribution of the shares of our common stock offered by this prospectus.

We may from time to time file with the SEC one or more supplements to this prospectus or amendments to the registration statement that includes this prospectus to amend, supplement or update information contained in this prospectus, including, if and when required under the Securities Act, to disclose certain information relating to a particular sale of shares of our common stock offered by this prospectus by the selling stockholder, including the names of any brokers, dealers, underwriters or agents participating in the distribution of such shares of our common stock by the selling stockholder, any compensation paid by Lincoln Park to any such brokers, dealers, underwriters or agents, and any other required information.

We will pay the expenses incident to the registration under the Securities Act of the offer and sale of the shares of our common stock included in this prospectus by Lincoln Park. We estimate that the total expenses for the offering will be approximately \$109,015, which includes \$30,000 paid to Lincoln Park as reimbursement for certain expenses incurred in connection with the offering. We have agreed to indemnify Lincoln Park and certain other persons against certain liabilities in connection with the offering of shares of our common stock offered by this prospectus, including liabilities arising under the Securities Act or, if such indemnity is unavailable, to contribute amounts required to be paid in respect of such liabilities. Lincoln Park has agreed to indemnify us against liabilities under the Securities Act that may arise from certain written information furnished to us by Lincoln Park specifically for use in this prospectus or, if such indemnity is unavailable, to contribute amounts required to be paid in respect of such liabilities.

Lincoln Park has represented to us that at no time prior to the Purchase Agreement has Lincoln Park or its agents, representatives or affiliates engaged in or effected, in any manner whatsoever, directly or indirectly, any short sale (as such term is defined in Rule 200 of Regulation SHO of the Exchange Act) of our common stock or any hedging transaction, which establishes a net short position with respect to our common stock. Lincoln Park agreed that during the term of the Purchase Agreement, it, its agents, representatives or affiliates will not enter into or effect, directly or indirectly, any of the foregoing transactions.

We have advised Lincoln Park that it is required to comply with Regulation M promulgated under the Exchange Act. With certain exceptions, Regulation M precludes the selling stockholder, any affiliated purchasers, and any broker-dealer or other person who participates in the distribution from bidding for or purchasing, or attempting to induce any person to bid for or purchase any security which is the subject of the distribution until the entire distribution is complete. Regulation M also prohibits any bids or purchases made in order to stabilize the price of a security in connection with the distribution of that security. All of the foregoing may affect the marketability of the securities offered by this prospectus.

This offering will terminate on the date that all shares of our common stock offered by this prospectus have been sold by Lincoln Park.

Our Common Stock is listed on Nasdaq under the symbol "BFRG."

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DESCRIPTION OF OUR SECURITIES TO BE REGISTERED

The following description of our capital stock and provisions of our Amended and Restated Certificate of Incorporation, as amended ("Certificate of Incorporation"), and Amended and Restated Bylaws, as amended ("Bylaws" and together with the Certificate of Incorporation, the "Charter Documents"), is only a summary. You should also refer to our Certificate of Incorporation, a copy of which is filed as an exhibit to the registration statement of which this prospectus is a part, and our Bylaws, a copy of which is filed as an exhibit to the registration statement of which this prospectus is a part.

The following description of our capital stock, together with any additional information we include in any applicable prospectus supplement or any related free writing prospectus, summarizes the material terms and provisions of our common stock and the preferred stock that we may offer under this prospectus. While the terms we have summarized below will apply generally to any future common stock or preferred stock that we may offer, we will describe the particular terms of any class or series of these securities in more detail in the applicable prospectus supplement. For the complete terms of our common stock and preferred stock, please refer to our articles of incorporation and our bylaws that are incorporated by reference into the registration statement of which this prospectus is a part. The summary below and that contained in any applicable prospectus supplement or any related free writing prospectus are qualified in their entirety by reference to our articles of incorporation and our bylaws.

Common Stock

We are authorized to issue 100,000,000 shares of common stock, \$0.00001 par value per share. As of August 29, 2025, there are 10,249,805 shares of common stock issued and outstanding. The outstanding shares of common stock are validly issued, fully paid and nonassessable.

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

We are authorized to issue up to 5,500,000 shares of our Series A Preferred Stock, par value \$0.00001 per share, from time to time in one or more series. As of the date of this prospectus, there were 73,449 shares of our 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

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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 receive any liquidation as if they were converted to common stock.

Issuance of Preferred Stock

A prospectus supplement relating to the issuance of preferred stock being offered will include specific terms relating to the offering. Such prospectus supplement will include:

- the title and stated or par value of the preferred stock;
- the number of shares of the preferred stock offered, the liquidation preference per share and the offering price of the preferred stock;
- the dividend rate(s), period(s) and/or payment date(s) or method(s) of calculation thereof applicable to the preferred stock;
- whether dividends shall be cumulative or non-cumulative and, if cumulative, the date from which dividends on the preferred stock shall accumulate;
- the provisions for a sinking fund, if any, for the preferred stock;
- any voting rights of the preferred stock;
- the provisions for redemption, if applicable, of the preferred stock;
- any listing of the preferred stock on any securities exchange;
- the terms and conditions, if applicable, upon which the preferred stock will be convertible into our common stock, including the conversion price or the manner of calculating the conversion price and conversion period;
- if appropriate, a discussion of Federal income tax consequences applicable to the preferred stock; and
- any other specific terms, preferences, rights, limitations or restrictions of the preferred stock.

The terms, if any, on which the preferred stock may be convertible into or exchangeable for our common stock will also be stated in the preferred stock prospectus supplement. The terms will include provisions as to whether conversion or exchange is mandatory, at the option of the holder or at our option, and may include provisions pursuant to which the number of shares of our common stock to be received by the holders of preferred stock would be subject to adjustment.

Transfer Agent and Registrar

The transfer agent for our common stock is VStock Transfer, LLC. The transfer agent's address is 18 Lafayette Place, Woodmere, New York 11598.

Listing

Our common stock is currently traded on The Nasdaq Capital Market under the symbol "BFRG".

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DESCRIPTION OF WARRANTS

We may issue warrants for the purchase of preferred stock or common stock. Warrants may be issued independently or together with any preferred stock or common stock, and may be attached to or separate from any offered securities. Each series of warrants will be issued under a separate warrant agreement to be entered into between a warrant agent specified in the agreement and us. The warrant agent will act solely as our agent in connection with the warrants of that series and will not assume any obligation or relationship of agency or trust for or with any holders or beneficial owners of warrants. This summary of some provisions of the securities warrants is not complete. You should refer to the securities warrant agreement, including the forms of securities warrant certificate representing the warrants, relating to the specific securities warrants being offered for the complete terms of the securities warrant agreement and the securities warrants. The securities warrant agreement, together with the terms of the securities warrant certificate and securities warrants, will be filed with the SEC in connection with the offering of the specific warrants.

The applicable prospectus supplement will describe the following terms, where applicable, of the warrants in respect of which this prospectus is being delivered:

- the title of the warrants;
- the aggregate number of warrants;
- the price or prices at which warrants will be issued;
- the designation, amount and terms of the offered securities purchasable upon exercise of the warrants;
- if applicable, the date on and after which the warrants and the offered securities purchasable upon exercise of the warrants will be separately transferable;
- the terms of the securities purchasable upon exercise of such warrants and the procedures and conditions relating to the exercise of such warrants;
- any provisions for adjustment of the number or amount of securities receivable upon exercise of the warrants or the exercise price of the warrants;
- the price or prices at which and currency or currencies in which the offered securities purchasable upon exercise of the warrants may be purchased;
- the date on which the right to exercise the warrants shall commence and the date on which the right shall expire;
- the minimum or maximum amount of the warrants that may be exercised at any one time;
- information with respect to book-entry procedures, if any;
- if appropriate, a discussion of Federal income tax consequences; and
- any other material terms of the warrants, including terms, procedures and limitations relating to the exchange and exercise of the warrants.

Warrants for the purchase of common stock or preferred stock will be offered and exercisable for U.S. dollars only. Warrants will be issued in registered form only.

Upon receipt of payment and the warrant certificate properly completed and duly executed at the corporate trust office of the warrant agent or any other office indicated in the applicable prospectus supplement, we will, as soon as practicable, forward the purchased securities. If less than all of the warrants represented by the warrant certificate are exercised, a new warrant certificate will be issued for the remaining warrants.

Prior to the exercise of any securities warrants to purchase preferred stock or common stock, holders of the warrants will not have any of the rights of holders of the common stock or preferred stock purchasable upon exercise, including in the case of securities warrants for the purchase of common stock or preferred stock, the right to vote or to receive any payments of dividends on the preferred stock or common stock purchasable upon exercise.

LEGAL MATTERS

Certain legal matters, including the legality of the securities offered, will be passed upon for us by Ballard Spahr, Philadelphia, Pennsylvania.

EXPERTS

M&K CPAs, PLLC, an independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the years ended December 31, 2024 and 2023 as set forth in their report, which is incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on M&K CPAs, PLLC's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of a registration statement that we have filed with the SEC. Certain information in the registration statement has been omitted from this prospectus supplement in accordance with the rules of the SEC. We are subject to the information requirements of the Exchange Act and, in accordance therewith, file annual, quarterly and special reports, proxy statements and other information with the SEC. These documents also may be accessed through the SEC's electronic data gathering, analysis and retrieval system, or EDGAR, via electronic means, including the SEC's home page on the Internet (www.sec.gov). You may also inspect the registration statement and this prospectus on this website.

Our website is located at www.bullfrogai.com. Information contained on our website is not incorporated by reference into this prospectus, and, except for the documents incorporated by reference as noted below, you should not consider any information on, or that can be accessed from, our website as part of this prospectus.

INCORPORATION OF DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" information into this document, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is an important part of this prospectus, and information that we file later with the SEC will automatically update and supersede this information.

We incorporate by reference the documents listed below and any future filings made with the SEC under Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act made subsequent to the date of this prospectus until the termination of the offering of the securities described in this prospectus (other than information in such filings that was "furnished," under applicable SEC rules, rather than "filed"). Information included in such future filings updates and supplements the information provided in this prospectus. We incorporate by reference the following documents or information that we have filed with the SEC:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2024, filed with the SEC on [March 14, 2025](#);
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2025 and June 30, 2025, filed with the SEC on [May 13, 2025](#) and [August 13, 2025](#), respectively;
- our Current Reports on Form 8-K filed with the SEC on [February 27, 2025](#); [April 28, 2025](#); [June 12, 2025](#); [August 27, 2025](#); [September 16, 2025](#); [September 23, 2025](#); and [October 9, 2025](#) (other than any portions thereof deemed furnished and not filed); and
- the description of our common stock contained in our Registration Statement on Form 8-A filed with the SEC on [January 23, 2023](#) (File No. 001-41600).

Notwithstanding the foregoing, information furnished under Items 2.02 and 7.01 of any Current Report on Form 8-K, including the related exhibits, is not incorporated by reference in this prospectus.

The information about us contained in this prospectus should be read together with the information in the documents incorporated by reference. You may request a copy of any or all of these filings, at no cost, by writing or telephoning us at: Vininder Singh, BullFrog AI Holdings, Inc., 325 Ellington Blvd., Unit 317, Gaithersburg, MD 20878 telephone number (240) 658-6710.

BULLFROG AI HOLDINGS, INC.

Up to 5,000,000 Shares of Common Stock

PROSPECTUS

The date of this Prospectus is November 25, 2025
