

As filed with the Securities and Exchange Commission on December 30, 2024. Registration No. 333-[] UNITED STATES SECURITIES AND EXCHANGE COMMISSION Washington, D.C. 20549 FORM S-1 REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933 VIRPAX PHARMACEUTICALS, INC. (Exact name of registrant as specified in its charter) Delaware 2834 82-1510982 (State or other jurisdiction of incorporation or organization) (Primary Standard Industrial Classification Code Number) (I.R.S. Employer Identification No.) 1055 Westlakes Drive, Suite 300 Berwyn, PA 19312 (610) 727-4597 (Address, including zip code, and telephone number, including area code, of registrant's principal executive offices) Jatinder Dhaliwal Chief Executive Officer 1055 Westlakes Drive, Suite 300 Berwyn, PA 19312 (610) 727-4597 (Name, address, including zip code, and telephone number, including area code, of agent for service) with copies to: Ross D. Carmel, Esq. Benjamin E. Sklar, Esq. Sichenzia Ross Ference Carmel LLP 1185 Avenue of the Americas, 31st Floor New York, NY 10036 (212) 930-9700 Joseph M. Lucosky, Esq. Scott E. Linsky, Esq. Lucosky Brookman LLP 101 Wood Avenue South, 5th Floor Woodbridge, NJ 08830 (732) 395-4400

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

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act check the following box. ☐ If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐ If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration number of the earlier effective registration statement for the same offering. ☐ If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration number of the earlier effective registration statement for the same offering. ☐ Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

☐ Large accelerated filer ☐ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐ Emerging growth company

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

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

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

PROSPECTUS SUBJECT TO COMPLETION DATED DECEMBER 30, 2024

Virpax Pharmaceuticals, Inc. Up to [] Shares of Common Stock Up to [] Pre-Funded Warrants to Purchase [] Shares of Common Stock Up to [] Shares of Common Stock Issuable Upon Exercise of such Pre-Funded Warrants

We are offering on a best efforts basis up to [] shares of our Common Stock, par value \$0.00001 per share (the "Common Stock"). We are also offering to each purchaser, if any, whose purchase of shares of Common Stock in this offering would otherwise result in the purchaser, together with its affiliates and certain related parties, beneficially owning more than 4.99% (or, at the election of such purchaser, 9.99%) of our outstanding Common Stock immediately following the consummation of this offering, the opportunity to purchase, if the purchaser so chooses, pre-funded warrants (the "Pre-Funded Warrants"), in lieu of shares of Common Stock that would otherwise result in the purchaser's beneficial ownership exceeding 4.99% (or, at the election of such purchaser, 9.99%) of our outstanding shares of Common Stock. There can be no assurance that we will sell any of the Pre-Funded Warrants being offered. Each Pre-Funded Warrant will be immediately exercisable for one share of Common Stock and may be exercised at any time until all of the Pre-Funded Warrants are exercised in full. The purchase price of each Pre-Funded Warrant will equal the price per share at which one share of Common Stock is being sold to the public in this offering, minus \$0.00001, and the exercise price of each Pre-Funded Warrant will be \$0.00001 per share.

For each Pre-Funded Warrant we sell, the number of shares of Common Stock we are offering will be decreased on a one-for-one basis. This offering also relates to the shares of Common Stock issuable upon exercise of any Pre-Funded Warrants sold in this offering. We refer to the shares of Common Stock and Pre-Funded Warrants to be sold in this offering collectively as the "Securities."

Our Common Stock is listed on the Nasdaq Capital Market under the symbol "VRPX". The last reported sale price of our Common Stock on Nasdaq on December 27, 2024 was \$0.41 per share. We have assumed a public offering price of \$[] per share of Common Stock, which was the last reported sale price on Nasdaq of our shares of Common Stock on January [], 2025. The actual offering price per share of Common Stock and Pre-Funded Warrant will be negotiated between us and the investors, in consultation with the placement agent based on, among other things, the trading price of our Common Stock prior to the offering and may be at a discount to the current market price. Therefore, the assumed public offering price used throughout this prospectus may not be indicative of the final offering price. In addition, there is no established public trading market for the Pre-Funded Warrants, and we do not expect a market to develop. We do not intend to apply to have the Pre-Funded Warrants listed on any national securities exchange or any other nationally recognized trading system.

We have engaged Spartan Capital Securities, LLC to act as our exclusive placement agent (the "Placement Agent") in connection with this offering. The Placement Agent has agreed to use its reasonable best efforts to arrange for the sale of the Securities offered by this prospectus. The Placement Agent is not purchasing or selling any of the Securities we are offering, and the Placement Agent is not required to arrange the purchase or sale of any specific number of Securities or dollar amount. We have agreed to pay to the Placement Agent the fees set forth in the table below, which assumes that we sell all of the Securities offered by this prospectus. See "Plan of Distribution."

The Securities are expected to be issued in a single closing and the public offering price per share of Common Stock and Pre-Funded Warrant will be fixed for the duration of this offering. We will deliver all Securities to be issued in connection with this offering delivery versus payment ("DVP")/receipt versus payment ("RVP") upon receipt of investor funds received by us. There is no minimum offering requirement as a condition of closing of this offering. Because there is no minimum offering amount required as a condition to closing this offering, we may sell fewer than all of the Securities offered hereby, which may significantly reduce the amount of proceeds received by us, and investors in this offering will not receive a refund in the event that

we do not sell an amount of Securities sufficient to pursue our business goals described in this prospectus. Further, any proceeds from the sale of Securities offered by us will be available for our immediate use, despite uncertainty about whether we would be able to use such funds to effectively implement our business plan. See “Risk Factors” on page 9 of this prospectus for more information. This offering will terminate on [], 2025, unless the offering is fully subscribed before that date, or we decide to terminate the offering (which we may do at any time in our discretion) prior to that date. We will bear all costs associated with the offering. No escrow agent has been appointed or will be involved in this offering. We are an “emerging growth company” and a “smaller reporting company” as defined under the federal securities laws and, as such, we may elect to comply with certain reduced public company reporting requirements for this prospectus and future filings. See “Prospectus Summary” Implications of Being an Emerging Growth Company” and “Prospectus Summary” Implications of Being a Smaller Reporting Company.” You should read this prospectus, together with additional information described under the heading “Where You Can Find More Information” carefully before you invest in any of our Securities. Investing in our securities involves substantial risks. Please read carefully the section entitled “Risk Factors” beginning on page 9 of this prospectus, as well as the other information included or incorporated by reference in this prospectus, before buying any of our securities. Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

Per Share Per Pre-Funded Warrant Total Public offering price \$ \$ \$ \$ \$ Placement Agent fees (1) \$ \$ \$ \$ \$ Proceeds to us, before expenses (2) \$ \$ \$ \$ \$

(1) Represents a cash fee equal to 2.5% of the gross proceeds of the offering. We have also agreed to reimburse the Placement Agent for certain offering-related legal and other expenses and to pay to the Placement Agent at the closing of the offering a non-accountable expense allowance equal to 1% of the gross proceeds of the offering. See “Plan of Distribution.” (2) The proceeds to us, before expenses does not give effect to any exercise of any Pre-Funded Warrants. We expect to deliver the Securities to investors on or about , 2025.

Sole Placement Agent Spartan Capital Securities, LLC The date of this prospectus is , 2025

TABLE OF CONTENTS

PROSPECTUS SUMMARY 1 THE OFFERING 12 RISK FACTORS 14 USE OF PROCEEDS 20 CAPITALIZATION 21 DILUTION 22 SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS 24 DESCRIPTION OF OUR CAPITAL STOCK 25 DESCRIPTION OF SECURITIES WE ARE OFFERING 28 MATERIAL UNITED STATES FEDERAL INCOME TAX CONSIDERATIONS 30 PLAN OF DISTRIBUTION 36 LEGAL MATTERS 43 EXPERTS 43 WHERE YOU CAN FIND MORE INFORMATION 43 INCORPORATION OF CERTAIN INFORMATION BY REFERENCE 44 ABOUT THIS PROSPECTUS

We have not authorized anyone to provide any information to you or to make any representations other than those contained, or incorporated by reference, in this prospectus, any amendment or supplement to this prospectus, 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. This prospectus is an offer to sell only the securities offered hereby, and only under circumstances and in jurisdictions where offers and sales are permitted. You should not assume that the information contained in this prospectus or any applicable prospectus supplement is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus or any applicable prospectus supplement is delivered, or securities are sold, on a later date. Our business, financial condition, results of operations and prospects may have changed since the date on the front cover of this prospectus. We may also file a prospectus supplement or a post-effective amendment to the registration statement of which this prospectus forms a part that may contain material information relating to this offering. The prospectus supplement or a post-effective amendment may also add, update or change information contained in this prospectus. If there is any inconsistency between the information in this prospectus and the applicable prospectus supplement or a post-effective amendment, you should rely on the prospectus supplement or a post-effective amendment, as applicable. Before purchasing any securities, you should carefully read this prospectus, any post-effective amendment, and any applicable prospectus supplement, together with the additional information described under the heading “Where You Can Find More Information” and “Incorporation of Certain Information by Reference.” 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 section entitled “Where You Can Find More Information.” Information contained in, and that can be accessed through our website, www.virpaxpharma.com, shall not be deemed to be part of this prospectus or incorporated herein by reference and should not be relied upon by any prospective investors for the purposes of determining whether to purchase the Common Stock offered hereunder. Unless the context otherwise requires, the terms “we,” “us,” “our,” “the Company,” “Virpax” and “our business” refer to Virpax Pharmaceuticals, Inc. and “this offering” refers to the offering contemplated in this prospectus.

ii INDUSTRY AND MARKET DATA Unless otherwise indicated, information in this prospectus concerning economic conditions, our industry, our markets and our competitive position is based on a variety of sources, including information from third-party industry analysts and publications and our own estimates and research. Some of the industry and market data contained in this prospectus are based on third-party industry publications. This information involves a number of assumptions, estimates and limitations. The industry publications, surveys and forecasts and other public information generally indicate or suggest that their information has been obtained from sources believed to be reliable. We believe this information is reliable as of the applicable date of its publication, however, we have not independently verified the accuracy or completeness of the information included in or assumptions relied on in these third-party publications. In addition, the market and industry data and forecasts that may be included in this prospectus, any post-effective amendment or any prospectus supplement may involve estimates, assumptions and other risks and uncertainties and are subject to change based on various factors, including those discussed under the heading “Risk Factors” contained in this prospectus, any post-effective amendment, any prospectus supplement and under similar headings in the other documents that are incorporated by reference into this prospectus. Accordingly, investors should not place undue reliance on this information.

TRADEMARKS, SERVICE MARKS AND TRADE NAMES We own or have rights to use a number of registered and common law trademarks, service marks and/or trade names in connection with our business in the United States and/or in certain foreign jurisdictions. Solely

for convenience, the trademarks, service marks, logos and trade names referred to in this prospectus are without the ® and ™ symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensors to these trademarks, service marks and trade names. This prospectus contains additional trademarks, service marks and trade names of others, which are the property of their respective owners. All trademarks, service marks and trade names appearing in this prospectus are, to our knowledge, the property of their respective owners. We do not intend our use or display of other companies' trademarks, service marks, copyrights or trade names to imply a relationship with, or endorsement or sponsorship of us by, any other companies. Virpax® is a registered trademark for Virpax Pharmaceuticals, Inc. It was registered under the United States Patent and Trademark Office under serial number 87897821 on December 11, 2018. Our logo is a registered trademark for Virpax Pharmaceuticals, Inc. It was registered under the United States Patent and Trademark Office (the "USPTO") under serial number 87897809 on January 1, 2019. In this prospectus, Virpax® is referred to as Virpax. Additionally, "we", "our", "the company" will be synonymous with Virpax. We have obtained a notice of allowance for our trademark AnQlar®, ™. We have filed for trademark protection with the USPTO for Probudura®, ™, Epoladerm®, ™, NobrXiol®, ™, and Envelta®, ™.

iii CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS Certain statements in this prospectus may contain "forward-looking statements" within the meaning of the federal securities laws. Our forward-looking statements include, but are not limited to, statements about us and our industry, as well as statements regarding our or our management team's expectations, hopes, beliefs, intentions or strategies regarding the future. Additionally, any statements that refer to projections, forecasts or other characterizations of future events or circumstances, including any underlying assumptions, are forward-looking statements. We intend the forward-looking statements to be covered by the safe harbor provisions of the federal securities laws. Words such as "may", "should", "could", "would", "predicts", "potential", "continue", "expects", "anticipates", "future", "intends", "plans", "believes", "estimates", and similar expressions, as well as statements in future tense, may identify forward-looking statements, but the absence of these words does not mean that a statement is not forward-looking. Forward-looking statements should not be read as a guarantee of future performance or results and may not be accurate indications of when such performance or results will be achieved. Forward-looking statements are based on information we have when those statements are made or management's good faith belief as of that time with respect to future events, and are subject to significant risks and uncertainties that could cause actual performance or results to differ materially from those expressed in or suggested by the forward-looking statements. Important factors that could cause such differences include, but are not limited to:

- Our expected use of proceeds from this offering;
- Our limited operating history makes it difficult for us to evaluate our future business prospects;
- Our ability to continue as a going concern;
- The expectation that we will incur significant operating losses for the foreseeable future and will need significant additional capital;
- Our current and future capital requirements to support our development and commercialization efforts for our product candidates and our ability to satisfy our capital needs;
- Risks relating to ownership of our Common Stock, including high volatility and dilution;
- Our lack of operating history;
- The outcome of certain current litigation in which we and our former Chief Executive Officer are named as defendants;
- Our ability to raise additional capital;
- Our dependence on our product candidates, which are still in preclinical or early stages of clinical development;
- Our, or that of our third-party manufacturers, ability to manufacture current good manufacturing practice ("cGMP") quantities of our product candidates as required for preclinical and clinical trials and, subsequently, our ability to manufacture commercial quantities of our product candidates;
- Our ability to complete required clinical trials for our product candidates and obtain approval from the US Food and Drug Administration ("FDA") or other regulatory agencies in different jurisdictions;
- Our lack of a sales and marketing organization and our ability to commercialize our product candidates if we obtain regulatory approval;
- Our dependence on third parties to manufacture our product candidates;
- Our reliance on third-party contract research organizations ("CROs") to conduct our clinical trials;
- Our ability to maintain or protect the validity of our intellectual property;
- Our ability to internally develop new inventions and intellectual property;
- Interpretations of current laws and the passages of future laws;
- Acceptance of our business model by investors;
- The accuracy of our estimates regarding expenses and capital requirements;
- Our ability to maintain retention of key directors, officers and employees due to the recent cuts in salaries, insurance coverage and resources, which could result in significant disruptions to our business;
- Our ability to maintain our Nasdaq listing; and
- Our ability to adequately support organizational and business growth.

The risks and uncertainties included here are not exhaustive or necessarily in order of importance. Other sections of this prospectus, including "Risk Factors" beginning on page [], our Annual Report, as updated with the Risk Factors set forth in our Quarterly Report for the three and nine months ended September 30, 2024, and other reports that we file with the SEC include additional factors that could affect our businesses and financial performance. Moreover, we operate in a rapidly changing and competitive environment. New risk factors emerge from time to time, and it is not possible for management to predict all such risk factors. Further, it is not possible to assess the effect of all risk factors on our businesses or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. Given these risks and uncertainties, investors should not place undue reliance on forward-looking statements as a prediction of actual results. In addition, we disclaim any obligation to correct or update any forward-looking statements to reflect events or circumstances that occur after the date of this prospectus.

v PROSPECTUS SUMMARY The following summary highlights information contained elsewhere in this prospectus or incorporated by reference herein and does not contain all the information that may be important to purchasers of our Securities. Prospective purchasers of our securities should carefully read the entire prospectus, including the risks of investing in our securities discussed under the section entitled "Risk Factors" commencing on Page 9 of this prospectus and under similar headings in the other documents that are incorporated by reference into this prospectus. Prospective purchasers of our securities should also carefully read the information incorporated by reference into this prospectus, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part.

Our Company We are a preclinical-stage pharmaceutical company focused on developing novel and proprietary drug delivery systems across various pain indications in order to enhance compliance and optimize each product candidate in our pipeline. Our drug-delivery systems and drug-releasing technologies being developed are focused on advancing non-opioid and non-addictive pain management treatments and treatments for central nervous system ("CNS") disorders to enhance patients' quality of life. We have exclusive global rights to the following proprietary patented technologies: (i) Molecular Envelope Technology ("MET") that uses an intranasal device to

deliver enkephalin for the management of severe pain, including post cancer pain (Envelta,®) and post-traumatic stress disorder (PTSD), (ii) Injectable local anesthetic Liposomal Technology for postoperative pain management (Probudur,®), and (iii) Investigational formulation delivered via the nasal route to enhance pharmaceutical-grade cannabidiol (CBD) transport to the brain (Nobrxiol,®, formerly VRP324) to potentially treat epileptic seizures associated with Lennox-Gastaut syndrome (LGS) and Dravet syndrome (DS) in pediatric patients two years of age and older. We are also exploring value creative opportunities for two nonprescription product candidates including seeking regulatory approval for commercialization of such products: Anqlar,®, which is being developed as a 24-hour prophylactic viral barrier to inhibit viral infection by influenza or SARS-CoV-2, and Epoladerm,®, which is a topical diclofenac epolamine metered dosed spray film formulation being developed to manage pain associated with osteoarthritis. Our portfolio currently consists of multiple preclinical stage product candidates: Epoladerm, Probudur, Envelta, Anqlar and Nobrxiol. We anticipate commencing clinical trials for Probudur in 2025 and Envelta in 2026 but there can be no assurances that the trials will commence on the anticipated timeline presented, or at all. This estimate assumes no disruptions to the ongoing operations and the product development process. We have recently implemented significant cost-cutting measures and eliminated our directors and officers insurance coverage, as described further in the risk factors. There is a risk that the Company will not be able to retain or replace key directors, officers, and employees, who may seek alternative employment opportunities, which could result in significant disruptions to our business and cause delay in the above mentioned clinical trial timeline.

Recent Developments

Bylaws On November 27, 2024, we amended our Amended and Restated Bylaws to modify the quorum requirement for shareholder meetings. The amendment reduced the quorum threshold from a majority of the voting power of the Company's outstanding shares entitled to vote at a meeting to 34% of such voting power.

Directors Mr. Jaydriane (Jay) Panis On December 17, 2024, we appointed Mr. Jaydriane (Jay) Panis to our Board to fill the vacancy created by the resignation of Mr. Gary Herman on December 6, 2024. Mr. Panis is a Certified Financial Planner (CFP) with more than 20 years of experience in the financial services industry. He is the founder of his own financial planning practice and serves as a director at a prominent Canadian financial planning firm based in British Columbia. Mr. Panis holds diplomas in Financial Management and Business Management and has a strong track record of helping clients achieve their financial goals through effective planning and leadership. We believe that Mr. Panis's expertise and leadership experience in financial management will provide valuable strategic insights to the Company.

Mr. Gary Herman On December 6, 2024, we accepted the resignation of Mr. Gary Herman as a member of the Board and from all committees on which he served, effective immediately. Mr. Herman's resignation was not due to any disagreement with the Company, its management, the Board, or any matter relating to our operations, policies, or practices. We expressed our gratitude to Mr. Herman for his service and contributions to the Board.

Mr. Eric Floyd On September 20, 2024, Eric Floyd, Chairman of the Board, notified the Company of his intention to resign from the Board, effective immediately.

Ms. Esha Randhawa On November 19, 2024, we appointed Ms. Esha Randhawa as an independent director and member of the Audit Committee. Ms. Randhawa's appointment remedied the deficiencies resulting from the resignation of Dr. Eric Floyd on September 20, 2024, which had caused us to fall out of compliance with Nasdaq Listing Rules 5605(b)(1) and 5605(c)(2).

Randhawa serves as a member of the following committees of the Board: (1) the Audit Committee, alongside Ms. Judy Su, (2) the Compensation Committee, where she serves as Chair alongside Ms. Su, (3) the Nominating and Corporate Governance Committee, where she serves as Chair alongside Ms. Su, and (4) the Science and Technology Committee, where she serves alongside Mr. Dhaliwal, Ms. Su, and Ms. Katharyn Field.

Ms. Randhawa is an experienced pharmacist and entrepreneur with a strong background in pharmaceutical sciences. She holds a Bachelor of Pharmacy degree, with a focus in Pharmaceutical Sciences, and a Bachelor of Science in Biology, both completed at The University of British Columbia in Vancouver. Ms. Randhawa is the Co-Founder of Green Light Cannabis, where she applies her extensive knowledge of the healthcare and retail industries to develop innovative solutions and strategic initiatives. Her expertise in pharmaceutical sciences and business operations brings a unique perspective to the Board and supports the Company's commitment to advancing its mission.

Chief Executive Officer On November 19, 2024, we entered into an Independent Contractor Agreement (the "Agreement") with Jatinder Dhaliwal, the Company's Chief Executive Officer (the "CEO") and a member of the Board, through his personal corporation, Jat Consulting Corp., a company incorporated under the laws of the Province of British Columbia, Canada.

On December 30, 2024, we entered into an amendment (the "Amendment") to the Agreement to clarify certain provisions. The Amendment confirms that the term "Contractor" in the Agreement refers exclusively to Jat Consulting Corp., through which Mr. Dhaliwal provides his services as CEO. The Amendment also clarifies that all payments under the Agreement are made directly to Jat Consulting Corp., which is responsible for compensating its personnel, including Mr. Dhaliwal. Additionally, the Amendment addresses tax responsibilities, indemnification provisions, and other terms to ensure compliance with applicable laws and regulations.

Mr. Dhaliwal was appointed as the Company's CEO on October 6, 2024. Under the Agreement, Mr. Dhaliwal will provide strategic leadership, oversight, and advisory services, including advancing the Company's drug development programs and regulatory applications, achieving key regulatory milestones, and performing other responsibilities consistent with his position as CEO. Mr. Dhaliwal brings extensive leadership experience in the pharmaceutical and biotechnology industries. His expertise positions him to lead the Company in achieving its strategic objectives. There are no family relationships between Mr. Dhaliwal and any director, executive officer, or other significant person at the Company. Additionally, Mr. Dhaliwal has not been involved in any legal proceedings required to be disclosed under Item 401(e) of Regulation S-K in the past ten years.

Under the terms of the Agreement, the Company will pay Jat Consulting Corp. an annual fee of \$200,000, payable in equal monthly installments, and milestone-based incentive payments tied to the achievement of key regulatory and clinical development objectives, including Investigational New Drug (IND) status, commencement of clinical trials, and FDA approval. The Agreement also includes confidentiality obligations that survive termination and provides for a severance payment equivalent to \$200,000 in the event of termination without cause or resignation for good reason.

Notice of Special Meeting We filed preliminary and definitive proxy statements for the 2025 Special Meeting of Stockholders (the "2025 Special Meeting") of the Company to be held at the offices of Sichenzia Ross Ference Carmel LLP, 1185 Avenue of the Americas, 31st Floor, New York, New York, 10036, on Wednesday, January 15, 2024, beginning at 11:00 a.m. Eastern time. At the 2025 Special Meeting, stockholders will act on the following matters: (1) to approve an amendment to the Company's Amended and Restated Certificate of Incorporation, at the discretion of the Board of the Company, effect a reverse stock split with respect to the Company's issued and outstanding common stock, par value \$0.00001 per share, including stock held by the Company as treasury shares, at a ratio of 1-for-2 to 1-for-240 (the "Range"), with the ratio within such Range (the "Reverse Stock Split Ratio") to be determined at the

discretion of the Board of Directors and included in a public announcement (the “Reverse Stock Split Proposal” or “Proposal 1”); (2) To elect five (5) directors, Jatinder Dhaliwal, Katharyn Field, Jaydriane Panis, Judy Su, and Esha Randhawa, each to hold office until our Annual Meeting of Shareholders to be held in 2025 or their respective successor is duly elected and qualified (the “Director Proposal” or “Proposal 2”); and (3) To approve an adjournment of the 2025 Special Meeting to a later date or dates, if necessary, to permit further solicitation and vote of proxies in the event there are not sufficient votes in favor of the Reverse Stock Split Proposal and/or the Director Proposal (the “Adjournment Proposal” or “Proposal 3”). Only stockholders of record at the close of business on November 20, 2024, are entitled to receive notice of and to vote at the 2025 Special Meeting or any postponement or adjournment thereof.

3 Chief Financial Officer On November 18, 2024, we appointed Mr. Usama Chaudhry as Chief Financial Officer of the Company under an Independent Contractor Agreement with Chaudhry U Consulting Inc., a Canadian corporation represented by Mr. Chaudhry. In this role, Mr. Chaudhry will oversee the Company’s financial reporting, budgeting, and compliance functions, as well as develop and implement financial strategies. On December 30, 2024, we entered into an amendment (the “Amendment”) to the Agreement to clarify certain provisions. The Amendment confirms that the term “Contractor” in the Agreement refers exclusively to Chaudhry U Consulting Inc., through which Mr. Chaudhry provides his services as CFO. The Amendment also clarifies that all payments under the Agreement are made directly to Chaudhry U Consulting Inc., which is responsible for compensating its personnel, including Mr. Chaudhry. Additionally, the Amendment addresses tax responsibilities, indemnification provisions, and other terms to ensure compliance with applicable laws and regulations.

Mr. Chaudhry is a seasoned executive with extensive expertise in corporate development, investor relations, financial reporting, and corporate governance. He currently serves on several public company boards and has a track record of aligning strategic objectives with cost-control measures to enhance organizational performance. Mr. Chaudhry earned a Bachelor of Commerce degree, majoring in accounting, from the University of Northern British Columbia. There are no family relationships between Mr. Chaudhry and any director, executive officer, or other significant person at the Company. Additionally, Mr. Chaudhry has not been involved in any legal proceedings required to be disclosed under Item 401(e) of Regulation S-K in the past ten years.

Under the terms of the Independent Contractor Agreement, we will pay Chaudhry U Consulting Inc. an annual fee of \$180,000, payable in monthly installments, and reimburse reasonable, pre-approved expenses incurred in the performance of services.

Investor Relations Agreement On November 12, 2024, we entered into an investor relations agreement (the “IR Agreement”) with IR Agency LLC (the “Consultant”). Under the IR Agreement, the Consultant will provide marketing and advertising services to promote the Company to the financial community. In consideration for these services, we paid the Consultant a fee, for an initial term of one month, after which the agreement may be extended by mutual agreement, of two million U.S. Dollars (\$2,000,000), payable in cash. Either party may terminate the IR Agreement at any time by providing written notice. A copy of the IR Agreement is filed as Exhibit 10.48 to this Form S-1.

New Management On October 5, 2024, Gerald Bruce, the former Chief Executive Officer of the Company, and Vinay Shah, the former Chief Financial Officer of the Company, notified the Company of their resignations from their respective positions, effective immediately. On October 6, 2024, the Board appointed Jatinder Dhaliwal, a current member of the Board, as Chief Executive Officer of the Company, effective immediately. Mr. Dhaliwal will continue to serve as a member of the Board, and Katharyn Field will replace him on the Board’s Audit Committee. Mr. Dhaliwal will also serve as the Principal Financial Officer of the Company.

Reverse Stock Split On February 29, 2024, we filed a certificate of amendment to our Amended and Restated Certificate of Incorporation for purposes of effecting a 1-for-10 reverse stock split (the “Reverse Split”) of our outstanding shares of Common Stock such that, effective upon March 1, 2024, the day after the filing thereof, every 10 issued and outstanding shares of our Common Stock were subdivided and reclassified into one validly issued, fully paid and non-assessable share of our Common Stock.

4 Litigation On February 29, 2024, Sorrento Therapeutics, Inc. (“Sorrento”), and Scilex Pharmaceuticals Inc. (“Scilex”) and together with Sorrento, the “Plaintiffs”) and the Company entered into a Settlement Agreement and Mutual Release (the “Settlement Agreement”) to fully resolve all claims by the Plaintiffs against the Company related to the litigation in the Chancery Court of the State of Delaware (the “Chancery Court”) captioned “Sorrento Therapeutics, Inc. and Scilex Pharmaceuticals Inc. v. Anthony Mack and Virpax Pharmaceuticals, Inc., Case No. 2021-0210-PAF, (the “Action”), subject to the entry by the United States Bankruptcy Court for the Southern District of Texas, which is handling the Sorrento bankruptcy filing (the “Bankruptcy Court”), of an order approving the Settlement Agreement (the “Settlement Order”). On March 1, 2024, the Plaintiffs filed a motion with the Bankruptcy Court to approve the Settlement Agreement and grant the related relief. On March 14, 2024, the Bankruptcy Court entered an order approving the Settlement Agreement and on March 20, 2024 the Plaintiffs filed a Stipulation of Dismissal with the Chancery Court dismissing the Action. The Chancery Court has not yet acted upon the filing. See “Part II” “Item 1” “Legal Proceedings” in our Quarterly Report on Form 10-Q for the three and nine months ended September 30, 2024 incorporated herein by reference for additional information regarding the litigation with the Plaintiffs.

Pursuant to the Settlement Agreement, we agreed to pay Sorrento and Scilex a total cash payment of \$6 million, of which \$3.5 million was paid two business days after the date that the Settlement Order was entered by the Bankruptcy Court (the “Effective Date”), which payment was made on March 18, 2024 and the remaining \$2.5 million was paid on July 8, 2024. Additionally, we agreed to pay to Plaintiffs royalties of 6% of annual net sales of products developed from drug candidates Epoladerm, Probudur and Envelta until the earlier of the expiration of the last-to-expire valid patent claim of such product and the expiration of any period of regulatory exclusivity for such product.

Pursuant to the Settlement Agreement, each of the Plaintiffs and we provided mutual releases of all claims as of the Effective Date, whether known or unknown, arising from any allegations set forth in the Action. Plaintiffs’ release relates to claims against us only. Plaintiffs’ release as to us was effective upon our initial payment of \$3.5 million, and our release of the Plaintiffs was effective on the Effective Date.

The Plaintiffs can still pursue claims against Mr. Mack. Our bylaws require us to “indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the Corporation) by reason of the fact that such person is or was a director or officer of the Corporation, or, while a director or officer of the Corporation.” Such indemnification, however, is limited to circumstances where the covered person “acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the Corporation.” Mr. Mack may attempt to claim he is entitled to indemnification, should the Chancery Court find him liable for damages in the Action. Given the findings in the Memorandum Opinion issued in the Action, we believe we have a strong position that Mr. Mack would not be entitled to indemnification. There is a risk, however, that a court could find he is entitled to such indemnification. Additionally, per

Section 7.6 of the bylaws, we had been advancing Mr. Mack's attorneys' fees and costs for the Action. It is likely Mr. Mack will contend he is still entitled to advancement of any fees and/or costs for the Action going forward and may seek judicial intervention. However, as per the bylaws, Mr. Mack is only entitled to advancement of expenses for indemnifiable actions. As noted above, given the Memorandum Opinion in the Action, we believe that we have a strong position that Mr. Mack is not entitled to indemnification, and therefore, not entitled to advancement of expenses. However, there is a risk that a court could find that Mr. Mack is entitled to such advancement. Further, Mr. Mack may attempt to seek damages from us based on the Chancery Court's final judgment on damages under the theory of joint and several liability and/or seek contribution from us for any monetary judgment. Given the Settlement Agreement does not release Mr. Mack from liability related to the Action, the Chancery Court has requested supplemental briefing as to whether the Chancery Court can dismiss us from the lawsuit, as well as any claims Mr. Mack has against us arising from the Action. While we believe that any damages assessed may be awarded against Mr. Mack alone, Plaintiffs cannot seek additional damages from us. However, there is a risk that Mr. Mack will still seek contribution from us for any damages claim arising from the Action and, there is a risk that the Chancery Court will rule in Mr. Mack's favor. Any such amounts for indemnification, contribution or other amounts awarded by the Chancery Court in Mr. Mack's favor could be significant. No further reimbursements are permitted from our insurance policy with respect to the litigation. Accordingly, if Mr. Mack were to successfully seek indemnification from us, we would have to pay such amounts in cash which would further reduce our cash position. A

Employment Dispute On September 3, 2024, we received a letter from Kagen, Caspersen & Bogart PLLC, legal counsel to Gerald Bruce, our former Chief Executive Officer, and Vinay Shah, our former Chief Financial Officer, regarding their employment agreements with the Company. In the letter, they alleged that the Company had violated their employment agreements by reducing their contractual base compensation by 50%, and claim that, as a result, the executives may resign for good reason after the 30-day cure period and be entitled to severance compensation. The Company disagrees with their interpretation of the employment agreements and considers its actions to be consistent with the terms of the agreements. Accordingly, the Company denies the allegations and intends to vigorously defend the matter. On October 5, 2024, Gerald Bruce, our former Chief Executive Officer and member of the Board, and Vinay Shah, our former Chief Financial Officer, notified the Company of their resignation from their respective positions, effective immediately. A

Nasdaq Compliance Stockholders' Equity. On April 2, 2024, we received a letter from the Listing Qualifications Staff of the Nasdaq Stock Market LLC (the "Nasdaq") notifying us that our stockholders' equity as reported in our Annual Report on Form 10-K for the period ended December 31, 2023 (the "Annual Report"), did not meet the minimum stockholders' equity requirement for continued listing on the Nasdaq Capital Market. Nasdaq Listing Rule 5550(b)(1) requires companies listed on the Nasdaq Capital Market to maintain stockholders' equity of at least \$2,500,000 (the "Minimum Stockholders' Equity Rule"). In the Annual Report, we reported stockholders' equity of \$1,934,321, which is below the minimum stockholders' equity required for continued listing pursuant to Nasdaq Listing Rule 5550(b)(1). Additionally, as of the date of this prospectus, we do not meet the alternative Nasdaq continued listing standards under Nasdaq Listing Rules. In our Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2024, we reported stockholders' deficit of \$2.0 million. Pursuant to Nasdaq's Listing Rules, we were given 45 calendar days (or until May 17, 2024), to submit a plan to evidence compliance with the Minimum Stockholders' Equity Rule (a "Compliance Plan"). We submitted a Compliance Plan within the required time period, which included raising equity in public offerings. On July 29, 2024, we received notice from the Listing Qualifications Staff (the "Staff") of Nasdaq that we were granted an extension through September 30, 2024 to regain compliance with Nasdaq Listing Rule 5550(b)(1). On October 3, 2024, we received a delisting determination letter from the Staff advising the Company that the Staff had determined that the Company did not meet the terms of the extension. As a result, we requested an appeal of the Staff's determination. We submitted a hearing request to the Nasdaq Hearings Panel (the "Panel"), which request is expected to stay any delisting action by the Staff at least until the hearing process concludes and any extension granted by the Panel expires. Notwithstanding the foregoing, there can be no assurance that the Panel will grant the Company's request or an additional extension period, or that the Company will ultimately regain compliance with all applicable requirements for continued listing on The Nasdaq Capital Market. We will not be able to comply with the Minimum Stockholders' Equity Rule even after this offering due to our cash burn rate, operating expenses, and payment obligations. As a result, we will be required to raise additional funds after this offering in order to achieve compliance. A

Minimum Bid Price. On June 28, 2024, we received written notice from the Listing Qualifications Department of Nasdaq notifying us that for the preceding 30 consecutive business days (May 15, 2024 through June 27, 2024), the Company's Common Stock did not maintain a minimum closing bid price of \$1.00 (the "Minimum Bid Price Rule") per share as required by Nasdaq Listing Rule 5550(a)(2). In accordance with Nasdaq Listing Rule 5810(c)(3)(A), we were given a compliance period of 180 calendar days, or until December 26, 2024, to regain compliance with Nasdaq Listing Rule 5550(a)(2). A

On July 22, 2024, the Company received a notice from the Listing Qualifications Department of Nasdaq notifying the Company that the staff has determined that for 10 consecutive business days, from July 8, 2024 to July 19, 2024, the closing bid price of the Company's shares of Common Stock had been at \$1.00 per share or greater. Accordingly, the staff had determined that the Company had regained compliance with Listing Rule 5550(a)(2). On October 4, 2024, the Company received a deficiency letter from the Staff of Nasdaq notifying the Company that, for the last 30 consecutive business days, the closing bid price for the Company's common stock had been below the minimum \$1.00 per share required for continued listing on Nasdaq pursuant to Nasdaq Listing Rule 5550(a)(2). The Nasdaq deficiency letter has no immediate effect on the listing of the Company's common stock, and our common stock will continue to trade on The Nasdaq Capital Market under the symbol "VRPX". In accordance with Nasdaq Listing Rule 5810(c)(3)(A), the Company has been given 180 calendar days, or until April 2, 2025, to regain compliance with the Minimum Bid Price Rule. If at any time before April 2, 2025, the bid price of the Company's common stock closes at \$1.00 per share or more for a minimum of 10 consecutive business days, the Staff will provide written confirmation that the Company has achieved compliance. If the Company does not regain compliance with the Minimum Bid Price Rule by April 2, 2025, the Company may be afforded a second 180 calendar days period to regain. The Company would be required to notify Nasdaq of its intent to cure the deficiency during the second compliance period. If the Company does not regain compliance with the Minimum Bid Price Rule by the end of the compliance period (or the second compliance period, if applicable), 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 Staff to a hearings panel. A

The Company intends to monitor the closing bid price of its common stock and may, if appropriate, consider available

options to regain compliance with the Minimum Bid Price Rule, including initiating a reverse stock split. However, there can be no assurance that the Company will be able to regain compliance with the Minimum Bid Price Rule or will otherwise be in compliance with other Nasdaq Listing Rules. An Independent Director and Audit Committee Requirements. On November 19, 2024, we received a letter from Nasdaq notifying the Company that, as a result of the resignation of Dr. Eric Floyd from the Board and Audit Committee on September 20, 2024, we were no longer in compliance with Nasdaq's independent director and Audit Committee requirements under Listing Rules 5605(b)(1) and 5605(c)(2). On November 25, 2024, we received a letter from Nasdaq notifying us that we had regained compliance with the independent director and audit committee requirements for continued listing on the Nasdaq Capital Market, as set forth in Listing Rules 5605(b)(1) and 5605(c)(2). Nasdaq has confirmed that, as of November 25, 2024, we regained compliance with the rules, and the matter is now closed. A November 2024 Public Offering. On November 12, 2024, we entered into a placement agency agreement (the "Placement Agency Agreement") with Spartan Capital Securities, LLC (the "Placement Agent"), and a securities purchase agreement (the "Purchase Agreement") with investors pursuant to which the Company agreed to issue and sell, in a "reasonable best efforts" public offering (the "Offering") (i) 3,200,000 shares (the "Shares") of the Company's common stock, par value \$0.00001 per share (the "Common Stock"), and (ii) pre-funded warrants to purchase up to 6,800,000 shares of Common Stock (the "Pre-Funded Warrants") at an offering price of \$0.50 per Share, less \$0.00001 per Pre-Funded Warrant, for aggregate gross proceeds of \$5,000,000, assuming the full exercise of the Pre-Funded Warrants, and before deducting placement agent fees and other offering expenses. As part of its compensation for acting as Placement Agent for the Offering, we paid the Placement Agent a cash fee of 2.5% of the aggregate gross proceeds, in addition to 1.0% of the gross proceeds for non-accountable expenses, and reimbursed the Placement Agent for other expenses incurred by the Placement Agent, including legal fees. We used the net proceeds of the Offering to pay \$2,000,000 to IR Agency LLC for marketing and advertising services, and development activities for commencing a clinical trial for Probudur, the Company's formulation injected at a wound site to provide pain relief, as well as other general corporate purposes. The Offering closed on November 14, 2024, with the Pre-Funded Warrants issued on November 15, 2024. A May 2024 Public Offering. On May 17, 2024 (the "Closing Date"), we consummated a public offering (the "Public Offering") of an aggregate of (i) 937,034 shares (the "Shares") of Common Stock, pre-funded warrants to purchase up to 729,633 shares of Common Stock (the "May 2024 Pre-Funded Warrants"), Series A-1 Common Stock purchase warrants (the "Series A-1 Common Warrants") to purchase up to 1,666,667 shares of Common Stock (the "Series A-1 Warrant Shares"), and Series A-2 Common Stock purchase warrants (the "Series A-2 Common Warrants" and together with the Series A-1 Common Warrants, the "Common Warrants") to purchase up to 1,666,667 shares of Common Stock (the "Series A-2 Warrant Shares" and together with the Series A-1 Warrant Shares, the "Common Warrant Shares"). Each Share and associated Series A-1 Common Warrant and Series A-2 Common Warrant to purchase an aggregate of two (2) Common Warrant Shares was sold at a combined public offering price of \$1.35. Each Pre-Funded Warrant and associated Series A-1 Common Warrant and Series A-2 Common Warrant to purchase an aggregate of two (2) Common Warrant Shares was sold at a combined public offering price of \$1.34999. The aggregate gross proceeds from the Public Offering was approximately \$2.25 million, before deducting placement agent fees and other offering expenses. Each May 2024 Pre-Funded Warrant was immediately exercisable for one (1) share of Common Stock (the "May 2024 Pre-Funded Warrant Shares") at an exercise price of \$0.00001 per share and exercisable until the May 2024 Pre-Funded Warrants were exercised in full. Each Series A-1 Common Warrant has an exercise price of \$1.35 per share, is immediately exercisable for one (1) share of Common Stock, and expires five (5) years from its issuance date. Each Series A-2 Common Warrant has an exercise price of \$1.35 per share, is immediately exercisable for one (1) share of Common Stock, and expires eighteen (18) months from its initial issuance date. As of November 7, 2024, all May 2024 Pre-Funded Warrants were exercised in full and an aggregate of 2,049,683 Common Warrants have been exercised, for aggregate proceeds of approximately \$2.8 million, resulting in 1,152,817 Series A-1 Common Warrants and 130,834 Series A-2 Common Warrants remaining outstanding. The exercise price of the Common Warrants and number of shares of Common Stock issuable upon exercise will adjust in the event of certain stock dividends and distributions, stock splits, stock combinations, reclassifications or similar events. The Common Warrants may be exercised on a cashless basis if at the time of exercise hereof there is no effective registration statement registering, or the prospectus contained therein is not available for, the issuance of the Common Warrant Shares to the holder. A holder of the Common Warrants (together with its affiliates) may not exercise any portion of the Common Warrant or Pre-Funded Warrant to the extent that the holder would own more than 4.99% (or 9.99%, at the election of the holder) of the outstanding shares of Common Stock immediately after exercise, except that upon at least 61 days prior notice from the holder to the Company, the holder may increase the amount of beneficial ownership of outstanding shares after exercising the holder's Common Warrants up to 9.99% of the number of the Company's shares of Common Stock outstanding immediately after giving effect to the exercise. A July 2024 Private Placement. On July 5, 2024, we entered into a Securities Purchase Agreement (the "Purchase Agreement"), with an institutional investor (the "Investor") pursuant to which, on July 5, 2024, we issued to the Investor a senior secured promissory note in the principal amount of \$2.5 million (the "Secured Note") for \$2.5 million (the "Subscription Amount"). This transaction is referred to as the "Financing." We used the \$2.5 million proceeds from the Financing to pay the remaining \$2.5 million owed pursuant to the Settlement Agreement. The Secured Note bore interest at the rate of 18% per annum with the principal and accrued interest due in full on December 31, 2025. In order to secure our obligations under the Secured Note, we entered into a Security Agreement, dated July 5, 2024 (the "Security Agreement"), granting the Investor a security interest in substantially all of our personal property and assets, including its intellectual property. The Secured Note contains customary events of default. If an event of default occurred, the Investor could have accelerated the indebtedness under the Secured Note, in an amount equal to 110% of the outstanding principal amount and accrued and unpaid interest plus liquidated damages and other amounts, costs, expenses and/or liquidated damages due under or in respect of the Secured Note, if any. The Purchase Agreement provided that it was a condition of the closing of the Financing that not less than five of the current members of the Company's Board of Directors resign and that four nominees designated by the Investor be appointed to the Board of Directors. As a result, effective as of the closing of the Financing, (i) each of Barbara Ruskin, Jerrold Sendrow, Jeffrey Gudin, Thani Jambulingam and Michael F. Dubin resigned as directors of the Company, and (ii) the Company's Board of Directors appointed Judy Su as a Class I Director, Jatinder Dhaliwal and Katharyn Field as Class II directors, and Gary Herman as a Class III director of the Company. The Purchase Agreement also provides that we and the Investor will negotiate in good faith in order to agree upon and consummate an equity or debt financing (a

“Subsequent Financing”) of not less than \$5.0 million as soon as practicable after the closing date of the Financing and that (i) the Investor shall have the exclusive right to negotiate the terms of and consummate any Subsequent Financing until September 30, 2024 on terms no less favorable than a third party would offer; and (ii) in any event, the Investor shall have a right of refusal with respect to any Subsequent Financing that may be consummated by any third-party on or before September 30, 2024. In the event that a Subsequent Financing of at least \$5.0 million is not provided by the Investor (and/or its Affiliate(s) and/or third-party other designee(s)) on or before September 30, 2024, then the Investor nominated Board members shall resign from our Board of Directors effective immediately. The Purchase Agreement and the Security Agreement contain customary representations, warranties, conditions and indemnification obligations of the parties. Among other things, the Investor represented to us, that it is an “accredited investor” (as defined in Rule 501(a) of Regulation D under the Securities Act of 1933, as amended (the “Securities Act”)), and the Company sold the securities in reliance upon an exemption from registration set forth in Section 4(a)(2) of the Securities Act and Regulation D promulgated thereunder. On July 25, 2024, we used approximately \$2.5 million of the proceeds received from the exercise of the Common Warrants issued in the Public Offering to repay the Secured Note in full, including principal and interest. On September 30, 2024, we entered into an extension agreement (the “Extension Agreement”) with the Investor pursuant to the terms of the Purchase Agreement. Pursuant to the terms of the Extension Agreement, the Investor agreed to amend certain provisions of the Purchase Agreement related to a potential financing arrangement of not less than \$5 million (the “Subsequent Financing”). Under the Extension Agreement, the Investor retains the exclusive right to negotiate the terms of and consummate any Subsequent Financing until November 30, 2024 (the “Outside Date”). Additionally, the Investor holds a right of first refusal for any Subsequent Financing that may occur on or before the Outside Date. If a financing arrangement of not less than \$5 million is not provided by the Investor (or its affiliate(s) and/or third-party designee(s)) by the Outside Date, the Investor’s nominated members on the Company’s Board of Directors will resign, effective immediately. The Outside Date may be extended by up to thirty (30) days at the Company’s sole discretion, subject to approval by the Board, if the Company requires additional time to complete there-audit of its financial statements for the fiscal years ended December 31, 2022, and 2023. 9 Positive Results On July 10, 2024, we issued a press release announcing positive results for a Swine Model pilot study for Probudur, our long-acting liposomal bupivacaine formulation. The pharmacokinetics (“PK”) and safety study of Probudur in the Swine Model was designed to determine the PK profile of Probudur as well as to ascertain any adverse effects on the pigs. Probudur was subcutaneously injected into four juvenile domestic pigs at a dose of 30 mg/kg and was well-tolerated by all of the pigs and demonstrated a long-term, slow-release profile. Histopathology was also conducted at the injection site and Probudur was well-tolerated by all pigs in this study. Elimination of Directors and Officers Insurance As part of recent cost-cutting measures, we have eliminated our directors and officers (“D&O”) insurance coverage. This decision was made in an effort to preserve capital and manage our financial resources more effectively. Without D&O insurance, our directors and officers will not have insurance protection in the event of legal claims made against them in their capacities as executives of the Company. In such circumstances, the Company may be required to indemnify its directors and officers under applicable law and agreements, which could result in a significant financial burden. The absence of D&O insurance may also impact our ability to retain and attract qualified individuals to serve as directors and officers of the Company. Discontinuation of Out-Licensing Agreements In July 2024, we submitted a plan to Nasdaq that included the pursuit of out-licensing agreements for certain of our product candidates. However, as part of our efforts to reduce expenditures, we have elected to discontinue our pursuit of any out-licensing agreements at this time. Corporate Information We were incorporated under the laws of the State of Delaware on May 12, 2017. Our principal executive offices are located at 1055 Westlakes Drive, Suite 300, Berwyn, Pennsylvania 19312. Our telephone number is (610) 727-4597. Our website address is www.virpaxpharma.com. The information contained in, or accessible through, our website does not constitute a part of this prospectus. You should not rely on any such information in making your decision whether to purchase our Common Stock. Implications of Being an Emerging Growth Company We qualify as an “emerging growth company” as defined under the Securities Act of 1933, as amended (the “Securities Act”). As a result, we are permitted to, and intend to, rely on exemptions from certain disclosure requirements that are otherwise applicable to public companies. These provisions include, but are not limited to: — being permitted to present only two years of audited financial statements and only two years of related “Management’s Discussion and Analysis of Financial Condition and Results of Operations”; — not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended (or the Sarbanes-Oxley Act); — reduced disclosure obligations regarding executive compensation in our periodic reports, proxy statements and registration statements; and — exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. 10 In addition, an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This provision allows an emerging growth company to delay the adoption of some accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this extended transition period. We will remain an emerging growth company until the earliest to occur of: (i) our reporting \$1.235 billion or more in annual gross revenues; (ii) the end of fiscal year 2026; (iii) our issuance, in a three year period, of more than \$1 billion in non-convertible debt; and (iv) the last day of the fiscal year in which we are deemed to be a large accelerated filer, which generally means that we have been public for at least 12 months, have filed at least one annual report, and the market value of our Common Stock that is held by non-affiliates exceeds \$700 million as of the last day of our then-most recently completed second fiscal quarter. We have elected to take advantage of certain of the reduced disclosure obligations and may elect to take advantage of other reduced reporting requirements in future filings. As a result, the information that we provide to our stockholders may be different than the information you might receive from other public reporting companies in which you hold equity interests. Implications of Being a Smaller Reporting Company We also qualify as a “smaller reporting company,” as such term is defined in Rule 12b-2 under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and to the extent we continue to qualify as a “smaller reporting company,” after we cease to qualify as an “emerging growth company,” certain of the exemptions available to us as an “emerging growth company” may continue to be available to us as a smaller reporting company, including: (1) not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act; (2) scaled executive compensation disclosures; and (3) the ability to provide only two years of audited financial statements, instead of three years. 11 The Offering Shares being offered Up to [] shares of Common Stock at an assumed public offering price of \$[] per share (the last reported sale price of our Common Stock on the Nasdaq Capital Market on

January [], 2025).
Pre-Funded Warrants being offered We are also offering up to []
Pre-Funded Warrants to purchase up to [] shares of Common Stock in lieu of shares of Common Stock to any purchaser whose purchase of shares of Common Stock in this offering would otherwise result in such purchaser, together with its affiliates and certain related parties, beneficially owning more than 4.99% (or, at the purchaser's election, 9.99%) of our outstanding shares of Common Stock immediately following the consummation of this offering. Each Pre-Funded Warrant will be exercisable for one share of Common Stock at an exercise price of \$0.00001 per share, will be immediately exercisable, and will not expire prior to exercise. For each Pre-Funded Warrant that we sell, the number of shares of Common Stock that we are selling will be decreased on a one-for-one basis. This prospectus also relates to the offering of the shares of Common Stock issuable upon exercise of the Pre-Funded Warrants.
Number of shares of Common Stock outstanding immediately before this offering 14,887,581 shares.
Number of shares of Common Stock to be outstanding after this offering (1) [] shares (assuming all of the shares of Common Stock we are offering under this prospectus are sold and assuming no sale of Pre-Funded Warrants, which, if sold, would reduce the number of shares of Common Stock that we are offering on a one-for-one basis).
Reasonable Best Efforts We have agreed to offer and sell the securities offered hereby to the purchasers through the Placement Agent. The Placement Agent is not required to buy or sell any Securities offered hereby but rather has agreed to use its reasonable best efforts to solicit offers to purchase the Securities offered by this prospectus. See "Plan of Distribution."
Use of proceeds Assuming [] shares of Common Stock are sold in this offering at an assumed public offering price of \$[] per share of Common Stock, which represents the closing price of shares of our Common Stock on Nasdaq January [], 2025, and assuming no issuance of Pre-Funded Warrants in this offering, we estimate that our net proceeds from the this offering will be approximately \$[] million, after deducting Placement Agent fees, inclusive of financial advisor fees, and estimated offering expenses payable by us. However, this is a best efforts offering with no minimum number of Securities or amount of proceeds as a condition to closing, and we may not sell all or any of these Securities offered pursuant to this prospectus; as a result, we may receive significantly less in net proceeds.
12 We intend to use substantially all of the net proceeds from this offering to fund our ongoing development activities for commencing clinical trial for Probudur, as well as for working capital and other general corporate purposes. In addition, we will use \$2.0 million for marketing and advertising services to communicate information about the Company to the financial community. In addition, if Mr. Mack were to seek indemnification and/or damages from us and if he were successful in his claim, we may determine to use a portion of the proceeds from this offering to make such payments. See "Litigation" under "Recent Developments" in the Prospectus Summary, above and see "Use of Proceeds" below.
Lock-up Agreements The Company and our directors and executive officers have agreed with the Placement Agent, subject to certain exceptions, not to sell, transfer or dispose of, directly or indirectly, any of our Common Stock or securities convertible into or exercisable or exchange for Common Stock for 30 days and 90 days, respectively, after the closing of this offering. See "Plan of Distribution" for more information.
Nasdaq Capital Market symbol Shares of our Common Stock are listed on the Nasdaq Capital Market under the symbol "VRPX". We do not intend to apply to have the Pre-Funded Warrants listed on any national securities exchange or other nationally recognized trading system. See "Risk Factors" There is no public market for the Pre-Funded Warrants being offered in this offering.
Risk factors Investing in our Securities involves a high degree of risk. See "Risk Factors" beginning on page [] of this prospectus and other information included, or incorporated by reference, in this prospectus for a discussion of factors you should consider carefully before deciding to invest in our Securities.
(1) The number of shares of our Common Stock to be outstanding immediately after this offering is based on shares of our Common Stock outstanding as of December 30, 2024, which excludes:
• 139,008 shares of Common Stock issuable upon exercise of stock options outstanding as of December 30, 2024, at a weighted-average exercise price of \$25.29 per share;
• 1,285,494 shares of Common Stock issuable upon exercise of warrants outstanding as of December 30, 2024, at a weighted-average exercise price of \$1.52 per share; and
• 444,413 shares of our Common Stock that are available for future issuance under our Virpax Pharmaceuticals, Inc. 2022 Equity Incentive Plan (the "2022 Plan") or shares that will become available under our 2022 Plan.
Unless otherwise indicated, this prospectus reflects and assumes the following:
• No exercise of outstanding options or warrants described above; and
• No sale of the Pre-Funded Warrants in this offering.
RISK FACTORS Investing in our Securities involves a high degree of risk. You should consider carefully the risks described below, together with all of the other information included or incorporated by reference in this prospectus, including the risks and uncertainties discussed under "Risk Factors" in the Annual Report and the Quarterly Report on Form 10-Q for the three and nine months ended September 30, 2024, each of which has been filed with the SEC and is incorporated by reference in this prospectus, as well as any updates thereto contained in subsequent filings with the SEC or any free writing prospectus, before deciding whether to purchase our Securities in this offering. All of these risk factors are incorporated herein in their entirety. The risks described below and incorporated by reference are material risks currently known, expected or reasonably foreseeable by us. However, the risks described below and incorporated by reference are not the only ones that we face. Additional risks not presently known to us or that we currently deem immaterial may also affect our business, operating results, prospects or financial condition. If any of these risks actually materialize, our business, prospects, financial condition, and results of operations could be seriously harmed. This could cause the trading price of our Common Stock to decline, resulting in a loss of all or part of your investment. This prospectus also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of a number of factors, including the risks described below or incorporated by reference. See the section titled "Cautionary Note Regarding Forward-Looking Statements."
Risks Related to Our Financial Position We require substantial additional capital to fund our operations, and if we fail to obtain necessary financing, we will not be able to complete the development and commercialization of our drugs. Our operations have consumed substantial amounts of cash since inception. As of September 30, 2024, our cash position totaled approximately \$17,000 and as of January [], 2025, our cash position totaled approximately \$[] million. Our current cash position is not sufficient to enable us to fund our operations through the first quarter of 2025. Even if we are able to raise the maximum offering amount being offered in this offering, we will require additional capital again after this offering in the near future and we will be prohibited from using our equity to raise capital for thirty (30) days after the closing of this offering. There can be no assurance that we will be able to raise capital when needed. Our failure to raise such additional capital or sufficient capital in this offering could result in us being forced to liquidate assets or initiate bankruptcy proceedings. Recent litigation has also negatively impacted our cash position. As a result of the \$6.0 million payment that has been made to the Plaintiffs pursuant to the Settlement Agreement, our cash position has been significantly decreased. Moreover, the payment of

the royalties to the Plaintiffs pursuant to the terms of the Settlement Agreement, will significantly impact our future revenue and may make it more difficult for us to engage in collaborations, licenses or the acquisition of certain product candidates, and may result in us ceasing to develop certain product candidates or all of our product candidates if we determine that it will not be financially profitable to do so. In addition, litigation-related indemnification and/or contribution payments, if any, that we make to our former Chief Executive Officer, and which may be significant, will further reduce our cash position. We will need to spend substantial amounts to advance the clinical development of and launch and commercialize our product candidates. The amount we will spend for our clinical development of and launch and commercialization of our product candidates is difficult to estimate. For example, we estimate that we will require at least a total of approximately \$7.5 million for the completion of planned development for commencing a clinical trial for Probudurin 2025 and other expenditures that we will need to incur in order to develop our other product candidates and our ongoing operations during that period, potential cash separation payments to our former Chief Executive Officer and potential marketing and advertising services expenditure to communicate information about the Company to the financial community. Our estimate of our clinical trial timing may change and we may need substantially more funds to commence our planned clinical trial for Probudur. The estimate assumes no disruptions to the ongoing operations and the product development process. We have recently implemented significant cost-cutting measures and eliminated our D&O insurance coverage, as described in the risks below. There is a risk that the Company will not be able to retain or replace key directors, officers, and employees who may seek alternative employment opportunities, which could result in significant disruptions to our business and cause delay in the above-mentioned clinical trial timeline. The Company will require additional funding if there is a delay in commencing a clinical trial. Even if we sell the maximum number of Securities in this offering, we will need to raise additional capital in order to commence our clinical trial. If we are unable to raise capital when needed or on attractive terms, we could be forced to delay, reduce or eliminate our research and development programs or any future commercialization efforts. In addition, our strategy for AnQlar and Epoladerm is to license out or partner these assets as we continue to focus our efforts on our prescription drug pipeline. If we are unsuccessful in our partnering activities and/or financing activities, we may be unable to develop AnQlar and Epoladerm. We may face challenges in retaining key personnel and maintaining business continuity as a result of recent cost-cutting measures, including salary reductions, which may also affect our product development and timelines. We recently implemented significant cost-cutting measures. While these actions were deemed necessary to conserve capital, they may negatively affect employee morale and retention. There is a risk that key directors, officers, and employees may seek alternative employment opportunities, which could result in significant disruptions to our business. If we are unable to retain or replace qualified personnel, it could adversely affect our ability to execute our business strategy, maintain continuity in our operations, and meet key development milestones. In addition, these measures may affect our ability to meet projected timelines for product development and clinical trials. Any delays in the development and commercialization of our products or services could materially impact our business prospects, financial condition, and results of operations. As a result of these cost-cutting measures, sublicensing work on AnQlar and Epoladerm have been suspended, which will further delay our development timelines. The elimination of our directors and officers insurance may affect retention, expose our directors and officers to personal liability, and impact our financial condition. We have recently eliminated our D&O insurance coverage as part of cost-saving measures. This decision may negatively impact our ability to retain and attract key directors and officers, as they may be more likely to leave or hesitate to join the Company due to the increased personal liability exposure. If key personnel depart, it could disrupt our business operations, affect continuity, and hinder our ability to achieve our strategic objectives. Without D&O insurance, the Company will not have coverage in the event of lawsuits filed against our directors and officers, which may require us to indemnify them under applicable law and contractual obligations. If the Company faces significant legal claims, we may not have sufficient financial resources to fully indemnify our directors and officers. In such a situation, directors and officers may be personally liable, which could further increase the risk of departures and negatively affect our business continuity and financial condition. The cancellation of our cybersecurity insurance may expose us to increased financial and operational risks. We have recently cancelled our cybersecurity insurance coverage, which may increase our vulnerability to the financial and operational impacts of cyberattacks. Without this coverage, we may face significant costs if a cybersecurity breach occurs, including expenses related to data recovery, legal claims, regulatory penalties, and reputational damage. These incidents could disrupt our operations and delay the development of our drug-delivery systems and therapies. The lack of insurance coverage could have a material adverse effect on our financial condition and business operations.

15

The recent reduction in salaries and the elimination of directors and officers insurance may negatively impact our ability to retain key personnel and disrupt our business operations. We have recently implemented significant cost-cutting measures, and have eliminated our directors and officers insurance coverage. These actions could result in key directors, officers, and employees seeking alternative employment opportunities. For example, on September 3, 2024, we received a letter from Kagen, Caspersen & Bogart PLLC, legal counsel to Gerald Bruce, our former Chief Executive Officer, and Vinay Shah, our former Chief Financial Officer, regarding their employment agreements with the Company. In said letter, they made certain allegations that the Company violated their employment agreements as a result of the 50% reduction of the executives' contractual base compensation and, as a result, the executives may resign after the 30-day cure period for good reason and be entitled to payment of severance compensation. On October 5, 2024, Gerald Bruce, our former Chief Executive Officer and member of the Board, and Vinay Shah, our former Chief Financial Officer, notified the Company of their resignation from their respective positions, effective immediately. The further departure of key personnel could cause disruptions to our business operations and negatively impact our ability to execute our business strategy. If we are unable to retain or replace key personnel, our business, financial condition, and results of operations could be materially and adversely affected. Our arrangements relating to independent contractors may be questioned by the relevant authorities and if such authorities determine that such arrangements constitute employment, we may be liable to make certain back payments and payments of interest and penalties to such authorities. We believe that we have a reasonable basis to treat our CEO and CFO as independent contractors and not as employees pursuant to the independent contractor agreements we have entered with each of them. However, if the Internal Revenue Service (IRS) or any relevant state tax authority nonetheless deem that such arrangements constitute an employment relationship between us and our CEO and CFO, we may be liable to pay such amounts in income and payroll taxes as we would have paid had such persons been treated as employees, the employer portion of any applicable payroll taxes, interest on such payments from the date such payments would have been due to the payment date and any applicable statutory or other penalties assessed. There can be no assurance that the arrangements will be deemed compliant with the relevant tax legislation or that if they are found not to be, that the

amounts that may be ultimately assessed against us would have not a material adverse effect on our financial condition and results of operations. **Risks Related to this Offering and Our Common Stock** We will need additional future financing which may not be available on acceptable terms, if at all and will result in the issuance of additional securities being issued which will cause investors to experience further dilution. We expect to require substantial additional capital until our operations generate sufficient revenue to cover our expenses. We have not generated any revenue since inception and may never generate revenues unless any of our products are approved by the FDA and other regulatory authorities, which may never happen. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. There are currently no other commitments by any person for future financing. Our securities may be offered to other investors in other offerings at a price lower than the price per share offered in this offering, or upon terms which may be deemed more favorable than those offered to investors in this offering. In addition, the issuance of securities in any future financing may dilute an investor's equity ownership and have the effect of depressing the market price for our securities. Moreover, we may issue securities convertible or exchangeable into Common Stock, in future transactions. The issuance of any such derivative securities, which is at the discretion of our Board of Directors, may further dilute the equity ownership of our stockholders. Our management has broad discretion in using the net proceeds from this offering. Our management will have broad discretion with respect to the use of proceeds from this offering. See "Use of Proceeds." We cannot, with any assurance, be more specific at this time. We will have broad discretion in the timing of the expenditures and application of proceeds received in this offering. If we fail to apply the net proceeds effectively, we may not be successful in bringing our proposed products to market. You will not have the opportunity to evaluate all of the economic, financial or other information upon which we may base our decision to use the net proceeds from this offering. We may use the proceeds of this offering in ways that do not increase our operating results or enhance the value of our Common Stock. We may not be able to maintain a listing of our common stock on Nasdaq. We are subject to certain requirements to maintain the listing of shares of our common stock on Nasdaq. If we fail to meet any of Nasdaq's continued listing standards, shares of our common stock may be delisted. In addition, our board of directors may determine that the cost of maintaining our listing on a national securities exchange outweighs the benefits of such listing. A delisting from Nasdaq may materially impair the ability of stockholders to buy and sell shares of our common stock and could have an adverse effect on the market price of, and the efficiency of the trading market for, shares of our common stock. The delisting of shares of our common stock could significantly impair our ability to raise capital and the value of your investment. **16** If shares of our common stock become subject to the penny stock rules, it would become more difficult to trade our shares. The SEC has adopted rules that regulate broker-dealer practices in connection with transactions in penny stocks. Penny stocks are generally equity securities with a price of less than \$5.00, other than securities registered on certain national securities exchanges or authorized for quotation on certain automated quotation systems, provided that current price and volume information with respect to transactions in such securities is provided by the exchange or system. If we do not retain a listing on Nasdaq or another national securities exchange and if the price of our shares of common stock is less than \$5.00 per share, our common stock could be deemed a penny stock. The penny stock rules require a broker-dealer, before a transaction in a penny stock not otherwise exempt from those rules, to deliver a standardized risk disclosure document containing specified information. In addition, the penny stock rules require that before effecting any transaction in a penny stock not otherwise exempt from those rules, a broker-dealer must make a special written determination that the penny stock is a suitable investment for the purchaser and receive (i) the purchaser's written acknowledgment of the receipt of a risk disclosure statement; (ii) a written agreement to transactions involving penny stocks; and (iii) a signed and dated copy of a written suitability statement. These disclosure requirements may have the effect of reducing the trading activity in the secondary market for our common stock, and therefore stockholders may have difficulty selling their shares. Our failure to meet the continued listing requirements of the Nasdaq Capital Market could result in a delisting of our Common Stock. Our shares of Common Stock are listed for trading on the Nasdaq Capital Market under the symbol "VRPX". If we fail to satisfy the continued listing requirements of the Nasdaq Capital Market, such as the corporate governance requirements, the Minimum Stockholders' Equity Rule or the Minimum Bid Price Rule, the Nasdaq Capital Market may take steps to delist our Common Stock. On April 2, 2024, we received a notification letter from the Listing Qualifications Staff of the Nasdaq notifying us that our stockholders' equity as reported in our Annual Report, did not meet the minimum stockholders' equity requirement for continued listing on the Nasdaq Capital Market. Nasdaq Listing Rule 5550(b)(1) requires companies listed on the Nasdaq Capital Market to maintain stockholders' equity of at least \$2,500,000 (the "Minimum Stockholders' Equity Rule"). In the Annual Report, we reported stockholders' equity of \$1,934,321, which is below the minimum stockholders' equity required for continued listing pursuant to Nasdaq Listing Rule 5550(b)(1). Additionally, as of the date of this prospectus, we do not meet the alternative Nasdaq continued listing standards under Nasdaq Listing Rules. In our Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2024, we reported stockholders' deficit of \$2.0 million. Pursuant to Nasdaq's Listing Rules, we were given 45 calendar days (or until May 17, 2024), to submit a plan to evidence compliance with the Minimum Stockholders' Equity Rule (a "Compliance Plan"). We submitted a Compliance Plan within the required time period, which included raising funds from equity offerings. On July 29, 2024, we received notice from the Listing Qualifications Staff of The Nasdaq Stock Market LLC that we were granted an extension through September 30, 2024 to regain compliance with Nasdaq Listing Rule 5550(b)(1). On October 3, 2024, we received a delisting determination letter from the Staff advising the Company that the Staff had determined that the Company did not meet the terms of the extension. As a result, we requested an appeal of the Staff's determination. We submitted a hearing request to the Nasdaq Hearings Panel, which request is expected to stay any delisting action by the Staff at least until the hearing process concludes and any extension granted by the Panel expires. Notwithstanding the foregoing, there can be no assurance that the Panel will grant the Company's request or an additional extension period, or that the Company will ultimately regain compliance with all applicable requirements for continued listing on The Nasdaq Capital Market. We will not be able to comply with the Minimum Stockholders' Equity Rule as a result of this offering due to our cash burn rate, operating expenses, and payment obligations. As a result, we will be required to raise additional funds after this offering in order to achieve compliance. **17** In addition, on June 28, 2024, we received written notice from the Listing Qualifications Department of the Nasdaq notifying us that for the preceding 30 consecutive business days (May 15, 2024 through June 27, 2024), the Common Stock did not maintain a minimum closing bid price of \$1.00 ("Minimum Bid Price Rule") per share as required by Nasdaq Listing Rule 5550(a)(2). On July 22, 2024, the Company received a notice from the Listing Qualifications Department of Nasdaq notifying the Company that the staff has determined that for 10 consecutive business days, from July 8, 2024 to July 19, 2024, the

closing bid price of the Company's Common Stock had been at \$1.00 per share or greater. Accordingly, the staff had determined that the Company had regained compliance with Listing Rule 5550(a)(2). On October 4, 2024, the Company received a deficiency letter from the Staff of Nasdaq notifying the Company that, for the last 30 consecutive business days, the closing bid price for the Company's common stock had been below the minimum \$1.00 per share required for continued listing on Nasdaq pursuant to Nasdaq Listing Rule 5550(a)(2). The Nasdaq deficiency letter has no immediate effect on the listing of the Company's common stock, and our common stock will continue to trade on The Nasdaq Capital Market under the symbol "VRPX". In accordance with Nasdaq Listing Rule 5810(c)(3)(A), the Company has been given 180 calendar days, or until April 2, 2025, to regain compliance with the Minimum Bid Price Rule. If at any time before April 2, 2025, the bid price of the Company's common stock closes at \$1.00 per share or more for a minimum of 10 consecutive business days, the Staff will provide written confirmation that the Company has achieved compliance. If the Company does not regain compliance with the Minimum Bid Price Rule by April 2, 2025, the Company may be afforded a second 180 calendar days period to regain. The Company would be required to notify Nasdaq of its intent to cure the deficiency during the second compliance period. If the Company does not regain compliance with the Minimum Bid Price Rule by the end of the compliance period (or the second compliance period, if applicable), 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 Staff to a hearings panel. The Company intends to monitor the closing bid price of its common stock and may, if appropriate, consider available options to regain compliance with the Minimum Bid Price Rule, including initiating a reverse stock split. However, there can be no assurance that the Company will be able to regain compliance with the Minimum Bid Price Rule or will otherwise be in compliance with other Nasdaq Listing Rules. Any perception that we may not regain compliance or a delisting of our Common Stock by Nasdaq could adversely affect our ability to attract new investors, decrease the liquidity of the outstanding shares of our Common Stock, reduce the price at which such shares trade and increase the transaction costs inherent in trading such shares with overall negative effects for our stockholder. In addition, delisting of our Common Stock from Nasdaq could deter broker-dealers from making a market in or otherwise seeking or generating interest in our Common Stock and might deter certain institutions and persons from investing in our Common Stock. If our shares are delisted from Nasdaq, we may become subject to the securities laws of various states where we may offer securities in the future which may make it more difficult for us to raise finance. The National Securities Markets Improvement Act of 1996, which is a federal statute, prevents or preempts the states from regulating the sale of certain securities, which are referred to as "covered securities." Because our Common Stock is listed on the Nasdaq Capital Market, shares of our Common Stock are covered securities. If we were to be delisted from Nasdaq, our shares would cease to be covered securities and we would be subject to regulation in each state in which we offer our securities. Should this occur, we would be required to register or qualify offerings of securities with the various states where we offer our securities, which may make it more difficult to raise finance via public offerings of our securities. This is a reasonable best efforts offering, with no minimum amount of Securities required to be sold, and we may sell fewer than all of the Securities offered hereby. The Placement Agent has agreed to use its reasonable best efforts to solicit offers to purchase the Securities in this offering. The Placement Agent has no obligation to buy any of the Securities from us or to arrange for the purchase or sale of any specific number or dollar amount of the Securities. There is no required minimum number of Securities that must be sold as a condition to completion of this offering, and there can be no assurance that the offering contemplated hereby will ultimately be consummated. Even if we sell Securities offered hereby, because there is no minimum offering amount required as a condition to closing of this offering, the actual offering amount is not presently determinable and may be substantially less than the maximum amount set forth on the cover page of this prospectus. We may sell fewer than all of the Securities offered hereby, which may significantly reduce the amount of proceeds received by us. Thus, we may not raise the amount of capital we believe is required for our operations in the short-term and may need to raise additional funds, which may not be available or available on terms acceptable to us.

18

Because there is no minimum required for the offering to close, investors in this offering will not receive a refund in the event that we do not sell an amount of securities sufficient to pursue the business goals outlined in this prospectus. We have not specified a minimum offering amount. Because there is no minimum offering amount, investors could be in a position where they have invested in our company, but we are unable to fulfill our objectives due to a lack of interest in this offering. Further, because there is no minimum investment amount, any proceeds from the sale of Securities offered by us will be available for our immediate use, despite uncertainty about whether we would be able to use such funds to effectively implement our business plan. Investor funds will not be returned under any circumstances whether during or after the offering. If you purchase shares of our Common Stock sold in this offering, you will experience immediate and substantial dilution in the net tangible book value of your shares. In addition, we may issue additional equity or convertible debt securities in the future, which may result in additional dilution to investors. The price per share of our Common Stock being offered may be higher than the net tangible book value per share of our outstanding Common Stock prior to this offering, which may result in new investors in this offering incurring immediate dilution. To the extent outstanding stock options are exercised, there will be further dilution to new investors. For a more detailed discussion of the foregoing, see the section entitled "Dilution" below. To the extent additional stock options or warrants are issued, there will be further dilution to new investors. This offering may cause the trading price of our Common Stock to decrease. The price per share, together with the number of shares of Common Stock we issue if this offering is completed, may result in an immediate decrease in the market price of our Common Stock. This decrease may continue after the completion of this offering. Because we will not declare cash dividends on our Common Stock in the foreseeable future, stockholders must rely on appreciation of the value of our Common Stock for any return on their investment. We have never declared or paid cash dividends on our Common Stock. We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and will not declare or pay any cash dividends in the foreseeable future. As a result, only appreciation of the price of our Common Stock, if any, will provide a return to investors in this offering. There is no public market for the Pre-Funded Warrants being offered in this offering. There is no established public trading market for the Pre-Funded Warrants being offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply to have the Pre-Funded Warrants listed on Nasdaq or any national securities exchange or other nationally recognized trading system. Without an active market, the liquidity of the Pre-Funded Warrants will be limited. Holders of the Pre-Funded Warrants offered hereby will have no rights as Common Stockholders with respect to the shares of our Common Stock issuable upon exercise of the Pre-Funded Warrants until such holders exercise their Pre-Funded Warrants and acquire our Common Stock, except as otherwise provided in the Pre-Funded Warrants. Until holders of the Pre-Funded Warrants acquire shares of our Common Stock

upon exercise thereof, such holders will have no rights with respect to the shares of our Common Stock issuable upon exercise of such Pre-Funded Warrants, except to the extent that holders of such Pre-Funded Warrants will have certain rights to participate in distributions or dividends paid on our Common Stock as set forth in the Pre-Funded Warrants. Upon exercise of the Pre-Funded Warrants, the holders will be entitled to exercise the rights of a Common Stockholder only as to matters for which the record date occurs after the exercise date. A Purchaser who purchases our Securities in this offering pursuant to a securities purchase agreement may have rights not available to purchasers that purchase without the benefit of a securities purchase agreement. In addition to rights and remedies available to all purchasers in this offering under federal securities and state law, the purchasers that enter into a securities purchase agreement will also be able to bring claims of breach of contract against us. The ability to pursue a claim for breach of contract provides those investors with the means to enforce the covenants uniquely available to them under the securities purchase agreement, including: a covenant to not enter into any equity financings for thirty (30) days from closing of the offering, subject to certain exceptions.

19 USE OF PROCEEDS We estimate that we will receive net proceeds from this offering of approximately \$[] million (assuming the sale of the maximum number of Securities offered hereby), based upon an assumed public offering price of \$[] per share (which is the last reported sale price of shares of our Common Stock on Nasdaq on January [], 2025), after deducting the estimated Placement Agent fees and estimated offering expenses payable by us and assuming no issuance of any Pre-Funded Warrants. However, because this is a reasonable best efforts offering with no minimum number of securities or amount of proceeds as a condition to closing, the actual offering amount, Placement Agent fees, and net proceeds to us are not presently determinable and may be substantially less than the maximum amounts set forth on the cover page of this prospectus, and we may not sell all or any of the Securities we are offering. As a result, we may receive significantly less in net proceeds. Based on the assumed offering price set forth above, we estimate that our net proceeds from the sale of 75%, 50%, and 25% of the Securities offered in this offering would be approximately \$[] million, \$[] million, and \$[] million, respectively, after deducting the estimated Placement Agent fees, inclusive of financial advisor fees, and estimated offering expenses payable by us, and assuming no issuance of any Pre-Funded Warrants. We intend to use the net proceeds from this offering to fund our ongoing development activities for commencing clinical trial for Probudur, as well as for working capital and other general corporate purposes. In addition, we will use \$2.0 million for marketing and advertising services to communicate information about the Company to the financial community. Pending our use of the net proceeds from this offering, we intend to invest the net proceeds in a variety of capital preservation investments, including short-term, investment-grade, interest-bearing instruments and U.S. government securities. This expected use of net proceeds from this offering represents our intentions based upon our current plans and business conditions, which could change in the future as our plans, business conditions and cash position evolve. Our management will have significant flexibility and discretion in the timing and application of the net proceeds of the offering. In addition, if our former Chief Executive Officer, Mr. Mack, were to seek indemnification and/or damages from us and if he were successful in his claim, we may determine to use a portion of the proceeds from this offering to make such payments. See "Litigation" under "Recent Developments" in the Prospectus Summary, above. Unforeseen events or changed business conditions may result in application of the proceeds of the offering in a manner other than as described in this prospectus. Our stockholders may not agree with the manner in which our management chooses to allocate and spend the net proceeds. See "Risk Factors."

20 CAPITALIZATION The following table sets forth our cash and our capitalization as of September 30, 2024:

	As of September 30, 2024	As of September 30, 2024 (Pro Forma)	As of September 30, 2024 (Pro Forma as Adjusted)	As of September 30, 2024 (Actual)
Cash	\$17,229,911	\$4,537,971	—	—
Stockholders' (deficit) equity	—	—	—	—
Common stock, \$0.00001 par value; 100,000,000 shares authorized, and 4,887,581 shares issued and outstanding, actual; 14,887,581 shares issued and outstanding pro forma and [] shares issued and outstanding pro forma as adjusted	\$49,000	\$149,000	—	—
Additional paid-in capital	66,169,610	70,690,252	—	—
Accumulated deficit	(68,221,271)	(68,221,271)	—	—
Total stockholders' (deficit) equity	\$(2,051,612)	\$(2,051,612)	—	—
Total capitalization	\$(2,051,612)	\$(2,051,612)	—	—

(1) In November 2024, we entered into the IR Agreement with IR Agency LLC. Under the IR Agreement, the Consultant will provide marketing and advertising services to promote the Company to the financial community. In consideration for these services, we paid the Consultant a fee of \$2,000,000. This cash payment is not reflected in the pro-forma capitalization table.

21 DILUTION If you invest in shares of our Common Stock in this offering, your ownership interest will be diluted immediately to the extent of the difference between the public offering price per share of our Common Stock and the adjusted net tangible book value per share of our Common Stock immediately after this offering. Dilution results from the fact that the public offering price per share is substantially in excess of the book value per share attributable to the existing stockholders for the presently outstanding shares of Common Stock. We calculate net tangible book value per share by dividing the net tangible book value (total tangible assets less total liabilities) by the number of outstanding shares of Common Stock. Our historical net tangible book value deficit as of September 30, 2024 was approximately (\$2.1) million, or (\$0.42) per share. Our historical net tangible book value deficit is the amount of our total tangible assets less our total liabilities. Historical net tangible book value deficit per share represents our historical net tangible book value deficit divided by the 4,887,581 shares of our Common Stock outstanding as of September 30, 2024. Our pro forma net tangible book value as of September 30, 2024 was approximately \$2.5 million, or \$0.17 per share. Pro forma net tangible book value represents the amount of our tangible book value as adjusted to take into account (i) the issuance of 3,200,000 shares of common stock and 6,800,000 pre-funded warrants at an offering price of \$0.50 per Share, less \$0.00001 per pre-funded warrant, for net proceeds of \$4.5 million; (ii) the issuance of 6,800,000 shares of

Common Stock upon exercise of the pre-funded warrants. After giving effect to the pro forma adjustments set forth above and the receipt of the estimated maximum net proceeds from our sale of Securities in this offering, based on an assumed public offering price of \$[] per share (the last reported sale price of our Common Stock on the Nasdaq Capital Market on January [], 2025), after deducting estimated Placement Agent fees, inclusive of financial advisor fees, and estimated offering expenses payable by us and assuming no sale of Pre-Funded Warrants, our pro forma as adjusted net tangible book value at September 30, 2024 would have been approximately \$[], or \$[] per share. This represents an immediate increase in net tangible book value per share of \$[] to existing stockholders and an immediate dilution per share of \$[] to you. The following table illustrates this dilution on a per share basis to new investors:

Assumed public offering price per share	Pro Forma net tangible book value per share as of September 30, 2024	Increase in pro forma net tangible book value per share attributable to this offering	Pro forma as adjusted net tangible book value per share after this offering	Dilution per share to new investors purchasing Common Stock in this offering
\$0.17	\$0.17			

The dilution information discussed above is illustrative only and will change based on the actual public offering price and other terms of this offering determined at pricing. Each \$0.10 increase (decrease) in the assumed public offering price of \$[] per share of Common Stock (the last reported sale price of our Common Stock on the Nasdaq Capital Market on January [], 2025) would increase (decrease) our pro forma as adjusted net tangible book value per share after this offering by approximately \$[] or \$[] and would change dilution per share to new investors purchasing Securities in this offering by approximately \$[], assuming that the number of Securities offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated Placement Agent fees, inclusive of financial advisor fees, and estimated offering expenses payable by us and assuming no sale of Pre-Funded Warrants.

Each increase (decrease) in the number of shares of Common Stock offered by 500,000 shares of Common Stock would increase (decrease) our pro forma as adjusted net tangible book value as of September 30, 2024 after this offering by approximately \$[] or \$[] per share, and would change the dilution to investors in this offering by approximately \$[] per share, assuming that the assumed offering price per share, as set forth on the cover page of this prospectus, remains the same, after deducting Placement Agent fees, inclusive of financial advisor fees, and estimated offering expenses payable by us and assuming no sale of Pre-Funded Warrants.

Each increase in the number of shares of Common Stock offered by 1,000,000 shares of Common Stock would increase our pro forma as adjusted net tangible book value as of September 30, 2024 after this offering by approximately \$[], or \$[] per share, and would change the dilution to investors in this offering by approximately \$[] per share, assuming that the assumed offering price per share, as set forth on the cover page of this prospectus, remains the same, after deducting Placement Agent fees, inclusive of financial advisor fees, and estimated offering expenses payable by us and assuming no sale of Pre-Funded Warrants.

The table and discussion above do not include:

- 198,029 shares of Common Stock issuable upon exercise of stock options outstanding as of September 30, 2024, at a weighted-average exercise price of \$24.57 per share;
- 385,392 shares of our Common Stock that are available for future issuance under our 2022 Plan or shares that will become available under our 2022 Plan; and
- 1,285,494 shares of Common Stock issuable upon exercise of warrants outstanding as of September 30, 2024, at a weighted-average exercise price of \$1.52 per share.

Unless otherwise indicated, this prospectus reflects and assumes the following:

- No exercise of outstanding options or warrants described above; and
- No sale of the Pre-Funded Warrants in this offering.

To the extent any outstanding options or other equity awards are exercised or become vested or any additional options or other equity awards are granted and exercised or become vested or other issuances of our Common Stock are made, there may be further economic dilution to new investors.

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

The following table sets forth information with respect to the beneficial ownership of our Common Stock, as of December 30, 2024:

Each person or group of affiliated persons known by us to beneficially own more than 5% of our Common Stock;	Each of our executive officers;	Each of our directors;	All of our current executive officers and directors as a group.
The number of shares beneficially owned by each stockholder is determined under rules issued by the SEC. Under these rules, beneficial ownership includes any shares as to which the individual or entity has sole or shared voting power or investment power. We have based our calculation of the percentage of beneficial ownership of our Common Stock before this offering based on 14,887,581 shares of Common Stock outstanding as of December 30, 2024. We have based our calculation of the percentage of beneficial ownership of our Common Stock after this offering on [] shares of our Common Stock, which gives effect to the issuance of [] shares of Common Stock in this offering. In computing the number of shares beneficially owned by an individual or entity and the percentage ownership of that person, shares of Common Stock subject to the exercise of options, warrants or other rights held by such person that are currently exercisable or will become exercisable within 60 days of December 30, 2024 are counted as outstanding. Unless noted otherwise, the address of all listed stockholders is 1055 Westlakes Drive, Suite 300, Berwyn, Pennsylvania 19312. Each stockholder listed has sole voting and investment power with respect to the shares beneficially owned by the stockholder unless noted otherwise, subject to community property laws where applicable.	Shares Beneficially Owned Prior to this Offering	Shares Beneficially Owned After this Offering	Name of Beneficial Owner
Shares of Common Stock	Percentage of Common Stock	Shares of Common Stock	Percentage of Common Stock
Named Executive Officers and Directors			
404	2.0%	404	Gerald Bruce(1)
404	2.0%	404	Vinay Shah(2)
298,298	2.0%	298,298	Anthony Mack(3)
298,298	2.0%	298,298	Jatinder Dhaliwal
19,767	0.1%	19,767	Sheila Mathias, PhD, J.D., MBA(4)
19,767	0.1%	19,767	Katharyn Field
19,767	0.1%	19,767	Esha Randhawa
19,767	0.1%	19,767	Jaydriane Panis
19,767	0.1%	19,767	Usama Chaudhry
19,767	0.1%	19,767	Judy Su
19,767	0.1%	19,767	All current executive officers and directors as a group (7 persons)
19,767	0.1%	19,767	5% or Greater Stockholders
19,767	0.1%	19,767	* Less than 1%.

(1) Gerald Bruce, resigned as our Chief Executive Officer effective October 5, 2024.

(2) Vinay Shah resigned as our Chief Financial Officer, effective October 5, 2024.

(3) Includes 25,255 shares of Common Stock held by Mr. Mack and his spouse and 273,043 shares of Common Stock held by Virpax Pharmaceuticals, LLC.

(4) Includes 19,767 shares of common stock issuable upon exercise of stock options that are exercisable within 60 days of December 30, 2024.

DESCRIPTION OF OUR CAPITAL STOCK

The following description of our capital stock and the provisions of our certificate of incorporation and our bylaws are summaries and are qualified by reference to our certificate of incorporation and bylaws. We have filed copies of these documents with the SEC as exhibits to our registration statement of which this prospectus forms a part.

Our authorized capital stock consists of 100,000,000 shares of Common Stock, par value \$0.00001 per

share, and 10,000,000 shares of Preferred Stock, par value \$0.00001 per share. As of December 30, 2024, 14,887,581 shares of our Common Stock are issued and outstanding, and no shares of our preferred stock are issued and outstanding.

Common Stock Voting. The holders of Common Stock are entitled to one vote per share on all matters to be voted upon by the stockholders, except on matters relating solely to the terms of preferred stock.

Dividends. Subject to preferences that may be applicable to any outstanding preferred stock, the holders of Common Stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by the board of directors out of funds legally available therefor.

Liquidation. In the event of our liquidation, dissolution or winding up, the holders of Common Stock are entitled to share ratably in all assets remaining after payment of liabilities, subject to prior distribution rights of preferred stock, if any, then outstanding.

Other Rights and Preferences. The holders of our Common Stock have no preemptive, subscription, cumulative voting or conversion rights and there are no redemption or sinking fund provisions applicable to our Common Stock.

Preferred Stock. Our board of directors is authorized to issue up to 10,000,000 shares of preferred stock in one or more series without stockholder approval. Our board of directors may determine the rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, of each series of preferred stock. The issuance of preferred stock, while providing desirable flexibility in connection with possible acquisitions and other corporate purposes, could make it more difficult for a third party to acquire, or could discourage a third party from acquiring, a majority of our outstanding voting stock. The rights of holders of our Common Stock described above, will be subject to, and may be adversely affected by, the rights of any preferred stock that we may designate and issue in the future.

Nasdaq Listing. Our Common Stock is listed on the Nasdaq Capital Market under the symbol "VRPX".

Transfer Agent and Registrar. The transfer agent and registrar for our Common Stock is VStock Transfer, LLC. VStock is located at 18 Lafayette Place, Woodmere, New York, New York 11598. Their telephone number is (212) 828-8436.

Potential Anti-Takeover Effects. Certain provisions set forth in our certificate of incorporation and our bylaws and in Delaware law, which are summarized below, may be deemed to have an anti-takeover effect and may delay, deter or prevent a tender offer or takeover attempt that a stockholder might consider to be in its best interests, including attempts that might result in a premium being paid over the market price for the shares held by stockholders.

Potential Effects of Authorized but Unissued Stock. We have shares of Common Stock and preferred stock available for future issuance without stockholder approval. We may utilize these additional shares for a variety of corporate purposes, including future public offerings to raise additional capital, to facilitate corporate acquisitions or payment as a dividend on the capital stock. The existence of unissued and unreserved Common Stock and preferred stock may enable our board of directors to issue shares to persons friendly to current management or to issue preferred stock with terms that could render more difficult or discourage a third-party attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise, thereby protecting the continuity of our management. In addition, the board of directors has the discretion to determine designations, rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences of each series of preferred stock, all to the fullest extent permissible under the DGCL and subject to any limitations set forth in our certificate of incorporation. The purpose of authorizing the board of directors to issue preferred stock and to determine the rights and preferences applicable to such preferred stock is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing desirable flexibility in connection with possible financings, acquisitions and other corporate purposes, could have the effect of making it more difficult for a third-party to acquire, or could discourage a third-party from acquiring, a majority of our outstanding voting stock.

Certificate of Incorporation and Bylaws. In addition to the foregoing, our certificate of incorporation and/or our bylaws contain the following provisions:

Staggered Board. Our board of directors is divided into three classes of directors, Class I, Class II and Class III, with each class serving a term ending at the third annual meeting following its election.

Nominations of Directors and Proposals of Business. Our bylaws generally regulate nominations for election of directors by stockholders and proposals of business at annual meetings. In general, our bylaws require stockholders intending to submit nominations or proposals at an annual meeting of stockholders to provide the Company with advance notice thereof, including information regarding the stockholder proposing the business as well as information regarding the nominee or the proposed business. Our bylaws provide a time period during which nominations or business must be provided to the Company that creates a predictable window for the submission of such notices, eliminating the risk that the Company finds a meeting will be contested after printing its proxy materials for an uncontested election and providing the Company with a reasonable opportunity to respond to nominations and proposals by stockholders.

Removal of Directors. Our certificate of incorporation and bylaws provide that subject to the rights of the holders of any series of preferred stock, any director or the entire Board may be removed from office at any time, but only for cause.

Board Vacancies. Our certificate of incorporation generally provides that only the board of directors (and not the stockholders) may fill vacancies and newly created directorships.

Stockholder Action by Written Consent. Our certificate of incorporation prohibits stockholders from acting by written consent. Accordingly, stockholder action must take place at an annual or a special meeting of the Company's stockholders.

Special Meeting of Stockholders. Our certificate of incorporation generally provides that special meetings of stockholders for any purpose or purposes may be called at any time by our board of directors, the Chairman of the Board or the Chief Executive Officer. Business transacted at any special meeting of stockholders shall be limited to matters relating to the purpose or purposes stated in the notice of meeting.

Amendment of Certificate of Incorporation or Bylaws. Our certificate of incorporation requires a supermajority vote of stockholders (at least 66 2/3% in voting power of the outstanding stock of the Company entitled to vote thereon) to amend our bylaws and certain provisions of our certificate of incorporation. While the foregoing provisions of our certificate of incorporation, our bylaws and Delaware law may have an anti-takeover effect, these provisions are intended to enhance the likelihood of continuity and stability in the composition of the board of directors and in the policies formulated by the board of directors and to discourage certain types of transactions that may involve an actual or threatened change of control. In that regard, these provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal. The provisions also are intended to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and, as a consequence, they also may inhibit fluctuations in the market price of our Common Stock that could result from actual or rumored takeover attempts. Such provisions also may have the effect of preventing changes in our management.

Delaware Takeover Statute. We are subject to Section 203 of the Delaware General Corporation Law. Subject to certain exceptions, Section 203 prevents a publicly held Delaware corporation from engaging in a "business combination" with any "interested stockholder" for three years following the date that the person became an

interested stockholder, unless the interested stockholder attained such status with the approval of our board of directors or unless the business combination is approved in a prescribed manner. A "business combination" includes, among other things, a merger or consolidation involving us and the "interested stockholder" and the sale of more than 10% of our assets. In general, an "interested stockholder" is any entity or person beneficially owning 15% or more of our outstanding voting stock and any entity or person affiliated with or controlling or controlled by such entity or person. A Choice of Forum Unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or, in the event that the Court of Chancery does not have subject matter jurisdiction, the federal district court of the State of Delaware) is the exclusive forum for (i) any derivative action or proceeding brought on behalf of the Company, (ii) any action asserting a claim of breach of fiduciary duty owed by any current or former director, officer, other employee or stockholder of the Company to the Company or the Company's stockholders (iii) any action asserting a claim arising pursuant to any provision of the DGCL, our certificate of incorporation or bylaws (as either may be amended or restated) or as to which the DGCL confers jurisdiction on the Court of Chancery of the State of Delaware, or (iv) any action asserting a claim governed by the internal affairs doctrine of the law of the state of Delaware. The exclusive forum provision also provides that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States will be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. Notwithstanding the foregoing, the exclusive forum provision will not apply to suits brought to enforce any liability or duty created by the Exchange Act. Nothing in our certificate of incorporation will preclude stockholders that assert claims under the Exchange Act from bringing such claims in state or federal court, subject to applicable law. 27 A DESCRIPTION OF SECURITIES WE ARE OFFERING We are offering up to [] shares of our Common Stock. We are offering to certain purchasers whose purchase of shares in this offering would otherwise result in the purchaser, together with its affiliates and certain related parties, beneficially owning more than 4.99% (or, at the election of the purchaser, 9.99%) of our outstanding shares of Common Stock immediately following the consummation of this offering, the opportunity to purchase, if any such purchaser so chooses, Pre-Funded Warrants, in lieu of shares of Common Stock that otherwise would result in such purchaser's beneficial ownership exceeding 4.99% (or, at the election of the purchaser, 9.99%) of our outstanding shares of Common Stock, to purchase up to [] shares of Common Stock. For each Pre-Funded Warrant we sell, the number of shares of Common Stock we are offering will be decreased on a one-for-one basis. Common Stock The material terms and provisions of our Common Stock are described under the caption "Description of Our Capital Stock" in this prospectus. Pre-Funded Warrants The following summary of certain terms and provisions of the Pre-Funded Warrants that are being offered hereby is not complete and is subject to, and qualified in its entirety by, the provisions of the form of the Pre-Funded Warrant, which is filed as an exhibit to the registration statement of which this prospectus forms a part. Prospective investors should carefully review the terms and provisions set forth in the form of Pre-Funded Warrants. Duration and Exercise Price Each Pre-Funded Warrant offered hereby will have an initial exercise price equal to \$0.00001 per share of Common Stock. The Pre-Funded Warrants will be immediately exercisable and may be exercised at any time until the Pre-Funded Warrants are exercised in full. The exercise price and number of shares issuable upon exercise is subject to appropriate proportional adjustment in the event of share dividends, share splits, reclassification or similar events affecting our Common Stock. The Pre-Funded Warrants will be issued in certificated form only. Exercisability The Pre-Funded Warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice. A holder may not exercise any portion of the Pre-Funded Warrant to the extent that the holder, together with its affiliates and any other persons acting as a group together with any such persons, would own more than 4.99% (or, at the election of the purchaser, 9.99%) of the number of shares of Common Stock outstanding immediately after exercise (the "Beneficial Ownership Limitation"); provided that a holder with a Beneficial Ownership Limitation of 4.99%, upon notice to us and effective sixty-one (61) days after the date such notice is delivered to us, may increase the Beneficial Ownership Limitation so long as it in no event exceeds 9.99% of the number of shares of Common Stock outstanding immediately after exercise. Cashless Exercise In lieu of making the cash payment otherwise contemplated to be made to us upon exercise of the Pre-Funded Warrants in payment of the aggregate exercise price, the holder may exercise its Pre-Funded Warrants (either in whole or in part), at such time by means of a cashless exercise in which the holder shall be entitled to receive upon such exercise the net number of shares of Common Stock determined according to a formula set forth in the Pre-Funded Warrants, which generally provides for a number of shares equal to (A) (1) the volume weighted average price on the trading day preceding the notice of exercise, if the notice of exercise is executed and delivered (x) on a day that is not a trading day or (y) prior to the opening of "regular trading hours" on a trading day or (2) the VWAP on the trading day immediately preceding the date of the notice of exercise, if the notice of exercise is executed and delivered during "regular trading hours" on a trading day, or (3) the bid price on the day of the notice of exercise, if the notice of exercise is executed after the close of "regular trading hours" on a trading day, less (B) the exercise price, multiplied by (C) the number of shares of Common Stock the Pre-Funded Warrant was exercisable into, with such product then divided by the number determined under clause (A) in this sentence. 28 A Fractional Shares No fractional shares of Common Stock will be issued upon the exercise of the Pre-Funded Warrants. Rather, we will, at our election, and in lieu of the issuance of such fractional share, either (i) pay cash in an amount equal to such fraction multiplied by the exercise price or (ii) round up to the next whole share issuable upon exercise of the Pre-Funded Warrant. Transferability Subject to applicable laws, a Pre-Funded Warrant may be transferred at the option of the holder upon surrender of the Pre-Funded Warrant to us together with the appropriate instruments of transfer and funds sufficient to pay any transfer taxes payable upon such transfer. Trading Market There is no trading market available for the Pre-Funded Warrants on any securities exchange or nationally recognized trading system. We do not intend to list the Pre-Funded Warrants on any securities exchange or nationally recognized trading system. Rights as a Stockholder Except as otherwise provided in the Pre-Funded Warrants or by virtue of such holder's ownership of shares of Common Stock, the holders of the Pre-Funded Warrants do not have the rights or privileges of holders of our Common Stock, including any voting rights, until they exercise their Pre-Funded Warrants. The Pre-Funded Warrants will provide that holders have the right to participate in distributions or dividends paid on Common Stock. Fundamental Transaction In the event of a fundamental transaction, as described in the Pre-Funded Warrants and generally including any reorganization, recapitalization or reclassification of our Common Stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the consummation of a business combination with another person or group of persons whereby such other person or group acquires greater than 50% of the voting power of the outstanding Common Stock and preferred stock, the holders of the Pre-Funded Warrants will be entitled to receive upon exercise of the Pre-Funded

Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the Pre-Funded Warrants immediately prior to such fundamental transaction.

29 MATERIAL UNITED STATES FEDERAL INCOME TAX CONSIDERATIONS

The following discussion describes the material U.S. federal income tax consequences of the acquisition, ownership and disposition of the Common Stock acquired in this offering. This discussion is based on the current provisions of the Internal Revenue Code of 1986, as amended, referred to as the Code, existing and proposed U.S. Treasury regulations promulgated thereunder, and administrative rulings and court decisions in effect as of the date hereof, all of which are subject to change at any time, possibly with retroactive effect. No ruling has been or will be sought from the Internal Revenue Service, or IRS, with respect to the matters discussed below, and there can be no assurance the IRS will not take a contrary position regarding the tax consequences of the acquisition, ownership or disposition of the Common Stock and Pre-Funded Warrants or that any such contrary position would not be sustained by a court. We assume in this discussion that the shares of Common Stock and Pre-Funded Warrants will be held as capital assets (generally, property held for investment). This discussion does not address all aspects of U.S. federal income taxes, does not discuss the potential application of the Medicare contribution tax or the alternative minimum tax and does not address state or local taxes or U.S. federal gift and estate tax laws, except as specifically provided below with respect to non-U.S. holders, or any non-U.S. tax consequences that may be relevant to holders in light of their particular circumstances. This discussion also does not address the special tax rules applicable to particular holders, such as:

- persons who acquired our Common Stock and Pre-Funded Warrants as compensation for services;
- traders in securities that elect to use a mark-to-market method of accounting for their securities holdings;
- persons that own, or are deemed to own, more than 5% of our Common Stock (except to the extent specifically set forth below);
- persons required for U.S. federal income tax purposes to conform the timing of income accruals to their financial statements under Section 451(b) of the Code (except to the extent specifically set forth below);
- persons for whom our Common Stock constitutes "qualified small business stock" within the meaning of Section 1202 of the Code or "Section 1244 stock" for purposes of Section 1244 of the Code;
- persons deemed to sell our Common Stock and Pre-Funded Warrants under the constructive sale provisions of the Code;
- banks or other financial institutions;
- brokers or dealers in securities or currencies;
- tax-exempt organizations or tax-qualified retirement plans;
- pension plans;
- regulated investment companies or real estate investment trusts;
- persons that hold the Common Stock and Pre-Funded Warrants as part of a straddle, hedge, conversion transaction, synthetic security or other integrated investment;
- insurance companies;
- controlled foreign corporations, passive foreign investment companies, or corporations that accumulate earnings to avoid U.S. federal income tax; and
- certain U.S. expatriates, former citizens, or long-term residents of the United States.

30 In addition, this discussion does not address the tax treatment of partnerships (including any entity or arrangement classified as a partnership for U.S. federal income tax purposes) or other pass-through entities or persons who hold shares of Common Stock through such partnerships or other entities which are pass-through entities for U.S. federal income tax purposes. If such a partnership or other pass-through entity holds shares of Common Stock and Pre-Funded Warrants, the treatment of a partner in such partnership or investor in such other pass-through entity generally will depend on the status of the partner or investor and upon the activities of the partnership or other pass-through entity. A partner in such a partnership and an investor in such other pass-through entity that will hold shares of Common Stock and Pre-Funded Warrants should consult his, her or its own tax advisor regarding the tax consequences of the ownership and disposition of shares of Common Stock and Pre-Funded Warrants through such partnership or other pass-through entity, as applicable. This discussion of U.S. federal income tax considerations is for general information purposes only and is not tax advice. Prospective investors should consult their own tax advisors regarding the U.S. federal, state, local and non-U.S. income and other tax considerations of acquiring, holding and disposing of our Common Stock and Pre-Funded Warrants.

For the purposes of this discussion, a "U.S. Holder" means a beneficial owner of shares of Common Stock and Pre-Funded Warrants that is for U.S. federal income tax purposes (a) an individual citizen or resident of the United States, (b) a corporation (or other entity taxable as a corporation for U.S. federal income tax purposes), created or organized in or under the laws of the United States, any state thereof or the District of Columbia, (c) an estate the income of which is subject to U.S. federal income taxation regardless of its source, or (d) a trust if it (1) is subject to the primary supervision of a court within the United States and one or more U.S. persons (within the meaning of Section 7701(a)(30) of the Code) has the authority to control all substantial decisions of the trust or (2) has a valid election in effect under applicable U.S. Treasury regulations to be treated as a domestic trust. A "Non-U.S. Holder" is, for U.S. federal income tax purposes, a beneficial owner of shares of Common Stock and Pre-Funded Warrants that is not a U.S. Holder or a partnership for U.S. federal income tax purposes.

Potential Acceleration of Income

Under tax legislation signed into law in December 2017 commonly known as the Tax Cuts and Jobs Act of 2017, U.S. Holders that use an accrual method of accounting for tax purposes and have certain financial statements generally will be required to include certain amounts in income no later than the time such amounts are taken into account as revenue in such financial statements. In addition, under the Inflation Reduction Act signed into law on August 16, 2022, certain large corporations (generally, corporations reporting at least \$1 billion average adjusted pre-tax net income on their consolidated financial statements) are potentially subject to a 15% alternative minimum tax on the "adjusted financial statement income" of such large corporations for tax years beginning after December 31, 2022. The U.S. Treasury Department, the IRS, and other standard-setting bodies are expected to issue guidance on how the alternative minimum tax provisions of the Inflation Reduction Act will be applied or otherwise administered. The application of these rules thus may require the accrual of income earlier than would be the case under the general tax rules described below, although the precise application of these rules is unclear at this time. U.S. Holders that use an accrual method of accounting should consult with their tax advisors regarding the potential applicability of this legislation to their particular situation.

Treatment of Pre-Funded Warrants

Although it is not entirely free from doubt, a pre-funded warrant should be treated as a share of Common Stock for U.S. federal income tax purposes and a holder of Pre-Funded Warrants should generally be taxed in the same manner as a holder of Common Stock, as described below. Accordingly, no gain or loss should be recognized upon the exercise of a Pre-Funded Warrant and, upon exercise, the holding period of a Pre-Funded Warrant should carry over to the share of Common Stock received. Similarly, the tax basis of the Pre-Funded Warrant should carry over to the share of Common Stock received upon exercise, increased by the exercise price of \$0.00001 per share. Each holder should consult his, her or its own tax advisor regarding the risks associated with the acquisition of Pre-Funded Warrants pursuant to this offering (including potential alternative characterizations). The balance of this discussion generally assumes that the characterization described above is respected for U.S. federal income tax purposes.

31 Tax Considerations

Applicable to U.S. Holders

Distributions

As discussed above, we currently anticipate that we will retain future

earnings, if any, to finance the growth and development of our business and do not intend to pay cash dividends in respect of shares of Common Stock in the foreseeable future. In the event that we do make distributions on our Common Stock to a U.S. Holder, those distributions generally will constitute dividends for U.S. tax purposes to the extent paid out of our current or accumulated earnings and profits (as determined under U.S. federal income tax principles). Distributions in excess of our current and accumulated earnings and profits will constitute a return of capital that is applied against and reduces, but not below zero, a U.S. Holder's adjusted tax basis in our Common Stock. Any remaining excess will be treated as gain realized on the sale or exchange of shares of Common Stock as described below under the section titled "Disposition of Common Stock and Pre-Funded Warrants."

Certain Adjustments to Pre-Funded Warrants The number of shares of Common Stock issued upon the exercise of the Pre-Funded Warrants and the exercise price of Pre-Funded Warrants are subject to adjustment in certain circumstances. Adjustments (or failure to make adjustments) that have the effect of increasing a U.S. Holder's proportionate interest in our assets or earnings and profits may, in some circumstances, result in a constructive distribution to the U.S. Holder. Adjustments to the conversion rate made pursuant to a bona fide reasonable adjustment formula which has the effect of preventing the dilution of the interest of the holders of Pre-Funded Warrants generally should not be deemed to result in a constructive distribution. If an adjustment is made that does not qualify as being made pursuant to a bona fide reasonable adjustment formula, a U.S. Holder of Pre-Funded Warrants may be deemed to have received a constructive distribution from us, even though such U.S. Holder has not received any cash or property as a result of such adjustment. The tax consequences of the receipt of a distribution from us are described above under "Distributions."

Disposition of Common Stock and Pre-Funded Warrants Upon a sale or other taxable disposition (other than a redemption treated as a distribution, which will be taxed as described above under "Distributions") of shares of Common Stock and, Pre-Funded Warrants, a U.S. Holder generally will recognize capital gain or loss in an amount equal to the difference between the amount realized and the U.S. Holder's adjusted tax basis in the Common Stock and, Pre-Funded Warrants sold. Capital gain or loss will constitute long-term capital gain or loss if the U.S. Holder's holding period for the Common Stock and Pre-Funded Warrants exceeds one year. The deductibility of capital losses is subject to certain limitations. U.S. Holders who recognize losses with respect to a disposition of shares of Common Stock and Pre-Funded Warrants should consult their own tax advisors regarding the tax treatment of such losses.

Information Reporting and Backup Reporting Information reporting requirements generally will apply to payments of distributions (including constructive distributions) on the Common Stock and Pre-Funded Warrants and to the proceeds of a sale or other disposition of Common Stock and Pre-Funded Warrants paid by us to a U.S. Holder unless such U.S. Holder is an exempt recipient, such as a corporation. Backup withholding will apply to those payments if the U.S. Holder fails to provide the holder's taxpayer identification number, or certification of exempt status, or if the holder otherwise fails to comply with applicable requirements to establish an exemption. Backup withholding is not an additional tax. Rather, any amounts withheld under the backup withholding rules will be allowed as a refund or a credit against the U.S. Holder's U.S. federal income tax liability provided the required information is timely furnished to the IRS. U.S. Holders should consult their own tax advisors regarding their qualification for exemption from information reporting and backup withholding and the procedure for obtaining such exemption.

32 Tax Considerations Applicable to Non-U.S. Holders

Certain Adjustments to Warrants As described under "U.S. Holders," certain adjustments to Pre-Funded Warrants, an adjustment to the Pre-Funded Warrants could result in a constructive distribution to a Non-U.S. Holder, which would be treated as described under "Distributions" below. Any resulting withholding tax attributable to deemed dividends would be collected from other amounts payable or distributable to the Non-U.S. Holder. Non-U.S. Holders should consult their tax advisors regarding the proper treatment of any adjustments to the Pre-Funded Warrants.

In addition, regulations governing dividend equivalents under Section 871(m) of the Code may apply to the Pre-Funded Warrants. Under those regulations, an implicit or explicit payment under Pre-Funded Warrants that references a dividend distribution on our Common Stock would possibly be taxable to a Non-U.S. Holder as described under "Distributions" below. Such dividend equivalent amount would be taxable and subject to withholding whether or not there is actual payment of cash or other property, and the Company may satisfy any withholding obligations it has in respect of the Pre-Funded Warrants by withholding from other amounts due to the Non-U.S. Holder. Non-U.S. Holders are encouraged to consult their own tax advisors regarding the application of Section 871(m) of the Code to the Pre-Funded Warrants.

Distributions As discussed above, we currently anticipate that we will retain future earnings, if any, to finance the growth and development of our business and do not intend to pay cash dividends in respect of our Common Stock in the foreseeable future. In the event that we do make distributions on our Common Stock to a Non-U.S. Holder, those distributions generally will constitute dividends for U.S. federal income tax purposes as described in "U.S. Holders." Distributions To the extent those distributions do not constitute dividends for U.S. federal income tax purposes (i.e., the amount of such distributions exceeds both our current and our accumulated earnings and profits), they will constitute a return of capital and will first reduce a Non-U.S. Holder's basis in our Common Stock (determined separately with respect to each share of Common Stock), but not below zero, and then will be treated as gain from the sale of that share of Common Stock as described below under the section titled "Disposition of Common Stock and Pre-Funded Warrants."

Any distribution (including constructive distributions) on shares of Common Stock that is treated as a dividend paid to a Non-U.S. Holder that is not effectively connected with the holder's conduct of a trade or business in the United States will generally be subject to withholding tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and the Non-U.S. Holder's country of residence. To obtain a reduced rate of withholding under a treaty, a Non-U.S. Holder generally will be required to provide the applicable withholding agent with a properly executed IRS Form W-8BEN, IRS Form W-8BEN-E or other appropriate form, certifying the Non-U.S. Holder's entitlement to benefits under that treaty. Such form must be provided prior to the payment of dividends and must be updated periodically. If a Non-U.S. Holder holds stock through a financial institution or other agent acting on the holder's behalf, the holder will be required to provide appropriate documentation to such agent. The holder's agent may then be required to provide certification to the applicable withholding agent, either directly or through other intermediaries. If you are eligible for a reduced rate holding tax under an income tax treaty, you should consult with your own tax advisor to determine if you are able to obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim for a refund with the IRS. We generally are not required to withhold tax on dividends paid (or constructive dividends deemed paid) to a Non-U.S. Holder that are effectively connected with the holder's conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, are attributable to a permanent establishment or fixed base that the holder maintains in the United States) if a properly executed IRS Form W-8ECI, stating that the dividends are so connected, is furnished to us (or, if stock is held through

a financial institution or other agent, to the applicable withholding agent). In general, such effectively connected dividends will be subject to U.S. federal income tax on a net income basis at the regular tax rates applicable to U.S. persons. A corporate Non-U.S. Holder receiving effectively connected dividends may also be subject to an additional "branch profits tax," which is imposed, under certain circumstances, at a rate of 30% (or such lower rate as may be specified by an applicable treaty) on the corporate Non-U.S. Holder's effectively connected earnings and profits, subject to certain adjustments. See also the sections below titled "Backup Withholding and Information Reporting" and "Foreign Accounts" for additional withholding rules that may apply to dividends paid to certain foreign financial institutions or non-financial foreign entities.

33 Disposition of Common Stock and Pre-Funded Warrants Subject to the discussions below under the sections titled "Backup Withholding and Information Reporting" and "Foreign Accounts," a Non-U.S. Holder generally will not be subject to U.S. federal income or withholding tax with respect to gain recognized on a sale or other disposition (other than a redemption treated as a distribution, which will be taxable as described above under "Distributions") of shares of Common Stock and, Pre-Funded Warrants unless:

- the gain is effectively connected with the Non-U.S. Holder's conduct of a trade or business in the United States, and if an applicable income tax treaty so provides, the gain is attributable to a permanent establishment or fixed base maintained by the Non-U.S. Holder in the United States; in these cases, the Non-U.S. Holder will be taxed on a net income basis at the regular tax rates and in the manner applicable to U.S. persons, and if the Non-U.S. Holder is a corporation, an additional branch profits tax at a rate of 30%, or a lower rate as may be specified by an applicable income tax treaty, may also apply;
- the Non-U.S. Holder is a nonresident alien present in the United States for 183 days or more in the taxable year of the disposition and certain other requirements are met, in which case the Non-U.S. Holder will be subject to a 30% tax (or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence) on the net gain derived from the disposition, which may be offset by certain U.S.-source capital losses of the Non-U.S. Holder, if any; or
- the Common Stock constitutes a U.S. real property interest because we are, or have been at any time during the five-year period preceding such disposition (or the Non-U.S. Holder's holding period of the Common Stock and Pre-Funded Warrants, if shorter), a "U.S. real property holding corporation," unless the Common Stock is regularly traded on an established securities market, as defined by applicable Treasury Regulations, and the Non-U.S. Holder held no more than 5% of our outstanding Common Stock, directly or indirectly, during the shorter of the five-year period ending on the date of the disposition or the period that the Non-U.S. Holder held the Common Stock.

Special rules may apply to the determination of the 5% threshold in the case of a holder of Pre-Funded Warrants. Non-U.S. Holders are urged to consult their own tax advisors regarding the effect of holding Pre-Funded Warrants on the calculation of such 5% threshold. Generally, a corporation is a "U.S. real property holding corporation" if the fair market value of its "U.S. real property interests" (as defined in the Code and applicable regulations) equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although there can be no assurance, we believe that we are not currently, and we do not anticipate becoming, a "U.S. real property holding corporation" for U.S. federal income tax purposes. No assurance can be provided that the Common Stock will be regularly traded on an established securities market for purposes of the rules described above. Non-U.S. Holders are urged to consult their own tax advisors regarding the U.S. federal income tax considerations that could result if we are, or become a "U.S. real property holding corporation."

See the sections titled "Backup Withholding and Information Reporting" and "Foreign Accounts" for additional information regarding withholding rules that may apply to proceeds of a disposition of the Common Stock and Pre-Funded Warrants paid to foreign financial institutions or non-financial foreign entities.

Backup Withholding and Information Reporting We must report annually to the IRS and to each Non-U.S. Holder the gross amount of the distributions (including constructive distributions) on the Common Stock and Pre-Funded Warrants paid to such holder and the tax withheld, if any, with respect to such distributions. Non-U.S. Holders may have to comply with specific certification procedures to establish that the holder is not a U.S. person (as defined in the Code) in order to avoid backup withholding at the applicable rate, currently 24%, with respect to dividends (or constructive dividends) on the Common Stock and Pre-Funded Warrants. Generally, a holder will comply with such procedures if it provides a properly executed IRS Form W-8BEN (or other applicable Form W-8) or otherwise meets documentary evidence requirements for establishing that it is a Non-U.S. Holder, or otherwise establishes an exemption. Dividends paid to Non-U.S. Holders subject to withholding of U.S. federal income tax, as described above under the heading "Distributions," will generally be exempt from U.S. backup withholding.

34 Information reporting and backup withholding generally will apply to the proceeds of a disposition of the Common Stock and Pre-Funded Warrants by a Non-U.S. Holder effected by or through the U.S. office of any broker, U.S. or foreign, unless the holder certifies its status as a Non-U.S. Holder and satisfies certain other requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a Non-U.S. Holder where the transaction is effected outside the United States through a non-U.S. office of a broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker. Non-U.S. Holders should consult their own tax advisors regarding the application of the information reporting and backup withholding rules to them.

Copies of information returns may be made available to the tax authorities of the country in which the Non-U.S. Holder resides or is incorporated under the provisions of a specific treaty or agreement.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment to a Non-U.S. Holder can be refunded or credited against the Non-U.S. Holder's U.S. federal income tax liability, if any, provided that an appropriate claim is timely filed with the IRS.

Foreign Accounts The Foreign Account Tax Compliance Act, or FATCA, generally imposes a 30% withholding tax on dividends (including constructive dividends) on the Common Stock and Pre-Funded Warrants if paid to a non-U.S. entity unless (i) if the non-U.S. entity is a "foreign financial institution," the non-U.S. entity undertakes certain due diligence, reporting, withholding, and certification obligations, (ii) if the non-U.S. entity is not a "foreign financial institution," the non-U.S. entity identifies certain of its U.S. investors, if any, or (iii) the non-U.S. entity is otherwise exempt under FATCA.

Withholding under FATCA generally will apply to payments of dividends (including constructive dividends) on our Common Stock and Pre-Funded Warrants. While withholding under FATCA would have also applied to payments of gross proceeds from a sale or other disposition of the Common Stock and, Pre-Funded Warrants, under proposed U.S. Treasury Regulations withholding on payments of gross proceeds is not required. Although such regulations are not final, applicable withholding agents may rely on the proposed regulations until final regulations are issued.

An intergovernmental agreement between the United States and an applicable foreign country may modify the

requirements described in this section. Under certain circumstances, a holder may be eligible for refunds or credits of the tax. Holders should consult their own tax advisors regarding the possible implications of FATCA on their investment in the Common Stock and Pre-Funded Warrants. The preceding discussion of material U.S. federal tax considerations is for information only. It is not tax advice. Prospective investors should consult their own tax advisors regarding the particular U.S. federal, state, local and non-U.S. tax consequences of purchasing, holding and disposing of the Common Stock and Pre-Funded Warrants including the consequences of any proposed changes in applicable laws.

35

PLAN OF DISTRIBUTION

We engaged Spartan Capital Securities, LLC to act as our exclusive Placement Agent to solicit offers to purchase the Securities offered by this prospectus on a reasonable best-efforts basis. Subject to the terms and conditions of a placement agency agreement dated [], 2025 between the Company and the Placement Agent. The Placement Agent is not purchasing or selling any of the securities offered by this prospectus, nor is it required to arrange the purchase or sale of any specific number or dollar amount of securities, but has agreed to use its reasonable best efforts to arrange for the sale of the Securities offered hereby. Therefore, we may not sell the entire amount of securities offered pursuant to this prospectus. The Placement Agent may engage one or more sub-placement agents or selected dealers to assist with the offering. We will enter into a securities purchase agreement directly with certain investors, at the investor's option, who purchase our securities in this offering. Investors who do not enter into a securities purchase agreement shall rely solely on this prospectus and the documents incorporated by reference herein in connection with the purchase of our securities in this offering. We will deliver the securities being issued to the investors upon receipt of such investor's funds for the purchase of the securities offered pursuant to this prospectus. We expect this offering to be completed not later than one (1) business day following the commencement of this offering. We will deliver all Securities to be issued in connection with this offering delivery versus payment ("DVP")/receipt versus payment ("RVP") upon receipt of investor funds received by us. We have agreed to indemnify the Placement Agent and specified other persons against specified liabilities, including liabilities under the Securities Act, and to contribute to payments the Placement Agent may be required to make in respect thereof.

Fees and Expenses

The following table shows the per share, the per Pre-Funded Warrant and total of the public offering price, Placement Agent fees and proceeds to us before expenses. These amounts are shown assuming the sale of all of the Securities we are offering.

	Per Share	Per Pre-Funded Warrant	Total Public offering price
\$	\$	\$	\$
Placement Agent fees (1)	\$	\$	\$
Proceeds to us, before expenses (2)	\$	\$	\$

(1) Represents a cash fee equal to 2.5% of the gross proceeds of the offering. (2) Does not include proceeds from the exercise of the Pre-Funded Warrants in cash, if any. We have agreed to pay all of the expenses relating to the offering, including but not limited to the following: (a) all filing fees and communication expenses relating to the registration of the securities to be sold in this offering with the SEC; (b) all filing fees and communication expenses associated with the review of the offering by FINRA; (c) all fees, expenses and disbursements relating to the registration or qualification of the securities to be sold in this offering under the securities or "blue sky" laws of such states and other jurisdictions as the Placement Agent may reasonably designate (including, without limitation, all filing and registration fees, and the reasonable fees and disbursements of "blue sky" counsel); (d) the costs of preparing, printing, mailing and delivering the Registration Statement, the preliminary and final prospectus contained therein and amendments thereto, post-effective amendments and supplements thereto, any other offering materials, the placement agent agreement and related documents (all in such quantities as the Placement Agent may reasonably require); (e) preparing and printing stock certificates and warrant certificates; the costs of any "due diligence" meetings; (f) expenses incurred by the Placement Agent for any roadshow for the offering; (g) the costs associated with the use of a third-party electronic road show service (such as Net Roadshow); (h) the fees, expenses and disbursements relating to background checks of our executive officers and directors; (i) the preparation of leather bound volumes and Lucite cube mementos in such quantities as the Placement Agent may reasonably request; (j) any applicable transfer taxes; (k) the fees and expenses of our transfer agent and registrar and warrant agent relating to the offering; (l) the fees and expenses of our accountants; (m) the fees and expenses of our legal counsel and other agents and representatives; (n) the fees and expenses of the counsel to the Placement Agent; provided that reimbursement of such accountable expenses to the Placement Agent or the payment of such accountable expenses on behalf of the Placement Agent shall not exceed \$125,000. We have also agreed to pay closing costs incurred by the Placement Agent, including the out-of-pocket cost of any escrow agent or clearing agent in an amount not to exceed \$20,000. We have also agreed to pay the Placement Agent the closing of the offering a non-accountable expense allowance equal to 1% of the gross proceeds of the offering. We estimate the total expenses payable by us for this offering, excluding the Placement Agent fees and expenses, will be approximately \$[].

36

Tail Period

The Placement Agent shall be entitled to a cash fee equal to 2.5% of the gross proceeds received by us from any public offering or private offering or other financing or capital-raising transaction of any kind to the extent such financing or capital is provided to the Company by investors whom the Placement Agent had introduced to the Company, during the period within six (6) months following the expiration or termination of the engagement letter dated as of November 29, 2024 by and between the Placement Agent and us; provided, however, if the placement agent agreement is terminated for cause by the Company, no tail financing fee shall be payable as provided in FINRA Rule 5110(g)(5)(B).

Right of First Refusal

The Company agrees that, if, for the period ending six (6) months from the closing date of the offering, the Company or any of its subsidiaries (a) decides to dispose of or acquire business units or acquire any of its outstanding securities or make any exchange or tender offer or enter into a merger, consolidation or other business combination or any recapitalization, reorganization, restructuring or other similar transaction, including, without limitation, an extraordinary dividend or distributions or a spin-off or split-off, and the Company decides to retain a financial advisor for such transaction, the Placement Agent (or any affiliate designated by the Placement Agent) shall have the right to act as the Company's exclusive financial advisor for any such transaction; or (b) decides to finance or refinance any indebtedness using a manager or agent, the Placement Agent (or any affiliate designated by the Placement Agent) shall have the right to act as sole book-runner, sole manager, sole placement agent or sole agent with respect to such financing or refinancing; or (c) decides to raise funds by means of a public offering (including through an at-the-market facility) or a private placement or any other capital-raising financing of equity, equity-linked or debt securities using an underwriter or placement agent, the Placement Agent (or any affiliate designated by the Placement Agent) shall have the right to act as sole book-running manager, sole underwriter or sole placement agent for such financing; provided, however, (a) if the placement agent agreement is terminated for cause by the Company, the right of first refusal shall be terminated as provided in FINRA Rule 5110(g)(5)(B), and (b) in no event shall the duration of the right of first refusal be more than three years from the commencement of sales in the offering, pursuant to FINRA Rule 5110(g)(6)(A). Pursuant to "lock-up" agreements, we, our executive officers and directors, and holders of 5% or more of the issued and

outstanding shares of our Common Stock have agreed for a period of one hundred and eighty (180) days after the closing of the offering, subject to customary exceptions, without the prior written consent of the Placement Agent, not to, directly or indirectly, offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of our capital stock or any securities convertible into or exercisable or exchangeable for shares of our capital stock; (ii) file or caused to be filed any registration statement with the SEC relating to the offering of any shares of our capital stock or any securities convertible into or exercisable or exchangeable for shares of our capital stock; (iii) in the case of the Company, complete any offering of debt securities, other than entering into a line of credit with a traditional bank or (iv) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of shares of our capital stock, whether any such transaction described in clause (i), (ii), (iii) or (iv) above is to be settled by delivery of shares of our capital stock or such other securities, in cash or otherwise. **Electronic Distribution** A prospectus in electronic format may be made available on a website maintained by the Placement Agent. In connection with the offering, the Placement Agent or selected dealers may distribute prospectuses electronically. No forms of electronic prospectus other than prospectuses that are printable as Adobe® PDF will be used in connection with this offering. Other than the prospectus in electronic format, the information on the Placement Agent's website and any information contained in any other website maintained by the Placement Agent is not part of the prospectus or the registration statement of which this prospectus forms a part, has not been approved and/or endorsed by us or the Placement Agent in its capacity as placement agent and should not be relied upon by investors. **Listing** Shares of our Common Stock are listed on Nasdaq under the symbol "VRPX". On December 27, 2024, the last reported sale price of shares of our Common Stock on Nasdaq was \$0.41 per share. We do not plan to list the Pre-Funded Warrants on Nasdaq or any other securities exchange or trading market. **37 Regulation M** The Placement Agent may be deemed to be an underwriter within the meaning of Section 2(a)(11) of the Securities Act, and any commissions received by it and any profit realized on the resale of the Securities sold by it while acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. As an underwriter, the Placement Agent would be required to comply with the requirements of the Securities Act and the Exchange Act, including, without limitation, Rule 10b-5 and Regulation M under the Exchange Act. These rules and regulations may limit the timing of purchases and sales of our Securities by the placement agent acting as principal. Under these rules and regulations, the Placement Agent (i) may not engage in any stabilization activity in connection with our Securities and (ii) may not bid for or purchase any of our Securities or attempt to induce any person to purchase any of our securities, other than as permitted under the Exchange Act, until it has completed its participation in the distribution. **Determination of Offering Price** The public offering price of the securities were negotiated between us, the Placement Agent and the investors. The determination of the public offering price considered, among other things, the following: (a) the trading of our shares of Common Stock prior to the offering; (b) the information set forth in this prospectus and otherwise available to the Placement Agent; (c) the prospectus for our Company and the industry in which we operate; (d) an assessment of our management; (e) our past and present financial and operating performance; (f) our prospectus for future earnings; (g) financial and operating information and market valuations of publicly traded companies engaged in activities similar to ours; (h) the prevailing conditions of the United States securities markets at the time of this offering; and (i) other factors deemed relevant. **Other Relationships** From time to time, the Placement Agent and/or its affiliates may have provided, and may in the future provide, various investment banking and other financial services for us for which they may receive customary fees. In the course of its business, the Placement Agent and its affiliates may actively trade our securities or loans for its own account or for the accounts of customers, and, accordingly, the Placement Agent and its respective affiliates may at any time hold long or short positions in such securities or loans. **38 Selling Restrictions** Other than in the United States of America, no action has been taken by us or the Placement Agent that would permit a public offering of the Securities offered by this prospectus in any jurisdiction where action for that purpose is required. The Securities offered by this prospectus may not be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sale of any such Securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus comes are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any Securities offered by this prospectus in any jurisdiction in which such an offer or a solicitation is unlawful. **European Economic Area** In relation to each Member State of the European Economic Area (each, a Member State), no Securities have been offered or will be offered pursuant to this offering to the public in that Member State prior to the publication of a prospectus in relation to our Securities which has been approved by the competent authority in that Member State or, where appropriate, approved in another Member State and notified to the competent authority in that Member State, all in accordance with the Prospectus Regulation, except that offers of securities may be made to the public in that Member State at any time under the following exemptions under the Prospectus Regulation: (a) to any legal entity which is a qualified investor as defined in the Prospectus Regulation; (b) by the placement agent to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Regulation), subject to obtaining the prior written consent of the representatives for any such offer; or (c) in any other circumstances falling within Article 1(4) of the Prospectus Regulation, provided that no such offer of our Securities shall result in a requirement for us or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation. Each person in a Member State who initially acquires any of our Securities or to whom any offer is made will be deemed to have represented, acknowledged, and agreed with us and the representatives that it is a qualified investor within the meaning of the Prospectus Regulation. In the case of any of our Securities are being offered to a financial intermediary as that term is used in Article 5(1) of the Prospectus Regulation, each such financial intermediary will be deemed to have represented, acknowledged and agreed that the Securities acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer to the public other than their offer or resale in a Member State to qualified investors, in circumstances in which the prior written consent of the representatives has been obtained to each such proposed offer or resale. We, the placement agent, and their affiliates will rely upon the truth and accuracy of the foregoing representations, acknowledgments, and agreements. For the purposes of this provision, the expression an "offer to

the public in relation to any of our Securities in any Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any of our Securities to be offered so as to enable an investor to decide to purchase or subscribe for our Securities, and the expression "Prospectus Regulation" means Regulation (EU) 2017/1129. A United Kingdom A No securities have been offered or will be offered pursuant to this offering to the public in the United Kingdom prior to the publication of a prospectus in relation to the securities which has been approved by the Financial Conduct Authority, except that the securities may be offered to the public in the United Kingdom at any time: 39 A A (a) to any legal entity which is a qualified investor as defined under Article 2 of the UK Prospectus Regulation; A A (b) to fewer than 150 natural or legal persons (other than qualified investors as defined under Article 2 of the UK Prospectus Regulation), subject to obtaining the prior consent of the representatives for any such offer; or A A (c) in any other circumstances falling within Section 86 of the Financial Services and Markets Act 2000, or FSMA; A provided that no such offer of the securities shall require the use of any placement agent to publish a prospectus pursuant to Section 85 of the FSMA or supplement a prospectus pursuant to Article 23 of the UK Prospectus Regulation. For the purposes of this provision, the expression "offer to the public" in relation to the securities in the United Kingdom means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any securities and the expression "UK Prospectus Regulation" means Regulation (EU) 2017/1129 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018. A Switzerland A Our Securities may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange, or the SIX, or on any other stock exchange or regulated trading facility in Switzerland. This document does not constitute a prospectus within the meaning of, and has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to our Securities or this offering may be publicly distributed or otherwise made publicly available in Switzerland. A Neither this document nor any other offering or marketing material relating to this offering, our company or our Securities have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of our Securities will not be supervised by, the Swiss Financial Market Supervisory Authority and the offer of our Securities have not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes, or the CISA. The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of our Securities. A Canada A The Securities may be sold in Canada only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the Securities must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws. A Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus supplement (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor. A Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the placement agent are not required to comply with the disclosure requirements of NI 33-105 regarding placement agent conflicts of interest in connection with this offering. A Israel A This document does not constitute a prospectus under the Israeli Securities Law, 5728-1968, or the Securities Law, and has not been filed with or approved by the Israel Securities Authority. In the State of Israel, this document is being distributed only to, and is directed only at, and any offer of these securities is directed only at, investors listed in the first addendum, or the Addendum, to the Israeli Securities Law, consisting primarily of joint investment in trust funds, provident funds, insurance companies, banks, portfolio managers, investment advisors, members of the Tel Aviv Stock Exchange, placement agent, venture capital funds, entities with equity in excess of NIS 50 million and "qualified individuals," each as defined in the Addendum (as it may be amended from time to time), collectively referred to as qualified investors (in each case purchasing for their own account or, where permitted under the Addendum, for the accounts of their clients who are investors listed in the Addendum). Qualified investors will be required to submit written confirmation that they fall within the scope of the Addendum, are aware of the meaning of same and agree to it. A 40 A A Dubai International Financial Centre A This prospectus relates to an "Exempt Offer" in accordance with the Offered Securities Rules of the Dubai Financial Services Authority, or the DFSA. This prospectus is intended for distribution only to persons of a type specified in the Offered Securities Rules of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus nor taken steps to verify the information set forth herein and has no responsibility for the prospectus. Our Securities to which this prospectus relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of our Securities should conduct their own due diligence on such securities. If you do not understand the contents of this prospectus, you should consult an authorized financial advisor. A Hong Kong A Our Securities may not be offered or sold in Hong Kong by means of any document other than (1) in circumstances which do not constitute an offer to the public within the meaning of the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32 of the Laws of Hong Kong) ("Companies (Winding Up and Miscellaneous Provisions) Ordinance") or which do not constitute an invitation to the public within the meaning of the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong), or the Securities and Futures Ordinance, or (2) to "professional investors" as defined in the Securities and Futures Ordinance and any rules made thereunder, or (3) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance, and no advertisement, invitation or document relating to our Securities may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to securities which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" in Hong Kong as defined in the Securities and Futures Ordinance and any rules made thereunder. A Singapore A This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or

invitation for subscription or purchase, of our Securities may not be circulated or distributed, nor may our Securities be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (1) to an institutional investor (as defined under Section 4A of the Securities and Futures Act, Chapter 289 of Singapore, or the SFA) under Section 274 of the SFA, (2) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA or (3) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to conditions set forth in the SFA. Where our Securities are subscribed or purchased under Section 275 of the SFA by a relevant person which is a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor, the securities (as defined in Section 239(1) of the SFA) of that corporation shall not be transferable for six months after that corporation has acquired our Securities under Section 275 of the SFA except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person (as defined in Section 275(2) of the SFA), (2) where such transfer arises from an offer in that corporation's securities pursuant to Section 275(1A) of the SFA, (3) where no consideration is or will be given for the transfer, (4) where the transfer is by operation of law, (5) as specified in Section 276(7) of the SFA, or (6) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore, or Regulation 32. 41 Where our Securities are subscribed or purchased under Section 275 of the SFA by a relevant person which is a trust (where the trustee is not an accredited investor (as defined in Section 4A of the SFA)) whose sole purpose is to hold investments and each beneficiary of the trust is an accredited investor, the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferable for six months after that trust has acquired our Securities under Section 275 of the SFA except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person (as defined in Section 275(2) of the SFA), (2) where such transfer arises from an offer that is made on terms that such rights or interest are acquired at a consideration of not less than \$200,000 (or its equivalent in a foreign currency) for each transaction (whether such amount is to be paid for in cash or by exchange of securities or other assets), (3) where no consideration is or will be given for the transfer, (4) where the transfer is by operation of law, (5) as specified in Section 276(7) of the SFA, or (6) as specified in Regulation 32. Japan The Securities have not been and will not be registered under the Financial Instruments and Exchange Act of Japan (Act No. 25 of 1948, as amended), or the FIEA. These securities may not be offered or sold, directly or indirectly, in Japan or to or for the benefit of any resident of Japan (including any person resident in Japan or any corporation or other entity organized under the laws of Japan) or to others for reoffering or resale, directly or indirectly, in Japan or to or for the benefit of any resident of Japan, except pursuant to an exemption from the registration requirements of the FIEA and otherwise in compliance with any relevant laws and regulations of Japan. Australia No placement document, prospectus, product disclosure statement or other disclosure document has been lodged with the Australian Securities and Investments Commission, or ASIC, in relation to this offering. This prospectus does not constitute a prospectus, product disclosure statement or other disclosure document under the Corporations Act 2001, or the "Corporations Act", and does not purport to include the information required for a prospectus, product disclosure statement or other disclosure document under the Corporations Act. Any offer in Australia of our Securities may only be made to persons, or "Exempt Investors", who are "sophisticated investors" (within the meaning of section 708(8) of the Corporations Act), "professional investors" (within the meaning of section 708(11) of the Corporations Act) or otherwise pursuant to one or more exemptions contained in section 708 of the Corporations Act so that it is lawful to offer our Securities without disclosure to investors under Chapter 6D of the Corporations Act. Our Securities applied for by Exempt Investors in Australia must not be offered for sale in Australia in the period of 12 months after the date of allotment under this offering, except in circumstances where disclosure to investors under Chapter 6D of the Corporations Act would not be required pursuant to an exemption under section 708 of the Corporations Act or otherwise or where the offer is pursuant to a disclosure document which complies with Chapter 6D of the Corporations Act. Any person acquiring our Securities must observe such Australian on-sale restrictions. 42 LEGAL MATTERS Sichenzia Ross Ference Carmel LLP, New York, New York, is acting as counsel to the Company in connection with this offering and will pass upon the validity of the shares of Common Stock offered by this prospectus and certain other legal matters. Lucosky Brookman LLP is acting as counsel to the Placement Agent. EXPERTS The consolidated balance sheets of Virpax Pharmaceuticals, Inc. as of December 31, 2023, and 2022, and the related consolidated statements of operations, changes in stockholders' equity, and cash flows for each of the years then ended, have been audited by Bush & Associates CPA LLC, independent registered public accounting firm, as stated in their report, which is incorporated herein by reference. This report includes an explanatory paragraph expressing substantial doubt about the Company's ability to continue as a going concern. These financial statements have been incorporated by reference in reliance on the report of Bush & Associates CPA LLC, given upon their authority as experts in accounting and auditing. On September 20, 2024, EisnerAmper LLP ("EisnerAmper") resigned as the independent registered public accounting firm for the Company. EisnerAmper's audit reports on the Company's financial statements for the fiscal years ended December 31, 2023, and December 31, 2022, did not contain any adverse opinions or disclaimers of opinion, nor were they qualified or modified as to uncertainty, audit scope, or accounting principles, except for an explanatory paragraph related to the Company's ability to continue as a going concern. During the two most recent fiscal years audited by EisnerAmper, there were no disagreements between the Company and EisnerAmper on any matter of accounting principles, practices, financial statement disclosures, or auditing scope or procedures, which, if unresolved, would have been referenced in their audit reports, as required under Item 304(a)(1)(iv) of Regulation S-K. Following EisnerAmper's resignation, the Company engaged Bush & Associates CPA LLC as its new independent auditor. WHERE YOU CAN FIND MORE INFORMATION We have filed with the Securities and Exchange Commission (the "SEC") a registration statement on Form S-1 under the Securities Act with respect to the Securities offered hereby. This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement or the exhibits and schedules filed therewith. For further information about us and the Securities offered hereby, we refer you to the registration statement and the exhibits and schedules filed thereto. Statements contained in this prospectus regarding the contents of any contract or any other document that is filed as an exhibit to the registration statement are not necessarily complete, and each such statement is qualified in all respects by reference to the full text of such contract or other document filed as an exhibit to the registration statement. The SEC also maintains an Internet website that contains reports, proxy statements and other information about registrants, like us, that file electronically with the SEC. The address of that site is www.sec.gov. We are required to file periodic reports, proxy

statements, and other information with the SEC pursuant to the Exchange Act. These reports, proxy statements, and other information will be available on the website of the SEC referred to above. We also maintain a website at www.virpaxpharma.com, through which you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. Information contained on or accessed through our website is not a part of this prospectus and the inclusion of our website address in this prospectus is an inactive textual reference only.

43 INCORPORATION OF CERTAIN INFORMATION BY REFERENCE The SEC allows us to incorporate by reference information from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus. We incorporate by reference into this prospectus and the registration statement of which this prospectus is a part the information or documents listed below that we have filed with the SEC (Commission File No. 001-40064):

- Our Annual Report on Form 10-K for the fiscal December 31, 2023 (the "Annual Report") with the SEC on March 26, 2024, our Annual Report on Form 10-K/A for the fiscal December 31, 2023 with the SEC on October 10, 2024, and our Annual Report on Form 10-K/A for the fiscal December 31, 2022 with the SEC on October 10, 2024;
- Our Quarterly Report on Form 10-Q for the three months ended March 31, 2024 filed with the SEC on May 13, 2024; our Quarterly Report on Form 10-Q for the three and six months ended June 30, 2024 filed with the SEC on August 12, 2024; and our Quarterly Report on Form 10-Q for the three and nine months ended September 30, 2024 filed with the SEC on November 14, 2024;
- Our Current Reports on Form 8-K filed with the SEC on March 1, 2024, March 18, 2024, April 3, 2024, April 30, 2024, May 2, 2024, May 17, 2024, July 3, 2024, July 8, 2024, July 10, 2024, July 15, 2024, July 24, 2024, July 26, 2024, July 30, 2024, September 17, 2024; September 25, 2024; October 3, 2024; October 4, 2024; October 7, 2024; October 9, 2024, November 15, 2024, November 20, 2024, November 22, 2024, November 26, 2024, November 29, 2024, December 13, 2024, December 18, 2024 and December 30, 2024;
- Our Definitive Proxy Statement on Schedule 14A filed with the SEC on June 12, 2024 and additional materials filed with the SEC on July 8, 2024; and
- The description of our Common Stock is set forth in our registration statement on Form 8-A filed with the SEC on February 11, 2021, as updated by the description of our Common Stock filed as Exhibit 4.4 to our Annual Report on Form 10-K for the year ended December 31, 2023 filed with the SEC on March 26, 2024, including any amendments or reports filed for the purpose of updating such description. We also incorporate by reference any future filings (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made (i) on or after the date of the initial filing of the registration statement of which this prospectus forms a part and prior to effectiveness of such registration statement, and (ii) on or after the date of this prospectus but prior to the termination of the offering (i.e., until the earlier of the date on which all of the securities registered hereunder have been sold or the registration statement of which this prospectus forms a part has been withdrawn). Information in such future filings updates and supplements the information provided in this prospectus. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements. We will furnish without charge to each person, including any beneficial owner, to whom a prospectus is delivered, upon written or oral request, a copy of any or all of the documents incorporated by reference into this prospectus but not delivered with the prospectus, including exhibits that are specifically incorporated by reference into such documents. You should direct any requests for documents to: Virpax Pharmaceuticals, Inc. 1055 Westlakes Drive, Suite 300 Berwyn, Pennsylvania 19312 Telephone (610) 727-4597 Attention: Corporate Secretary

44 You may also access these documents, free of charge, on the SEC's website at www.sec.gov or on our website at <https://virpaxpharma.com/investors/sec-filings>. The information contained in, or that can be accessed through, our website is not incorporated by reference in, and is not part of, this prospectus or any accompanying prospectus supplement. In accordance with Rule 412 of the Securities Act, any statement contained in a document incorporated by reference herein shall be deemed modified or superseded to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein or deemed to be a part of the registration statement or prospectus that is part of the registration statement modifies or supersedes such statement.

45 Up to [] Shares of Common Stock Up to [] Pre-Funded Warrants to Purchase [] Shares of Common Stock Up to [] Shares of Common Stock Issuable Upon Exercise of such Pre-Funded Warrants

VIRPAX PHARMACEUTICALS, INC. PROSPECTUS Sole Placement Agent Spartan Capital Securities, LLC, 2025 PART II INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution The following table sets forth the expenses in connection with this registration statement. All of such expenses are estimates, other than the SEC registration fee and the FINRA filing fee.

	Amount to be paid
SEC registration fee	\$
FINRA filing fee	\$
Accounting fees and expenses	\$
Legal fees and expenses	\$
Miscellaneous expenses	\$
Total	\$

Item 14. Indemnification of Directors and Officers Section 145 of the Delaware General Corporation Law (the "DGCL") empowers a corporation to indemnify its directors and officers and to purchase insurance with respect to liability arising out of their capacity or status as directors and officers, provided that the person acted in good faith and in a manner the person reasonably believed to be in our best interests, and, with respect to any criminal action, had no reasonable cause to believe the person's actions were unlawful. The DGCL further provides that the indemnification permitted thereunder shall not be deemed exclusive of any other rights to which the directors and officers may be entitled under the corporation's bylaws, any agreement, a vote of stockholders or otherwise. Section 102(b)(7) of the Delaware General Corporation Law permits a corporation to provide in its certificate of incorporation that a director or officer of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director or officer, except (i) for any breach of the director's or officer's duty of loyalty to the corporation or its stockholders; (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law; (iii) a director for payments of unlawful dividends or unlawful stock repurchases or redemptions; (iv) for any transaction from which the director or officer derived an improper personal benefit; or (v) an officer in any action by or in the right of the corporation. Our amended and restated bylaws provides that we will indemnify our directors and executive officers to the fullest extent permitted by law, and may indemnify other officers, employees and other agents. Our amended and restated bylaws also provide that we are obligated to advance expenses incurred by a director or executive officer in advance of the final disposition of any action or proceeding. In

addition, as permitted by Delaware law, our amended and restated certificate of incorporation includes provisions that eliminate the personal liability of our directors and officers for monetary damages resulting from breaches of certain fiduciary duties as a director or officer, as applicable, except to the extent such an exemption from liability thereof is not permitted under the DGCL. II-1 A We have entered into indemnification agreements with each of our directors and executive officers. These agreements will require us to indemnify these individuals to the fullest extent permitted under Delaware law against liabilities that may arise by reason of their service to us and to advance expenses incurred as a result of any proceeding against them as to which they could be indemnified. The Registrant has an insurance policy in place that covers its officers and directors with respect to certain liabilities, including liabilities arising under the Securities Act or otherwise. Item 15. Recent Sales of Unregistered Securities A Except as set forth below, the Company has not issued unregistered securities to any person within the last three years. On July 5, 2024, the Company entered into a Securities Purchase Agreement with an institutional investor pursuant to which, on July 5, 2024, the Company issued to the Investor a senior secured promissory note in the principal amount of \$2.5 million for \$2.5 million. The issuance was exempt from registration pursuant to Section 4(a)(2) of the Securities Act of 1933, as amended, and/or Regulation D promulgated thereunder. On September 30, 2024, we entered into an extension agreement with the Investor pursuant to the terms of the Purchase Agreement. Pursuant to the terms of the Extension Agreement, the Investor agreed to amend certain provisions of the Purchase Agreement related to a potential financing arrangement of not less than \$5 million. Under the Extension Agreement, the Investor retains the exclusive right to negotiate the terms of and consummate any Subsequent Financing until November 30, 2024. Additionally, the Investor holds a right of first refusal for any Subsequent Financing that may occur on or before the Outside Date. If a financing arrangement of not less than \$5 million is not provided by the Investor (or its affiliate(s) and/or third-party designee(s)) by the Outside Date, the Investor's nominated members on the Company's Board of Directors will resign, effective immediately. II-2 A Item 16. Exhibits EXHIBIT INDEX The exhibits listed in the accompanying Exhibit Index are filed or incorporated by reference as part of this registration statement. Exhibit No. Description of Document 1.1* A Form of Placement Agency Agreement 3.1 A Amended and Restated Certificate of Incorporation of Virpax Pharmaceuticals, Inc. (incorporated by reference to Exhibit 3.1 to the Company's Annual Report on Form 10-K (File No. 001-40064) filed on March 31, 2021). 3.2 A Amended and Restated Bylaws of Virpax Pharmaceuticals, Inc. (incorporated by reference to Exhibit 3.2 to the Company's Annual Report on Form 10-K (File No. 001-40064) filed with the SEC on March 31, 2021). 3.3 A Amendment to By-Laws dated June 5, 2023 (incorporated by reference to Exhibit 3.1 to Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on June 7, 2023). 3.4 A Certificate of Amendment to the Certificate of Incorporation (incorporated by reference to Exhibit 3.1 of the Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on March 1, 2024) 3.5 A Amended and Restated Bylaws of Virpax Pharmaceuticals, Inc. (incorporated by reference to Exhibit 3.1 of the Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on November 29, 2024) 4.1 A Specimen Certificate representing shares of Common Stock of Virpax Pharmaceuticals, Inc. (incorporated by reference to Exhibit 4.1 of the Company's Registration Statement on Form S-1 (333-249417) filed with the SEC on October 9, 2020). 4.2 A Form of Consultant Warrant (incorporated by reference to Exhibit 4.3 of the Company's Registration Statement on Form S-1 (333-249417) filed with the SEC on October 9, 2020). 4.3 A Form of Underwriter's Warrant (incorporated by reference to Exhibit 4.2 of the Company's Registration Statement on Form S-1/A (333-249417) filed with the SEC on February 2, 2021). 4.4 A Form of Series A-1 Warrants (incorporated by reference to Exhibit 4.1 of the Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on May 17, 2024) 4.5 A Form of Series A-2 Warrant (incorporated by reference to Exhibit 4.2 of the Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on May 17, 2024) 4.6 A Form of Secured Note (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on July 8, 2024) 4.7* A Form of Pre-Funded Warrant for this Offering 5.1** A Opinion of Sichenzia Ross Ference Carmel LLP 10.1 A Virpax Pharmaceuticals, Inc. 2017 Equity Incentive Plan (incorporated by reference to Exhibit 10.2 of the Company's Registration Statement on Form S-1 (333-249417) filed with the SEC on October 9, 2020) A 10.2 A Form of Nonqualified Stock Option Award under 2017 Equity Incentive Plan (incorporated by reference to Exhibit 10.3 of the Company's Registration Statement on Form S-1 (333-249417) filed with the SEC on October 9, 2020). A 10.3 A Form of Incentive Stock Option Award under 2017 Equity Incentive Plan (incorporated by reference to Exhibit 10.4 of the Company's Registration Statement on Form S-1 (333-249417) filed with the SEC on October 9, 2020) A 10.4 A Employment Agreement by and between Virpax Pharmaceuticals, Inc. and Anthony Mack, dated as of September 18, 2018 (incorporated by reference to Exhibit 10.5 of the Company's Registration Statement on Form S-1 (333-249417) filed with the SEC on October 9, 2020) A 10.5 A Consulting Agreement by and between Virpax Pharmaceuticals, Inc. and Gerald Bruce, dated as of March 11, 2020 (incorporated by reference to Exhibit 10.6 of the Company's Registration Statement on Form S-1 (333-249417) filed with the SEC on October 9, 2020). A 10.6 A Form of Indemnification Agreement entered into by Virpax Pharmaceuticals, Inc. with its Officers and Directors (incorporated by reference to Exhibit 10.1 of the Company's Registration Statement on Form S-1/A (333-249417) filed with the SEC on November 20, 2020). II-3 A 10.7 A License Agreement by and between MedPharm Limited and Virpax Pharmaceuticals, Inc., dated as of June 6, 2017 (incorporated by reference to Exhibit 10.7 of the Company's Registration Statement on Form S-1/A (333-249417) filed with the SEC on November 20, 2020) 10.8 A First Amendment to the License Agreement by and between MedPharm Limited and Virpax Pharmaceuticals, Inc., dated as of September 2, 2017 (incorporated by reference to Exhibit 10.8 of the Company's Registration Statement on Form S-1/A (333-249417) filed with the SEC on November 20, 2020) 10.9 A Second Amendment to the License Agreement by and between MedPharm Limited and Virpax Pharmaceuticals, Inc., dated as of October 31, 2017 (incorporated by reference to Exhibit 10.9 of the Company's Registration Statement on Form S-1/A (333-249417) filed with the SEC on November 20, 2020) 10.10 A Research and Option Agreement by and between MedPharm Limited and Virpax Pharmaceuticals, Inc., dated as of April 11, 2017 (incorporated by reference to Exhibit 10.10 of the Company's Registration Statement on Form S-1/A (333-249417) filed with the SEC on November 20, 2020). 10.11 A First Amendment to the Research and Option Agreement by and between MedPharm Limited and Virpax Pharmaceuticals, Inc., dated as of May 30, 2018 (incorporated by reference to Exhibit 10.11 of the Company's Registration Statement on Form S-1/A (333-249417) filed with the SEC on November 20, 2020). 10.12 A License and Sublicense Agreement by and between LipoCureRx, Ltd. and Virpax Pharmaceuticals, Inc., dated as of March 19, 2018 (incorporated by reference to Exhibit 10.12 of the Company's Registration Statement on Form S-1/A (333-249417) filed with the SEC on November 20, 2020). 10.13 A Collaboration and License Agreement by and between Nanomerics Ltd. and Virpax Pharmaceuticals, Inc., dated as of April 11, 2019 (incorporated by reference to Exhibit

10.13 of the Company's Registration Statement on Form S-1/A (333-249417) filed with the SEC on November 20, 2020). 10.14# Â Amendment to the Collaboration and License Agreement by and between Nanomerics Ltd. and Virpax Pharmaceuticals, Inc., dated as of December 30, 2019 (incorporated by reference to Exhibit 10.14 of the Company's Registration Statement on Form S-1/A (333-249417) filed with the SEC on November 20, 2020). 10.15# Â Collaboration and License Agreement between Nanomerics Ltd. and Virpax Pharmaceuticals, Inc., dated August 7, 2020 (incorporated by reference to Exhibit 10.17 of the Company's Registration Statement on Form S-1/A (333-249417) filed with the SEC on February 2, 2021). 10.16 Â Paycheck Protection Program Term Note, dated May 4, 2020, between Virpax Pharmaceuticals, Inc. and PNC Bank, National Association. (incorporated by reference to Exhibit 10.26 of the Company's Registration Statement on Form S-1 (333-249417) filed with the SEC on February 2, 2021). 10.17 Â Cooperative Research and Development Agreement, dated August 25, 2020, between the U.S. Department of Health and Human Services, as represented by National Center for Advancing Translational Sciences an Institute or Center of the National Institutes of Health and Virpax Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.27 of the Company's Registration Statement on Form S-1 (333-249417) filed with the SEC on February 2, 2021). 10.18 Â Amendment No. 1 to the Collaboration and License Agreement between Nanomerics Ltd. and Virpax Pharmaceuticals, Inc., dated as of December 31, 2020 (incorporated by reference to Exhibit 10.31 of the Company's Registration Statement on Form S-1/A (333-249417) filed with the SEC on February 2, 2021). 10.19â€ Â Employment Agreement, dated as of April 7, 2021, by and between Christopher M. Chipman and Virpax Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.1 of the Company's current report on Form 8-K (File No. 001-40064) filed with the SEC on April 13, 2021). 10.20â€ Â Employment Agreement, dated as of April 15, 2021, by and between Jeffrey Gudin, MD and Virpax Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.1 of the Company's current report on Form 8-K (File No. 001-40064) filed with the SEC on April 19, 2021). 10.21 Â Amendment to the Collaboration and License Agreement dated April 11, 2019, as amended, between Nanomerics Ltd. and Virpax Pharmaceuticals, Inc., dated April 6, 2021 (incorporated by reference to Exhibit 10.3 of the Company's quarterly report on Form 10-Q (File No. 001-40064) filed with the SEC on August 10, 2021). 10.22 Â Amendment to the Collaboration and License Agreement dated April 11, 2019, as amended, between Nanomerics Ltd. and Virpax Pharmaceuticals Inc., dated May 5, 2021 (incorporated by reference to Exhibit 10.4 of the Company's quarterly report on Form 10-Q (File No. 001-40064) filed with the SEC on August 10, 2021).Â II-4 Â 10.23â€ Â Amendment No. 1 to the Amended and Restated Virpax Pharmaceuticals, Inc. 2017 Equity Incentive Plan (incorporated by reference to Exhibit 10.5 of the Company's Quarterly Report on Form 10-Q (File No. 001-40064) filed with the SEC on August 10, 2021). 10.24 Â Agreement for Rendering of Research Services between LipoCureRx, Ltd. and Virpax Pharmaceuticals, Inc., dated June 29, 2021 (incorporated by reference to Exhibit 10.16 of the Company's Registration Statement on Form S-1 (File No. 333-259421) filed with the SEC on September 9, 2021). 10.25â€ Â Virpax Pharmaceuticals, Inc. 2022 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K (File No. 001-40064) filed with the SEC on July 25, 2022). 10.26â€ Â Virpax Pharmaceuticals, Inc. Form of Nonqualified Stock Option Grant Agreement (incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K (File No. 001-40064) filed with the SEC on July 25, 2022). 10.27â€ Â Virpax Pharmaceuticals, Inc. Form of Incentive Stock Option Grant Agreement (incorporated by reference to Exhibit 10.3 to the Current Report on Form 8-K (File No. 001-40064) filed with the SEC on July 25, 2022). 10.28â€ Â Virpax Pharmaceuticals, Inc. Form of Restricted Stock Award Agreement (incorporated by reference to Exhibit 10.4 to the Current Report on Form 8-K (File No. 001-40064) filed with the SEC on July 25, 2022). 10.29â€ Â Virpax Pharmaceuticals, Inc. Form of Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.5 to the Current Report on Form 8-K (File No. 001-40064) filed with the SEC on July 25, 2022). 10.30# Â Amended and Restated Collaboration and License Agreement between Nanomerics Ltd. and Virpax Pharmaceuticals, Inc., dated as of March 9, 2022 (incorporated by reference to Exhibit 10.26 of the Annual Report on Form 10-K (File No. 001-40064) filed with the SEC on March 22, 2023). 10.31â€ Â Amendment No. 1, dated March 29, 2022, to the Employment Agreement by and between Virpax Pharmaceuticals, Inc. and Anthony Mack, dated September 18, 2017 (incorporated by reference to Exhibit 10.7 of the Company's Annual Report on Form 10-K (File No. 001-40064) filed with the SEC on March 22, 2023) 10.32â€ Â Amendment No. 1, dated March 29, 2022, to the Employment Agreement by and between Virpax Pharmaceuticals, Inc. and Jeffrey Gudin, MD, dated April 15, 2021 (incorporated by reference to Exhibit 10.11 of the Company's annual report on Form 10-K (File No. 001-40064) filed with the SEC on March 22, 2023) 10.33â€ Â Employment Agreement, dated June 20, 2023, by and between Virpax Pharmaceuticals, Inc. and Vinay Shah (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K (File No. 001-40064) filed with the SEC on June 21, 2023). 10.34â€ Â Separation Agreement, dated June 18, 2023, by and between Virpax Pharmaceuticals, Inc. and Christopher Chipman incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K (File No. 001-40064) filed with the SEC on June 21, 2023). 10.35â€ Â Amendment No. 2 to Employment Agreement, dated August 15, 2023, by and between Virpax Pharmaceuticals, Inc. and Anthony Mack (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K (File No. 001-40064) filed with the SEC on August 16, 2023). 10.36â€ Â Employment Agreement, dated December 6, 2023, by and between Virpax Pharmaceuticals, Inc. and Gerald Bruce (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K (File No. 001-40064) filed with the SEC on December 7, 2023). 10.37 Â Settlement Agreement and Mutual Release between Virpax Pharmaceuticals, Inc. and Sorrento Therapeutics, Inc. and Scilex Pharmaceuticals Inc. (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on March 1, 2024) 10.38â€ Â Employment Agreement, dated April 7, 2021, by and between Virpax Pharmaceuticals, Inc. and Sheila Mathias (incorporated by reference to Exhibit 10.38 of the Company's Annual Report on Form 10-K (File No. 001-40064) filed with the SEC on March 26, 2024) 10.39 Â Indemnification Agreement, dated March 25, 2024, by and between Virpax Pharmaceuticals, Inc. and Vinay Shah (incorporated by reference to Exhibit 10.39 of the Company's Annual Report on Form 10-K (File No. 001-40064) filed with the SEC on March 26, 2024) 10.40* Â Form of Securities Purchase Agreement to be entered into in this Offering 10.41 Â Securities Purchase Agreement, dated July 5, 2024 by and between Virpax Pharmaceuticals, Inc. and Corbo Capital Inc. (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on July 8, 2024)Â II-5 Â 10.42 Â Security Agreement, dated July 5, 2024 by and between Virpax Pharmaceuticals, Inc. and Corbo Capital Inc. (incorporated by reference to Exhibit 10.2 of the Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on July 8, 2024) 10.43â€ Â Amendment to the Virpax Pharmaceuticals 2022 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on July 30, 2024) 10.44â€ Â Amendment to the Virpax Pharmaceuticals 2022 Equity Incentive Plan (incorporated by reference to Exhibit 10.2 of the Company's Current Report on Form 8-K (File No. 001-40064) filed

with the SEC on July 30, 2024) 10.45 Â Extension Agreement dated September 30, 2024, by and between Virpax Pharmaceuticals, Inc. and Corbo Capital Inc. (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on October 3, 2024) 10.46 Â Form of Independent Contractor Agreement, dated November 18, 2024, by and between Virpax Pharmaceuticals, Inc. and Chaudhry U Consulting Inc. (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on November 20, 2024) 10.47 Â Form of Independent Contractor Agreement, dated November 19, 2024, by and between Virpax Pharmaceuticals, Inc. and Jat Consulting Corp., the personal corporation of Mr. Jatinder Dhaliwal (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on November 22, 2024) 10.48 Â Form of Investor Relations Agreement, dated November 12, 2024, between the Company and IR Agency LLC (incorporated by reference to Exhibit 10.3 of the Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on November 15, 2024) 10.49* Â Form of Investor Relations Agreement, dated January [], 2025, by and between the Company and IR Agency LLC 10.50* Â Form of Investor Relations Agreement, dated January [], 2025, by and between the Company and Sideways Frequency LLC 10.51 Â First Amendment to Independent Contractor Agreement with Jat Consulting Corp. (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on December 30, 2024) 10.52 Â First Amendment to Independent Contractor Agreement with Chaudhry U Consulting Inc. (incorporated by reference to Exhibit 10.2 of the Company's Current Report on Form 8-K (File No. 001-40064) filed with the SEC on December 30, 2024) 21.1 Â List of Subsidiaries (incorporated by reference to Exhibit 21.1 of the Company's Annual Report on Form 10-K (File No. 001-40064) filed with the SEC on March 26, 2024). 23.1** Â Consent of Bush & Associates CPA LLC 23.2** Â Consent of Sichenzia Ross Ference Carmel LLP (contained in Exhibit 5.1) 24.1** Â Power of Attorney (reference is made to the signature page hereto) 107** Â Filing Fee Table Â * To be filed by amendment Â Â ** Filed herewith Â Â € Denotes management compensation plan or contract. Â Â # Certain portions of this exhibit have been omitted because the omitted information is (i) not material and (ii) would likely cause competitive harm to the Company if publicly disclosed. Â Â II-6 Â Â Item 17. Undertakings.Â The undersigned registrant hereby undertakes:Â (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement: Â Â i. to include any prospectus required by Section 10(a)(3) of the Securities Act; Â Â ii. to reflect in the prospectus any acts or events arising after the effective date of this registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in this registration statement (notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of a prospectus filed with the Commission pursuant to Rule 424(b) under the Securities Act if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement); and Â Â iii. to include any material information with respect to the plan of distribution not previously disclosed in this registration statement or any material change to such information in this registration statement; Â provided, however, that subparagraphs (i), (ii) and (iii) do not apply if the information required to be included in a post-effective amendment by those subparagraphs is contained in periodic reports filed with or furnished to the Commission by the Registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934, that are incorporated by reference in this registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement. Â (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Â (3) To remove from registration, by means of a post-effective amendment, any of the securities being registered which remain unsold at the termination of the offering. Â (4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use. Â (5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities: Â The undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser: Â II-7 Â Â i. Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424 (Â§ 230.424 of this chapter); Â Â ii. Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant; Â Â iii. The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and Â Â iv. Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser. Â (6) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by a Registrant of expenses incurred or paid by a director, officer or controlling person of a Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, that Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue. Â (7) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of

prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective. (8) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. (9) For purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. II-8

SIGNATURES Pursuant to the requirements of the Securities Act, the registrant has duly caused this registration statement on Form S-1 to be signed on its behalf by the undersigned, thereunto duly authorized, in Berwyn, Pennsylvania, on December 30, 2024.

VIRPAX PHARMACEUTICALS, INC.

By: /s/ Jatinder Dhaliwal

Name: Jatinder Dhaliwal Title: Chief Executive Officer

Pursuant to the requirements of the Securities Act, this registration statement on Form S-1 has been signed below by the following persons in the capacities and on the dates indicated.

Signature Title Date

/s/ Jatinder Dhaliwal Chief Executive Officer (Principal Executive Officer) December 30, 2024

Jatinder Dhaliwal Officer) December 30, 2024

/s/ Usama Chaudhry Chief Financial Officer (Principal Financial Officer) December 30, 2024

Usama Chaudhry Officer) December 30, 2024

/s/ Judy Su Director December 30, 2024

Judy Su December 30, 2024

/s/ Katharyn Field Director and Vice President December 30, 2024

Katharyn Field December 30, 2024

/s/ Esha Randhawa Director December 30, 2024

Esha Randhawa December 30, 2024

/s/ Jaydriane Panis Director December 30, 2024

Jaydriane Panis December 30, 2024

II-9

Exhibit 5.1

December 30, 2024

Virpax Pharmaceuticals, Inc. 1055 Westlakes Drive, Suite 300 Berwyn, PA 19312

Ladies and Gentlemen: We have acted as counsel for Virpax Pharmaceuticals, Inc., a Nevada corporation (the "Company"), in connection with the preparation and filing of a Registration Statement on Form S-1 (the "Registration Statement"), including a related prospectus filed with the Registration Statement (the "Prospectus"), with the Securities and Exchange Commission (the "Commission") pursuant to the Securities Act of 1933, as amended (the "Securities Act"), covering the offer and sale of up to [] shares (the "Shares") of common stock, par value \$0.00001 per share (the "Common Stock"), and pre-funded warrants (the "Pre-Funded Warrants"), in lieu of shares of Common Stock that would otherwise result in the purchaser's beneficial ownership exceeding 4.99% (or, at the election of such purchaser, 9.99%) of the outstanding shares of Common Stock. Each Pre-Funded Warrant will be immediately exercisable for one share of Common Stock and may be exercised at any time until all of the Pre-Funded Warrants are exercised in full. The purchase price of each Pre-Funded Warrant will equal the price per share at which one share of Common Stock is being sold to the public in this offering, minus \$0.00001, and the exercise price of each Pre-Funded Warrant will be \$0.00001 per share. This opinion is being rendered in connection with the filing of the Registration Statement with the Commission. In connection with this opinion, we have examined originals or copies (certified or otherwise identified to our satisfaction) of (i) the Company's Articles of Incorporation, as currently in effect, (ii) the Company's Bylaws as currently in effect, (iii) the Registration Statement and related Prospectus and (vi) such corporate records, agreements, documents and other instruments, and such certificates or comparable documents of public officials or officers and representatives of the Company, as we have deemed relevant and necessary as a basis for the opinion hereinafter set forth. In such examination, we have assumed the genuineness of all signatures, the legal capacity of all natural persons, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as certified, conformed or photostatic copies, and the authenticity of the originals of such latter documents. As to certain questions of fact material to this opinion, we have relied upon certificates or comparable documents of officers and representatives of the Company and have not sought to independently verify such facts. Based on the foregoing, and in reliance thereon, and subject to the qualifications, limitations, exceptions and assumptions set forth herein, we are of the opinion that, (i) the Shares and the Pre-Funded Warrants have been duly authorized and when issued as described in the Registration Statement will be duly and validly issued, fully paid and non-assessable and (ii) the shares of Common Stock issuable upon the exercise of the Pre-Funded Warrants have been duly authorized and, upon the exercise of the Pre-Funded Warrants in accordance with the terms thereof, such Shares will be duly and validly issued, fully paid and non-assessable shares of common stock of the Company. We express no opinion herein as to the laws of any state or jurisdiction other than the federal laws of the United States of America, and, with respect to our opinion relating to the enforceability of the Pre-Funded Warrants, the laws of the State of New York. This opinion speaks only as of the date hereof and we assume no obligation to update or supplement this opinion if any applicable laws change after the date of this opinion or if we become aware after the date of this opinion of any facts, whether existing before or arising after the date hereof, that might change the opinion expressed above. This opinion is furnished in connection with the filing of the Registration Statement and may not be relied upon for any other purpose without our prior written consent in each instance. We assume no obligation to update or supplement any of our opinions to reflect any changes of law or fact that may occur. We hereby consent to the filing of this letter as an exhibit to the Registration Statement and to the reference to our firm under the caption "Legal Matters" in the Prospectus which is a part of the Registration Statement. In giving such consents, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission promulgated thereunder.

Very truly yours,

/s/ Sichenzia Ross Ference Carmel LLP

Sichenzia Ross Ference Carmel LLP

Exhibit 23.1

To Whom It May Concern:

We hereby consent to the use in the Registration Statement of Virpax Pharmaceuticals, Inc. on Form S-1 of our Report of Independent Registered Public Accounting Firm, dated October 4, 2024, on the balance sheet of Virpax Pharmaceuticals, Inc. as of December 31, 2023, and 2022, and the related statements of operations, changes in stockholder's equity and cash flows for the year then ended. We also consent to the references to us under the headings "Experts" in such Registration Statement.

Very truly yours,

/s/ Bush & Associates CPA LLC

Bush & Associates CPA LLC (PCAOB 6797) Henderson, Nevada December 30, 2024

179 N. Gibson Rd., Henderson, NV 89014

1702.703.5979 | www.bushandassociatescpas.com

Exhibit 107A

Calculation of Filing Fee Tables

FORM S-1 (Form Type)

VIRPAX PHARMACEUTICALS, INC. (Exact Name of Registrant as Specified in its Charter)

Table 1:

Newly Registered Securities	Security Type	Security Class Title	Fee Calculation Rule	Amount to be Registered	Proposed Maximum Offering Price Per Unit	Proposed Maximum Aggregate Offering Price (1)(2)	Fee Rate
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[illegible]