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

**FORM S-1
REGISTRATION STATEMENT**
*Under
The Securities Act of 1933*

VIGIL NEUROSCIENCE, INC.
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

2836
(Primary Standard Industrial
Classification Code Number)

85-1880494
(I.R.S. Employer
Identification Number)

**1 Broadway, 7th Floor, Suite 07-300
Cambridge, MA 02142
(857) 254-4445**

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

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

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

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

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

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

Indicate by 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 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 that specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until this registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

The information in this preliminary prospectus is not complete and may be changed. The Selling Stockholders named in this prospectus may not sell these securities until the Securities and Exchange Commission declares our registration statement effective. This preliminary prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED SEPTEMBER 30, 2022



**7,293,084 Shares of Common Stock
Up to 2,980,889 Shares of Common Stock Issuable Upon Exercise of the Pre-Funded Warrants
Offered by the Selling Stockholders**

This prospectus relates to the proposed resale or other disposition by the selling stockholders identified in this prospectus (the "Selling Stockholders"), of 10,273,973 shares of our common stock, or the Shares, consisting of (i) 7,293,084 shares of our common stock, par value \$0.0001 per share, and (ii) up to 2,980,889 pre-funded warrants to purchase shares of our common stock at an exercise price equal to \$0.0001. The Shares being offered were issued and sold pursuant to a Securities Purchase Agreement by and among the Company and the Selling Stockholders, in a private placement which closed on August 16, 2022. We are not selling any Shares under this prospectus and will not receive any of the proceeds from the sale or other disposition of Shares by the Selling Stockholders. However, upon any cash exercise of the pre-funded warrants by the Selling Stockholders, we will receive cash proceeds per share equal to the exercise price of the exercised pre-funded warrants. If the pre-funded warrants are exercised in a cashless exercise, we will not receive any proceeds from the exercise of the pre-funded warrants.

The Selling Stockholders may sell the Shares on any national securities exchange or quotation service on which the securities may be listed or quoted at the time of sale, on the over-the-counter market, in one or more transactions otherwise than on these exchanges or systems, such as privately negotiated transactions, or using a combination of these methods, and at fixed prices, at prevailing market prices at the time of the sale, at varying prices determined at the time of sale, or at negotiated prices. See the disclosure under the heading "Plan of Distribution" elsewhere in this prospectus for more information about how the Selling Stockholders may sell or otherwise dispose of their Shares hereunder. Discounts, concessions, commissions and similar selling expenses attributable to the sale of the Shares will be borne by the Selling Stockholders. We will pay all expenses (other than discounts, concessions, commissions and similar selling expenses) relating to the registration of the Shares with the Securities and Exchange Commission.

The Selling Stockholders may sell any, all or none of the Shares offered by this prospectus and we do not know when or in what amount the Selling Stockholders may sell their Shares hereunder following the effective date of the registration statement of which this prospectus forms a part.

You should carefully read this prospectus, as well as any documents incorporated by reference, before you invest in any of the securities being offered.

Our common stock is listed on the Nasdaq Global Market under the symbol "VIGL." The last reported sale price of our common stock on the Nasdaq Global Market on September 28, 2022 was \$8.94.

We are an "emerging growth company" as that term is used in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, and, as such, we have elected to comply with certain reduced public company reporting requirements for this prospectus and future filings.

Investing in our common stock involves risks. See "[Risk Factors](#)" on page 7.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is _____, 2022.

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We incorporate by reference important information into this prospectus. You may obtain the information incorporated by reference without charge by following the instructions under “Where You Can Find More Information.”

You should rely only on the information contained in or incorporated by reference in this prospectus or in any free writing prospectus we file with the Securities and Exchange Commission, or the SEC. Neither we nor the Selling Stockholders have authorized anyone to provide you with information other than that contained in or incorporated by reference in this prospectus or any free writing prospectus prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The Selling Stockholders are offering to sell, and seeking offers to buy, common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date on the front cover page of this prospectus, or other earlier date stated in this prospectus, regardless of the time of delivery of this prospectus or of any sale of our common stock.

PROSPECTUS SUMMARY

This summary highlights information contained elsewhere in this prospectus and does not contain all of the information that you should consider in making your investment decision. Before investing in our common stock, you should carefully read this entire prospectus, including our consolidated financial statements and the related notes incorporated by reference in this prospectus. You should also consider, among other things, the matters described under “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” in our Annual Report on Form 10-K for the year ended December 31, 2021 and our Quarterly Reports on Form 10-Q for the Quarters ended March 31, 2022 and June 30, 2022, in each case incorporated by reference in this prospectus. Unless the context otherwise requires, the terms “Vigil,” “the Company,” “we,” “us,” and “our” in this prospectus refer to Vigil Neuroscience, Inc. and its wholly owned, consolidated subsidiary, or either or both of them as the context may require.

OVERVIEW

We are a microglia-focused company dedicated to improving the lives of patients, caregivers, and families affected by rare and common neurodegenerative diseases by pursuing the development of disease-modifying therapeutics to restore the vigilance of microglia. Microglia are the sentinel immune cells of the brain and play a critical role in maintaining central nervous system (CNS) health and responding to damage caused by disease. Leveraging recent research implicating microglial dysfunction in neurodegenerative diseases, we utilize a precision medicine approach to develop a pipeline of therapeutic candidates, initially addressing genetically defined patient subpopulations, that we believe will activate and restore microglial function. Our first therapeutic candidates are designed to activate Triggering Receptor Expressed on Myeloid Cells 2 (TREM2), a key microglial receptor protein that mediates responses to environmental signals in order to maintain brain health and whose dysfunction is linked to neurodegeneration.

We believe that each of the therapeutic candidates in our pipeline has the potential to be developed for multiple neurodegenerative diseases. Our precision medicine approach begins with rare, genetically defined diseases for which microglial dysfunction is believed to be a key driver of disease pathology and then utilizes findings from these efforts to inform expansion into larger and more common neurodegenerative diseases. Our strategy has the potential to mitigate downstream translational risk as we seek to advance our programs through early development and into the clinic. We believe this iterative, sequential approach is a key differentiator, potentially allowing us to generate clinical proof-of-concept (PoC) efficiently and leverage our initial development programs as well as research by others, in pursuing additional neurodegenerative disease opportunities.

Our lead candidate, VGL101, is a fully human monoclonal antibody (mAb) that is designed to activate TREM2. We are initially developing VGL101 for the treatment of adult-onset leukoencephalopathy with axonal spheroids and pigmented glia (ALSP), a rare, genetically defined, and fatal neurodegenerative disease caused by microglial dysfunction.

ALSP affects an estimated 10,000 people in the U.S., with about 1,000 to 2,000 new cases annually. ALSP has been diagnosed in countries around the world, with major clusters in North America (U.S. and Canada), Central and Northern Europe, and Asia. In July 2022, the FDA granted orphan drug designation for VGL101 for the treatment of ALSP. ALSP is caused by loss-of-function mutations in the Colony Stimulating Factor 1 Receptor (CSF1R), a receptor that shares a common downstream signaling pathway with TREM2. The therapeutic rationale for VGL101 is to compensate for CSF1R loss-of-function by activating TREM2. We have generated robust preclinical evidence that suggests TREM2 agonism can rescue CSF1R loss-of-function. We initiated our Phase 1 trial in December 2021 and have completed dosing of the 20 mg/kg single ascending dose (SAD) cohort and the 20 mg/kg multiple ascending dose (MAD) cohort in the U.S., without any safety signals. Although we

believe that 20 mg/kg is a clinically-relevant dose in ALS, we continue to engage with the FDA regarding the partial clinical hold at doses above 20 mg/kg to maintain optionality to support patients with rare and common neurodegenerative diseases beyond ALS. Further, we received approval from the Australian Human Research Ethics Committee (HREC) to initiate a Phase 1 study of VGL101 in healthy volunteers without dosing restrictions and are currently evaluating doses of 30 mg/kg and above in Australia.

We believe engagement with patients and the scientific and provider communities is central to our approach in rare neurodegenerative diseases. In September 2021, we began a natural history study of ALS patients to better characterize the patient journey, inform our clinical trial design, and facilitate recruitment into our clinical trials. We also actively support a patient advocacy organization and have established the world's first patient-facing ALS informational website to build disease awareness. In addition, we launched a global ALS patient registry to further understand patient and caregiver journey, disease burden, and health economic outcomes.

We are also developing novel small molecule TREM2 agonist product candidates suitable for oral delivery to treat common neurodegenerative diseases associated with microglial dysfunction, with an initial focus on Alzheimer's disease (AD) in genetically defined subpopulations. In the first quarter of 2022, we initiated IND-enabling studies for certain of these product candidates. More recently, we established that our small molecule product candidates have a different mechanism of action and bind to a different location than VGL101, providing potential additional optionality in positioning these molecules in different patient populations and potential differentiation from TREM2 antibody therapeutics.

As part of a continuous evaluation of our programs, we have elected to prioritize VGL101 in ALS and our small molecule TREM2 agonist programs. Based on our recent findings that VGL101 and our small molecule program candidates have different mechanisms of action and bind to different locations, we no longer believe that the originally planned Phase 1b biomarker trial of VGL101 will inform clinical development of the small molecule program candidates in AD and are no longer planning to conduct this biomarker trial. We also plan to defer the initiation of the planned Phase 2 clinical trial of VGL101 for the treatment of cerebral adrenoleukodystrophy (cALD).

On August 12, 2022, we entered into a securities purchase agreement ("Securities Purchase Agreement") pursuant to which we sold and issued to the Selling Stockholders in a private placement (i) an aggregate of 7,293,084 shares of our common stock at a purchase price of \$7.30 per share and (ii) 2,980,889 pre-funded warrants to purchase common stock at a purchase price of \$7.2999 per pre-funded warrant. The pre-funded warrants will have an exercise price of \$0.0001 per share of common stock, be immediately exercisable and remain exercisable until exercised in full. We received gross proceeds of approximately \$75.0 million from the private placement, before deducting fees to the placement agent and other offering expenses payable by us. The proceeds from the private placement, combined with the current cash and cash equivalents, is expected to fund our operational plans into the first quarter of 2025. Pursuant to the contractual obligations we entered into in connection with the private placement, we are required to file a registration statement under the Securities Act within 60 days following the close of the private placement. This prospectus covers the shares of our common stock issuable upon the exercise of the warrants.

We believe our microglia focus, precision medicine approach, and pipeline, which spans multiple modalities, strongly position us to become a differentiated leader in the neurodegenerative therapeutic space.

Our Business Strategy

Our goal is to be a leader in the development and commercialization of microglia-targeted, disease-modifying therapeutics that slow or halt progression of a range of rare and common neurodegenerative diseases. Key elements of our business strategy are to:

- Apply our precision medicine approach to develop microglia-targeted therapies for patients with rare, genetically defined neurodegenerative diseases and subsequently advance into neurodegenerative diseases affecting larger patient populations.
- Advance our lead therapeutic candidate, VGL101, a mAb TREM2 agonist, for the treatment of ALSP and other rare leukoencephalopathies and leukodystrophies.
- Develop a novel, orally-available, small molecule TREM2 agonist for the treatment of more common neurodegenerative diseases, beginning with genetically defined subpopulations of AD patients.
- Expand our modality-agnostic product pipeline to other microglial targets beyond TREM2.
- Engage the stakeholder community including patients, advocacy groups, and clinical leaders.

SUMMARY OF MATERIAL RISKS ASSOCIATED WITH OUR BUSINESS

Our business is subject to a number of risks of which you should be aware before making an investment decision. These risks include, but are not limited to, the following:

- We have a limited operating history, have incurred significant operating losses since our inception and expect to incur significant losses for the foreseeable future. We may never generate any revenue or become profitable, and, if we achieve profitability, we may not be able to sustain it.
- We will require additional financing to achieve our goals, and a failure to obtain this necessary capital when needed and on acceptable terms, or at all, could force us to delay, limit, reduce or terminate our development programs, commercialization efforts or other operations.
- We are early in our development efforts and have never successfully completed any clinical trials, and if we are unable to identify and advance therapeutic candidates through preclinical studies and clinical trials, obtain marketing approval and ultimately commercialize them, or experience significant delays in doing so, our business will be materially harmed.
- The results of early preclinical studies are not necessarily predictive of the results of later preclinical studies and any clinical trials of our therapeutic candidates, and interim, topline and preliminary data from our preclinical studies and planned and ongoing clinical trials that we announce or publish from time to time may change as more data become available and are subject to audit and verification procedures that could result in material changes in the final data.
- We may expend our limited resources to pursue a particular therapeutic candidate or indication, such as our initial focus on developing VGL101 for ALSP, and fail to capitalize on therapeutic candidates or indications that may be more profitable or for which there is a greater likelihood of success. As such, our business is highly dependent on the clinical advancement of our programs and is especially dependent on the success of our lead candidate, VGL101.
- We have concentrated a substantial portion of our research and development efforts on the treatment of neurodegenerative diseases, a field that has seen limited success in drug development. Further, our therapeutic candidates are based on new approaches, which makes it difficult to predict the time and cost of therapeutic candidate development and subsequently obtaining regulatory approval.

- We may encounter substantial delays in the commencement, enrollment or completion of our planned clinical trials, which could prevent us from receiving necessary regulatory approvals or commercializing any therapeutic candidates we develop on a timely basis, if at all.
- Use of our therapeutic candidates could be associated with side effects, adverse events or other properties or safety risks, which could delay or preclude approval, cause us to suspend or discontinue clinical trials, abandon a therapeutic candidate, limit the commercial profile of an approved label or result in other significant negative consequences that could severely harm our business, prospects, operating results and financial condition.
- Our therapeutic candidates are subject to extensive regulation and compliance, which is costly and time-consuming, and such regulation may cause unanticipated delays or prevent the receipt of the required approvals to commercialize our therapeutic candidates.
- We rely, and expect to continue to rely, on third parties to conduct some or all aspects of our product manufacturing, research and preclinical and clinical testing, and these third parties may not perform satisfactorily.
- If we are unable to obtain and maintain patent protection for our therapeutic programs and other proprietary technologies we develop, or if the scope of the patent protection obtained is not sufficiently broad, our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to successfully commercialize our therapeutic programs and other proprietary technologies we may develop may be adversely affected.

The summary risk factors described above should be read together with the text of the full risk factors in the section entitled “Risk Factors” and the other information set forth in this prospectus, including our consolidated financial statements and the related notes, as well as in other documents that we file with the SEC. The risks summarized above or described in full elsewhere in this prospectus are not the only risks that we face.

Additional risks and uncertainties not presently known to us, or that we currently deem to be immaterial may also materially adversely affect our business, financial condition, results of operations, and future, growth prospects.

CORPORATE HISTORY

We were incorporated under the laws of the State of Delaware on June 22, 2020 under the name “Vigil Neuroscience, Inc.” Our principal corporate office is located at 1 Broadway, 7th Floor, Suite 07-300, Cambridge, MA 02142, and our telephone number is (857) 254-4445. Our website address is www.vigilneuro.com. We do not incorporate the information on or accessible through our website into this prospectus, and you should not consider any information on, or that can be accessed through, our website as part of this prospectus.

We own various registered and unregistered trademarks in the United States and in countries outside of the United States. All trademarks or trade names referred to in this prospectus that are not owned by us are the property of their respective owners. Solely for convenience, the trademarks and trade names in this prospectus are referred to without the symbols ® and ™, but such references should not be construed as any indicator that any third party trademark owners will not assert, to the fullest extent under applicable law, their rights thereto.

IMPLICATIONS OF BEING AN EMERGING GROWTH COMPANY AND A SMALLER REPORTING COMPANY

We qualify as an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, as amended, or the JOBS Act. As an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. These provisions include:

- only two years of audited financial statements in addition to any required unaudited interim financial statements with correspondingly reduced “Management’s Discussion and Analysis of Financial Condition and Results of Operations” disclosure;
- reduced disclosure about our executive compensation arrangements;
- no non-binding advisory votes on executive compensation or golden parachute arrangements;
- exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting; and
- an exemption from compliance with the requirements of the Public Company Accounting Oversight Board regarding the communication of critical audit matters in the auditor’s report on financial statements.

We may take advantage of these exemptions for up to five years or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company on the date that is the earliest of (i) the last day of the fiscal year in which we have total annual gross revenues of \$1.07 billion or more; (ii) the last day of our fiscal year following the fifth anniversary of the date of our initial public offering in January 2022, or IPO; (iii) the date on which we have issued more than \$1 billion in non-convertible debt during the previous three years; or (iv) the last day of the fiscal year in which we are deemed to be a “large accelerated filer”, which would occur if the aggregate market value of our equity securities held by non-affiliates exceeds \$700 million as of the last business day of our most recently completed second fiscal quarter. We may choose to take advantage of some but not all of these exemptions. We have taken advantage of reduced reporting requirements in this prospectus. Accordingly, the information contained herein may be different from the information you receive from other public companies in which you hold stock. Additionally, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this exemption and, therefore, while we are an emerging growth company we will not be subject to new or revised accounting standards at the same time that they become applicable to other public companies that are not emerging growth companies. As a result of these elections, the information that we provide in this prospectus may be different than the information you may receive from other public companies in which you hold equity interests. In addition, it is possible that some investors will find our common stock less attractive as a result of these elections, which may result in a less active trading market for our common stock and higher volatility in our share price.

We are also a “smaller reporting company” as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies until the fiscal year following the determination that (i) our voting and non-voting common stock held by non-affiliates is more than \$250 million measured on the last business day of our second fiscal quarter, or (ii) our annual revenues are more than \$100 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is more than \$700 million measured on the last business day of our second fiscal quarter.

THE OFFERING

Common stock to be offered by the Selling Stockholders hereunder	7,293,084 shares of common stock
Pre-Funded Warrants to be offered by the Selling Stockholders hereunder and the underlying shares of common stock	2,980,889 warrants to purchase common stock
Use of proceeds	We will not receive any proceeds from the sale of our shares of common stock by the Selling Stockholders. See "Use of Proceeds."
Plan of Distribution	The Selling Stockholders may sell all or a portion of the shares of common stock beneficially owned by them and offered hereby from time to time directly or through one or more underwriters, broker-dealers or agents. Registration of the common stock covered by this prospectus does not mean, however, that such shares necessarily will be offered or sold. See "Plan of Distribution."
Risk factors	This investment involves a high degree of risk. You should read the description of risks set forth under "Risk Factors" beginning on page 7 of this prospectus and the documents incorporated by reference herein for a discussion of factors to consider before deciding to purchase our securities.
Nasdaq Global Market Symbol	"VIGL"

RISK FACTORS

Investing in our common stock involves a high degree of risk. Before investing in our common stock, you should consider carefully the risks and other information described in, or incorporated by reference into, this prospectus, including the risks and uncertainties discussed in the “Risk Factors” sections in this prospectus, our Annual Report on Form 10-K for the year ended December 31, 2021, our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2022 and June 30, 2022, and other subsequent filings made with the Securities and Exchange Commission (the “SEC”), which are incorporated by reference herein in their entirety. Additional risks and uncertainties not presently known to us, or that we currently see as immaterial, may also harm our business. If any of the risks incorporated by reference herein occur, our business, financial condition and operating results could be harmed, the trading price of our common stock could decline and you could lose part or all of your investment.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the documents that we incorporate by reference, contains express or implied forward-looking statements that are based on our management's belief and assumptions and on information currently available to our management. Although we believe that the expectations reflected in these forward-looking statements are reasonable, these statements relate to future events or our future operational or financial performance, and involve known and unknown risks, uncertainties, and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. Forward-looking statements in this prospectus include, but are not limited to, statements about:

- the initiation timing, progress, results and cost of VGL101 and our small molecule TREM2 agonists program, as well as our research and development programs and our current and future preclinical and clinical studies, including statements regarding the timing of initiation and completion of studies or trials and related preparatory work, the period during which the results of the trials will become available and our current and future programs;
- the application of our precision medicine approach to develop microglia-targeted therapies for patients with rare, genetically defined neurodegenerative diseases and subsequently advance into neurodegenerative diseases affecting larger patient populations;
- the expansion of our modality agnostic product pipeline to other microglial targets beyond TREM2;
- the ability of our preclinical studies and clinical trials to demonstrate safety and efficacy of our product candidates, as well as the beneficial characteristics, therapeutic effects and other positive results;
- our estimates of the number of patients that we will enroll and our ability to initiate, recruit and enroll patients in and conduct and successfully complete our clinical trials at the pace that we project;
- the ability to identify research and efficiently discover and develop product candidates;
- the timing, scope and likelihood of regulatory filings and approvals, including timing of INDs and final FDA approval of our current product candidates or any future product candidates;
- the timing, scope or likelihood of foreign regulatory filings and approvals;
- the scope of protection we are able to establish and maintain for intellectual property rights covering our product candidates and other product candidates we may develop, including the extensions of existing patent terms where available, the validity of intellectual property rights held by third parties, and our ability not to infringe, misappropriate or otherwise violate any third-party intellectual property rights;
- our ability to scale up our manufacturing and processing approaches to appropriately address our anticipated commercial needs, which will require significant resources
- the ability and willingness of our third-party strategic collaborators to continue research and development activities relating to our development candidates and product candidates;
- our ability to obtain funding for our operations necessary to complete further development and commercialization of our product candidates;
- our ability to commercialize our products, if approved;
- the pricing and reimbursement of our product candidates, if approved;
- the implementation of our business model, and strategic plans for our business, product candidates, and technology;
- estimates of our future expenses, revenues and capital requirements and our needs for additional financing;

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- future agreements with third parties in connection with the development and commercialization of product candidates and any other approved product;
- the size and growth potential of the markets for our product candidates and our ability to serve those markets;
- our financial performance;
- the rate and degree of market acceptance of our product candidates;
- regulatory developments in the United States and foreign countries;
- our ability to attract and retain key scientific or management personnel;
- our ability to contract with third-party suppliers and manufacturers and their ability to perform adequately;
- our ability to produce our products or product candidates with advantages in turnaround times or manufacturing cost;
- the success of competing therapies that are or may become available;
- the impact of laws and regulations;
- developments relating to our competitors and our industry;
- the effect of the COVID-19 pandemic, including mitigation efforts and economic effects, on any of the foregoing or other aspects of our business operations, including but not limited to a negative impact on enrollment in our ongoing clinical trial as well as any other impacts on our existing and future clinical trials or our preclinical studies; and
- other risks and uncertainties, including those listed under the caption “Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2021, our Quarterly Report on Form 10-Q for the quarter ended June 30, 2022, and other subsequent filings made with the SEC.

In some cases, you can identify forward-looking statements by terminology such as “may,” “should,” “expects,” “intends,” “plans,” “anticipates,” “believes,” “estimates,” “predicts,” “potential,” “continue,” or the negative of these terms or other comparable terminology. These statements are only predictions. You should not place undue reliance on forward-looking statements because they involve known and unknown risks, uncertainties and other factors, which are, in some cases, beyond our control and which could materially affect results. Factors that may cause actual results to differ materially from current expectations include, among other things, those listed under the section titled “Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2021 and elsewhere in or incorporated by reference in this prospectus. If one or more of these risks or uncertainties occur, or if our underlying assumptions prove to be incorrect, actual events or results may vary significantly from those implied or projected by the forward-looking statements. No forward-looking statement is a guarantee of future performance. You should read this prospectus and the documents that we incorporate by reference in this prospectus and have filed with the SEC as exhibits to the registration statement, of which this prospectus is a part, completely and with the understanding that our actual future results may be materially different from any future results expressed or implied by these forward-looking statements.

The forward-looking statements in this prospectus represent our views as of the date of this prospectus. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should therefore not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this prospectus.

This prospectus also contains or incorporates by reference estimates, projections and other information concerning our industry, our business and the markets for our product candidates. Information that is based on

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estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances that are assumed in this information. Unless otherwise expressly stated, we obtained this industry, business, market, and other data from our own internal estimates and research as well as from reports, research surveys, studies, and similar data prepared by market research firms and other third parties, industry, medical and general publications, government data and similar sources. While we are not aware of any misstatements regarding any third-party information presented in or incorporated by reference in this prospectus, their estimates, in particular as they relate to projections, involve numerous assumptions, are subject to risks and uncertainties and are subject to change based on various factors.

USE OF PROCEEDS

The Selling Stockholders will make offers and sales pursuant to this prospectus. We will not receive any of the proceeds of such offerings. However, upon any cash exercise of the pre-funded warrants by the Selling Stockholders, we may receive cash proceeds per share equal to the exercise price of the pre-funded warrant, which could amount up to \$298.09 in the aggregate. The Selling Stockholders will pay any underwriting discounts and commissions and expenses they incur for brokerage, accounting, tax or legal services, or any other expenses they incur in disposing of their shares. We will incur certain expenses in connection with the registration with the SEC of the shares of our common stock to be sold by the Selling Stockholders. The holders of the pre-funded warrants are currently not obligated to exercise the pre-funded warrants and we cannot assure you that the holders will choose to exercise all or any pre-funded warrants. If the pre-funded warrants are exercised in a cashless exercise, we will not receive any proceeds from the exercise of the pre-funded warrants.

DIVIDEND POLICY

We currently intend to retain all available funds and any future earnings to fund the growth and development of our business. We do not intend to pay cash dividends to our stockholders in the foreseeable future. Any future determination to declare dividends will be made at the discretion of our board of directors and will depend on our financial condition, operating results, capital requirements, general business conditions and other factors that our board of directors may deem relevant.

SELLING STOCKHOLDERS

The common stock being offered by the selling stockholders are those previously issued to the selling stockholders and those issuable to the selling stockholders upon the exercise of the pre-funded warrants. The selling stockholders acquired these shares and pre-funded warrants from us in a private offering pursuant to an exemption from registration afforded by Section 4(a)(2) of the Securities Act and/or Regulation D promulgated thereunder.

On August 12, 2022, we entered into a securities purchase agreement, or the Securities Purchase Agreement, with certain investors for \$75.0 million of shares of our common stock and pre-funded warrants, prior to the payment of placement agent fees and estimated offering expenses. Jefferies LLC acted as lead placement agent for the private placement, and we paid the placement agent a customary placement fee and reimbursed them for certain expenses. Pursuant to the terms of the private placement, we issued 7,293,084 shares of common stock at a price of \$7.30 per share and pre-funded warrants to purchase 2,980,889 shares of common stock. Throughout this prospectus, when we refer to the selling stockholders, we are referring to the purchasers under the Securities Purchase Agreement. We will not receive any proceeds from the resale of the common stock by the selling stockholders. We are registering the above-referenced shares to permit the selling stockholders and their pledgees, donees, transferees, or other successors-in interest that receive their shares after the date of this prospectus to resell or otherwise dispose of the shares in the manner contemplated under “Plan of Distribution” herein.

The table below lists the selling stockholders and other information regarding the beneficial ownership of the common stock by each of the selling stockholders. Beneficial ownership is determined in accordance with the rules and regulations of the SEC and includes voting or investment power with respect to the securities. These rules generally provide that a person is the beneficial owner of securities if such person has or shares the power to vote or direct the voting thereof, or to dispose or direct the disposition thereof or has the right to acquire such powers within 60 days. Except as otherwise indicated, each of the selling stockholders have sole voting and investment power with respect to all shares of capital stock held by it. The second column lists the number of common stock beneficially owned by each selling stockholder, based on its ownership of the common stock and pre-funded warrants, as of August 31, 2022, assuming exercise of the pre-funded warrants held by the selling stockholders on that date, without regarding to any limitations on exercises. The third column lists the common stock being offered by this prospectus by the selling stockholders.

In accordance with the terms of a registration rights agreement with the selling stockholders, this prospectus generally covers the resale of (i) the number of common stock issued to the selling stockholders and (ii) the maximum number of common stock issuable upon exercise of the related pre-funded warrants, determined as if the outstanding pre-funded warrants were exercised in full as of the trading day immediately preceding the date this registration statement was initially filed with the SEC, each as of the trading day immediately preceding the applicable date of determination and all subject to adjustment as provided in the registration right agreement, without regard to any limitations on the exercise of the pre-funded warrants. The fourth column assumes the sale of all of the shares offered by the selling stockholders pursuant to this prospectus. Except as otherwise disclosed herein and in the footnotes below with respect to the selling stockholders, the selling stockholders do not and within the past three years have not had, any position, office, or other material relationship with us.

In accordance with the terms of a registration rights agreement with the selling stockholders, we are required to use commercially reasonable efforts to keep this registration statement continuously effective under the Securities Act until the date that all the registrable securities covered by this registration statement (i) have been sold, hereunder or pursuant to Rule 144, or (ii) may be sold without volume or manner-of-sale restrictions pursuant to Rule 144 and without the requirement for us to be in compliance with the current public information requirement under Rule 144.

Under the terms of the pre-funded warrants, a selling stockholder may not exercise the warrants to the extent such exercise would cause such selling stockholder, together with its affiliates and attribution parties, to

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beneficially own a number of common stock which would exceed 9.99% of our then outstanding shares of common stock following such exercise, excluding for purposes of such determination common stock issuable upon exercise of the pre-funded warrants which have not been exercised. The number of shares in the second column does not reflect this limitation. The selling stockholders may sell all, some or none of their shares in this offering. See “Plan of Distribution.”

<u>Name of Selling Stockholder (1)</u>	<u>Shares Beneficially Owned Prior to this Offering</u>	<u>Percentage of Outstanding Shares Beneficially Owned Prior to this Offering</u>	<u>Maximum Number of Shares to be Sold Pursuant to this Offering</u>	<u>Shares Beneficially Owned After this Offering (3)</u>	<u>Percentage of Outstanding Shares Beneficially Owned After this Offering</u>
Deep Track Biotechnology Master Fund, Ltd. (2) (4)	4,417,983	11.46%	4,109,590	308,393	*
Biotechnology Value Fund, L.P. (2) (5)	1,469,702	3.81%	1,469,702	—	*
Biotechnology Value Fund II, L.P. (2) (6)	1,103,586	2.86%	1,103,586	—	*
Biotechnology Value Trading Fund OS LP (2) (7)	128,991	*	128,991	—	*
MSI BVF SPV LLC (2) (8)	37,448	*	37,448	—	*
Deerfield Partners, L.P. (9)	2,054,794	5.33%	2,054,794	—	*
Invus Public Equities, L.P. (10)	2,285,574	5.93%	1,164,383	1,121,191	2.91%
DAFNA Lifescience, LP (11)	225,759	*	155,259	70,500	*
DAFNA Lifescience Select, LP (12)	79,474	*	50,220	29,254	*

* Represents beneficial ownership of less than one percent.

- (1) Unless otherwise noted, the address of the selling stockholder is c/o Vigil Neuroscience, Inc. 1 Broadway, 7th Floor, Suite 07-300, Cambridge, MA 02142.
- (2) The amounts and percentages in the table are provided without regard to the applicable beneficial ownership limitations.
- (3) We do not know when or in what amounts a selling stockholder may offer shares for sale. The Selling Stockholders might not sell any or all of the shares offered by this prospectus. Because the Selling Stockholders may offer all or some of the shares pursuant to this offering, and because there are currently no agreements, arrangements or understandings with respect to the sale of any of the shares, we cannot estimate the number of the shares that will be held by the Selling Stockholders after completion of the offering. However, for purposes of this table, we have assumed that, after completion of the offering, none of the shares covered by this prospectus will be held by the Selling Stockholders and the Selling Stockholders buys or sells no additional shares of common stock prior to the completion of this offering.
- (4) Consists of (i) 2,363,188 shares of common stock and (ii) 2,054,795 shares issuable upon the exercise of pre-funded warrants, all of which are directly held by Deep Track Biotechnology Master Fund, Ltd. The pre-funded warrants are subject to a beneficial ownership limitation of 9.99%, which limitation precludes the holder from exercising any portion of its holding to the extent that, following such exercise, the holder’s ownership of our common shares would exceed the applicable beneficial ownership limitation. The address of the holder is c/o Walkers Corporate Limited, 190 Elgin Avenue, George Town, KY 1-9001, Cayman Islands.
- (5) Consists of (i) 972,907 shares of common stock and (ii) 496,795 shares issuable upon the exercise of pre-funded warrants, all of which are directly held by Biotechnology Value Fund, L.P. (“BVF”). BVF I GP LLC (“BVF GP”) is the general partner of BVF, BVF GP Holdings LLC (“BVF GPH”) is the sole member of BVF GP, and as such BVF GP and BVF GPH may be deemed to beneficially own the shares held by BVF. BVF Partners, L.P. (“Partners”) as the investment manager of BVF may be deemed to beneficially own the shares held by BVF. BVF Inc. is the general partner of Partners and may be deemed to beneficially own the shares beneficially owned by Partners. Mark N. Lampert as a director and officer of BVF Inc. may be deemed to beneficially own the shares beneficially owned by BVF Inc. The pre-funded warrants are subject to a beneficial ownership limitation of 9.99%, which limitation precludes the holder from exercising any portion of its holding to the extent that, following such exercise, the holder’s ownership of our common

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shares would exceed the applicable beneficial ownership limitation. The address of the holder is 44 Montgomery St., 40th Floor, San Francisco, California 94104.

- (6) Consists of (i) 730,547 shares of common stock and (ii) 373,039 shares issuable upon the exercise of pre-funded warrants, all of which are directly held by Biotechnology Value Fund II, L.P. (“BVF II”). BVF II GP LLC (“BVF II GP”) is the general partner of BVF II, BVF GPH is the sole member of BVF II GP, and as such BVF II GP and BVF GPH may be deemed to beneficially own the shares held by BVF II. BVF Partners, L.P. (“Partners”) as the investment manager of BVF II may be deemed to beneficially own the shares held by BVF II. BVF Inc. is the general partner of Partners and may be deemed to beneficially own the shares beneficially owned by Partners. Mark N. Lampert as a director and officer of BVF Inc. may be deemed to beneficially own the shares beneficially owned by BVF Inc. The pre-funded warrants are subject to a beneficial ownership limitation of 9.99%, which limitation precludes the holder from exercising any portion of its holding to the extent that, following such exercise, the holder’s ownership of our common shares would exceed the applicable beneficial ownership limitation. The address of the holder is 44 Montgomery St., 40th Floor, San Francisco, California 94104.
- (7) Consists of (i) 85,389 shares of common stock and (ii) 43,602 shares issuable upon the exercise of pre-funded warrants, all of which are directly held by Biotechnology Value Trading Fund OS LP (“Trading Fund OS”). BVF Partners OS Ltd is the general partner of Trading Fund OS and as such may be deemed to beneficially own the shares held by Trading Fund OS. BVF Partners, L.P. (“Partners”) as the investment manager of Trading Fund OS and sole member of BVF Partners OS Ltd may be deemed to beneficially own the shares held by Trading Fund OS. BVF Inc. is the general partner of Partners and may be deemed to beneficially own the shares beneficially owned by Partners. Mark N. Lampert as director and officer of BVF Inc. may be deemed to beneficially own the shares beneficially owned by BVF Inc. The pre-funded warrants are subject to a beneficial ownership limitation of 9.99%, which limitation precludes the holder from exercising any portion of its holding to the extent that, following such exercise, the holder’s ownership of our common shares would exceed the applicable beneficial ownership limitation. The address of the holder is PO Box 309 Uglund House, Grand Cayman, KY1-1104, Cayman Islands.
- (8) Consists of (i) 24,790 shares of common stock and (ii) 12,658 shares issuable upon the exercise of pre-funded warrants, all of which are directly held by MSI BVF SPV LLC (“MSI”). BVF Partners, L.P. (“Partners”) as the investment manager of MSI may be deemed to beneficially own the shares held by MSI. BVF Inc. is the general partner of Partners and may be deemed to beneficially own the shares beneficially owned by Partners. Mark N. Lampert as director and officer of BVF Inc. may be deemed to beneficially own the shares beneficially owned by BVF Inc. The pre-funded warrants are subject to a beneficial ownership limitation of 9.99%, which limitation precludes the holder from exercising any portion of its holding to the extent that, following such exercise, the holder’s ownership of our common shares would exceed the applicable beneficial ownership limitation. The address of the holder is 44 Montgomery St., 40th Floor, San Francisco, California 94104.
- (9) Deerfield Partners, L.P. directly holds 2,054,794 shares of common stock. Unless otherwise indicated, the business address of Deerfield Partners, L.P. is: c/o Deerfield Management Company, L.P., 345 Park Avenue South, 12th Floor, New York, NY 10010. Deerfield Mgmt, L.P. is the general partner of Deerfield Partners, L.P. Deerfield Management Company, L.P. is the investment manager of Deerfield Partners, L.P. Mr. James E. Flynn is the sole member of the general partner of each of Deerfield Mgmt, L.P. and Deerfield Management Company, L.P. Each of Deerfield Mgmt, L.P., Deerfield Management Company, L.P. and Mr. James E. Flynn may be deemed to beneficially own the shares of common stock of the Company beneficially owned by Deerfield Partners, L.P.
- (10) Invus Public Equities, L.P. (“Invus PE”) directly holds 2,285,574 shares of common stock. Invus Public Equities Advisors, LLC (“Invus PE Advisors”) controls Invus PE, as its general partner and accordingly, may be deemed to beneficially own the Shares held by Invus PE. The Geneva branch of Artal International S.C.A. (“Artal International”) controls Invus PE Advisors, as its managing member and accordingly, may be deemed to beneficially own the Shares held by Invus PE. Artal International Management S.A. (“Artal International Management”), as the managing partner of Artal International, controls Artal International and accordingly, may be deemed to beneficially own the Shares that Artal International may be deemed to beneficially own. Artal Group S.A., as the sole stockholder of Artal International Management, controls Artal International

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Management and accordingly, may be deemed to beneficially own the Shares that Artal International Management may be deemed to beneficially own. Westend S.A. (“Westend”), as the parent company of Artal Group S.A. (“Artal Group”), controls Artal Group and accordingly, may be deemed to beneficially own the shares that Artal Group may be deemed to beneficially own. Stichting Administratiekantoor Westend (the “Stichting”), as majority shareholder of Westend, controls Westend and accordingly, may be deemed to beneficially own the Shares that Westend may be deemed to beneficially own. Mr. Amaury Wittouck, as the sole member of the board of the Stichting, controls the Stichting and accordingly, may be deemed to beneficially own the Shares that the Stichting may be deemed to beneficially own. The address for Invus PE and Invus PE Advisors is 750 Lexington Avenue, 30th Floor, New York, NY 10022. The address for Artal International, Artal International Management, Artal Group, Westend and Mr. Wittouck is Valley Park, 44, Rue de la Vallée, L-2661, Luxembourg. The address for the Stichting is Claude Debussylaan, 46, 1082 MD Amsterdam, The Netherlands.

- (11) DAFNA Lifescience, LP directly holds 225,759 shares of common stock. DAFNA Capital Management LLC is the sole general partner of DAFNA LifeScience, LP and DAFNA LifeScience Select, LP. The Chief Executive Officer and Chief Investment Officer of DAFNA Capital Management LLC are Dr. Nathan Fischel and Dr. Fariba Ghodsian, respectively. These individuals may be deemed to have shared voting and investment power of the shares held by DAFNA LifeScience, LP and DAFNA LifeScience Select, LP. Each of Dr. Fischel and Dr. Fariba disclaim beneficial ownership of such shares, except to the extent of his or her pecuniary interest therein.
- (12) DAFNA Lifescience Select, LP directly holds 79,474 shares of common stock. DAFNA Capital Management LLC is the sole general partner of DAFNA LifeScience, LP and DAFNA LifeScience Select, LP. The Chief Executive Officer and Chief Investment Officer of DAFNA Capital Management LLC are Dr. Nathan Fischel and Dr. Fariba Ghodsian, respectively. These individuals may be deemed to have shared voting and investment power of the shares held by DAFNA LifeScience, LP and DAFNA LifeScience Select, LP. Each of Dr. Fischel and Dr. Fariba disclaim beneficial ownership of such shares, except to the extent of his or her pecuniary interest therein.

Registration Rights Agreement

In addition to the Securities Purchase Agreement, on August 12, 2022, in connection with the private placement, we entered into a registration rights agreement, or the Registration Rights Agreement, with the Selling Stockholders.

Pursuant to the Registration Rights Agreement with each of the Selling Stockholders, we agreed to prepare and file with the SEC a registration statement that permits the resale or other disposition of the Selling Stockholders’ common stock issued pursuant to the Securities Purchase Agreement and, subject to certain exceptions, use reasonable best efforts to keep the registration statement of which this prospectus forms a part effective under the Securities Act for so long as such securities registered for resale thereunder retain their character as registrable securities. We have also agreed, among other things, to indemnify the Selling Stockholders and their officers, directors, agents, partners, members, managers, stockholders, affiliates and employees from certain liabilities and to pay all fees and expenses incident to our obligations under the Registration Rights Agreement.

DESCRIPTION OF CAPITAL STOCK

For a description of our capital stock and the material terms of our Certificate of Incorporation, as amended, and Bylaws, as amended, see our Annual Report on Form 10-K for the year ended December 31, 2021, filed with the SEC and incorporated by reference in this prospectus. For instructions on how to find copies of the filings incorporated by reference in this prospectus, see “Where You Can Find More Information.”

CERTAIN MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS FOR NON-U.S. HOLDERS OF COMMON STOCK

The following discussion is a summary of certain material U.S. federal income tax considerations applicable to non-U.S. holders (as defined below) with respect to their ownership and disposition of shares of our common stock issued pursuant to this offering. For purposes of this discussion, a non-U.S. holder means a beneficial owner of our common stock that is, for U.S. federal income tax purposes:

- a non-resident alien individual;
- a foreign corporation or any other foreign organization taxable as a corporation for U.S. federal income tax purposes; or
- a foreign estate or trust, the income of which is not subject to U.S. federal income tax on a net income basis.

This discussion does not address the tax treatment of partnerships or other entities or arrangements that are treated as pass-through entities for U.S. federal income tax purposes or persons that hold their shares of our common stock through partnerships or such other pass-through entities. The tax treatment of a partner in a partnership or other entity or arrangement that is treated as a pass-through entity for U.S. federal income tax purposes generally will depend upon the status of the partner and the activities of the partnership. A partner in a partnership or an investor in any other pass-through entity that will hold our common stock should consult his, her or its tax advisor regarding the tax consequences of acquiring, holding and disposing of our common stock through a partnership or other pass-through entity, as applicable.

This discussion is based on current provisions of the Internal Revenue Code of 1986, as amended, or the Code, existing and proposed U.S. Treasury regulations promulgated thereunder, current administrative rulings and judicial decisions, all as in effect as of the date of this prospectus and, all of which are subject to change or to differing interpretation, possibly with retroactive effect. Any such change or differing interpretation could alter the tax consequences to non-U.S. holders described in this prospectus. There can be no assurance that the Internal Revenue Service, or the IRS, will not challenge one or more of the tax consequences described herein. We assume in this discussion that a non-U.S. holder holds shares of our common stock as a capital asset within the meaning of Section 1221 of the Code, which is generally property held for investment.

This discussion does not address all aspects of U.S. federal income taxation that may be relevant to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances, including the alternative minimum tax, the Medicare tax on net investment income, the rules relating to "qualified small business stock" within the meaning of Section 1202 of the Code, or any other aspect of any U.S. federal tax other than the income tax (including, for example, the estate tax), and it does not address any aspects of U.S. state, local or non-U.S. taxes. This discussion also does not consider any specific facts or circumstances that may apply to a non-U.S. holder and does not address the special tax rules applicable to particular non-U.S. holders, such as:

1. insurance companies;
2. tax-exempt or governmental organizations;
3. financial institutions;
4. brokers or dealers in securities;
5. regulated investment companies;
6. pension plans;
7. "controlled foreign corporations," "passive foreign investment companies," and corporations that accumulate earnings to avoid U.S. federal income tax;

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8. “qualified foreign pension funds,” or entities wholly owned by one or more “qualified foreign pension funds”;
9. partnerships or other entities or arrangements treated as partnerships for U.S. federal income tax purposes (and partners and investors therein);
10. persons that have a functional currency other than the U.S. dollar;
11. persons deemed to sell our common stock under the constructive sale provisions of the Code;
12. persons that hold our common stock as part of a straddle, hedge, conversion transaction, synthetic security or other integrated investment;
13. persons that hold or receive our common stock pursuant to the exercise of any employee stock option or otherwise as compensation;
14. investors in pass-through entities (or entities that are treated as disregarded entities for U.S. federal income tax purposes); and
15. U.S. expatriates.

This discussion is for general information only and is not tax advice. Accordingly, all prospective non-U.S. holders of our common stock should consult their tax advisors with respect to the U.S. federal, state, local, non-U.S. and estate tax consequences of the purchase, ownership and disposition of our common stock.

Distributions on our common stock

As described in the “Dividend Policy” section above, we do not intend to pay any cash dividends on our common stock to our stockholders stock in the foreseeable future. Distributions, if any, on shares of our common stock generally will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder’s investment, up to such holder’s tax basis in the shares of common stock. Any remaining excess will be treated as capital gain, subject to the tax treatment described below in “Gain on sale or other taxable disposition of our shares of common stock.” Any such distributions will also be subject to the discussion below under the sections titled “Backup withholding and information reporting” and “Withholding and information reporting requirements—FATCA.”

Subject to the discussion in the following two paragraphs in this section, dividends paid to a non-U.S. holder generally will be subject to withholding of U.S. federal income tax at a 30% rate or such lower rate specified by an applicable income tax treaty between the United States and such holder’s country of residence.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States, are generally exempt from the 30% withholding tax if the non-U.S. holder satisfies applicable certification and disclosure requirements. However, such U.S. effectively connected income, net of specified deductions and credits, is taxed at the same graduated U.S. federal income tax rates applicable to United States persons (as defined in the Code). Any U.S. effectively connected income received by a non-U.S. holder that is a corporation may also, under certain circumstances, be subject to an additional “branch profits tax” at a 30% rate or such lower rate as specified by an applicable income tax treaty between the United States and such holder’s country of residence.

A non-U.S. holder of shares of our common stock who claims the benefit of an applicable income tax treaty between the United States and such holder’s country of residence generally will be required to provide a properly executed IRS Form W-8BEN or W-8BEN-E (or other applicable or successor form) to the applicable

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withholding agent and satisfy applicable certification and other requirements. Non-U.S. holders are urged to consult their tax advisors regarding their entitlement to benefits under a relevant income tax treaty. A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim with the IRS.

Gain on sale, exchange or other taxable disposition of shares of our common stock

Subject to the discussion below under “Backup withholding and information reporting” and “Withholding and information reporting requirements—FATCA,” a non-U.S. holder generally will not be subject to any U.S. federal income tax on any gain realized upon such holder’s sale, exchange or other taxable disposition of shares of our common stock unless:

1. the gain is effectively connected with the non-U.S. holder’s conduct of a U.S. trade or business and, if an applicable income tax treaty so provides, is attributable to a permanent establishment or a fixed-base maintained by such non-U.S. holder in the United States, in which case the non-U.S. holder generally will be taxed on a net income basis at the graduated U.S. federal income tax rates applicable to United States persons (as defined in the Code) and, if the non-U.S. holder is a foreign corporation, the branch profits tax described above in “Distributions on our common stock” also may apply;
2. the non-U.S. holder is a nonresident alien individual who is present in the United States for a period or periods aggregating 183 days or more in the taxable year of the disposition and certain other conditions 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 (even though the individual is not considered a resident of the United States), provided that the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses; or
3. we are, or have been, at any time during the five-year period preceding such sale or other taxable disposition (or the non-U.S. holder’s holding period, if shorter) a “U.S. real property holding corporation,” unless our common stock is regularly traded on an established securities market, within the meaning of the relevant provisions of the Code, and the non-U.S. holder holds no more than 5% of our outstanding common stock, directly or indirectly, actually or constructively, 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 our common stock. Generally, a corporation is a “U.S. real property holding corporation” only if the fair market value of its “U.S. real property interests” (as defined in the Code and applicable U.S. Treasury 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 do not believe that we are, or have been, a “U.S. real property holding corporation” for U.S. federal income tax purposes, or that we are likely to become one in the future. No assurance can be provided that our common stock will be regularly traded on an established securities market for purposes of the rules described above.

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 on shares of our common stock 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 United States person (as defined in the Code) in order to avoid backup withholding at the applicable rate with respect to dividends on shares of our common stock. Generally, a non-U.S. holder will comply with such procedures if it provides a properly executed IRS Form W-8BEN or W-8BEN-E (or other applicable IRS 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 in “Distributions on our common stock,” generally will be exempt from U.S. backup withholding.

Information reporting and backup withholding will generally apply to the proceeds of a disposition of shares of our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or non-U.S., 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 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 filed with the IRS in a timely manner.

Withholding and information reporting requirements—FATCA

The Foreign Account Tax Compliance Act, or FATCA, generally imposes a U.S. federal withholding tax at a rate of 30% on payments of dividends on our common stock paid to a foreign entity unless (i) if the foreign entity is a “foreign financial institution,” such foreign entity undertakes certain due diligence, reporting, withholding, and certification obligations, (ii) if the foreign entity is not a “foreign financial institution,” such foreign entity identifies certain of its U.S. investors, if any, or (iii) the foreign entity is otherwise exempt under FATCA. Such withholding may also apply to payments of gross proceeds of sales or other dispositions of shares of our common stock, although under proposed U.S. Treasury regulations (the preamble to which specifies that taxpayers, including withholding agents, are generally permitted to rely on them pending finalization), no withholding will apply to payments of gross proceeds. Under certain circumstances, a non-U.S. holder may be eligible for refunds or credits of this withholding tax. An intergovernmental agreement between the United States and an applicable foreign country may modify the requirements described in this paragraph. Non-U.S. holders should consult their tax advisors regarding the possible implications of this legislation on their investment in our common stock and the entities through which they hold our shares of common stock, including, without limitation, the process and deadlines for meeting the applicable requirements to prevent the imposition of the 30% withholding tax under FATCA.

PLAN OF DISTRIBUTION

Each Selling Stockholder, or the Selling Stockholders, of the securities and any of their pledgees, assignees and successors-in-interest may, from time to time, sell any or all of their securities covered hereby on the principal trading market or any other stock exchange, market or trading facility on which the securities are traded or in private transactions. These sales may be at fixed or negotiated prices. A Selling Stockholder may use any one or more of the following methods when selling securities:

- ordinary brokerage transactions and transactions in which the broker dealer solicits purchasers;
- block trades in which the broker dealer will attempt to sell the securities as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker dealer as principal and resale by the broker dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- settlement of short sales;
- in transactions through broker dealers that agree with the Selling Stockholder to sell a specified number of such securities at a stipulated price per security;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- a combination of any such methods of sale; or
- any other method permitted pursuant to applicable law.

The Selling Stockholder may also sell securities under Rule 144 or any other exemption from registration under the Securities Act, if available, rather than under this prospectus.

Broker-dealers engaged by the Selling Stockholder may arrange for other brokers dealers to participate in sales. Broker-dealers may receive commissions or discounts from the Selling Stockholders (or, if any broker dealer acts as agent for the purchaser of securities, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this Prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rule 2121.

In connection with the sale of the securities or interests therein, the Selling Stockholder may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the securities in the course of hedging the positions they assume. The Selling Stockholder may also sell securities short and deliver these securities to close out their short positions, or loan or pledge the securities to broker-dealers that in turn may sell these securities. The Selling Stockholder may also loan or pledge securities to broker-dealers that in turn may sell such securities, to the extent permitted by applicable law. The Selling Stockholder may also enter into option or other transactions with broker-dealers or other financial institutions or create one or more derivative securities which require the delivery to such broker-dealer or other financial institution of securities offered by this prospectus, which securities such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The Selling Stockholders may, from time to time, pledge or grant a security interest in some or all of the prefunded warrants or shares of Common Stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of Common Stock from time to time pursuant to this prospectus or any amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act of 1933, as amended, amending, if necessary, the list of Selling Stockholders to include the pledgee, transferee or other successors in interest as Selling Stockholders under this prospectus. The

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Selling Stockholders also may transfer and donate the shares of Common Stock in other circumstances in which case the transferees, donees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

Any broker-dealers or agents that are involved in selling the securities may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the securities purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. Each Selling Stockholder has informed the Company that it does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the securities.

We will pay all expenses of the registration of the shares of Common Stock pursuant to the registration rights agreement, including, without limitation, Securities and Exchange Commission filing fees and expenses of compliance with state securities or “blue sky” laws; provided, however, that each selling stockholder will pay all underwriting discounts and selling commissions, if any and any related legal expenses incurred by it. We have agreed to indemnify the Selling Stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act, or the Selling Stockholders will be entitled to contribution.

We agreed to keep this prospectus effective continuously effective under the Securities Act until the date that all the resale securities being offered by the Selling Stockholders (i) have been sold pursuant to this registration statement or pursuant to Rule 144, or (ii) may be sold without volume or manner-of-sale restrictions pursuant to Rule 144 and without the requirement for us to be in compliance with the current public information requirement under Rule 144. The resale securities will be sold only through registered or licensed brokers or dealers if required under applicable state securities laws. In addition, in certain states, the resale securities covered hereby may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

Under applicable rules and regulations under the Exchange Act, any person engaged in the distribution of the resale securities may not simultaneously engage in market making activities with respect to the common stock for the applicable restricted period, as defined in Regulation M, prior to the commencement of the distribution. In addition, the Selling Stockholders will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M, which may limit the timing of purchases and sales of the common stock by the Selling Stockholders or any other person. We will make copies of this prospectus available to the Selling Stockholders and have informed them of the need to deliver a copy of this prospectus to each purchaser at or prior to the time of the sale (including by compliance with Rule 172 under the Securities Act).

LEGAL MATTERS

The validity of the shares of common stock offered by this prospectus will be passed upon for us by Goodwin Procter LLP, Boston, Massachusetts.

EXPERTS

The financial statements incorporated in this Prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2021 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of a registration statement that we have filed with the SEC. Certain information in the registration statement has been omitted from this prospectus in accordance with the rules of the SEC. For further information, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. Statements contained in this prospectus or incorporated by reference concerning the contents of any contract or any other document are not necessarily complete. If a contract or document has been filed or incorporated by reference as an exhibit to the registration statement, we refer you to the copy of the contract or document that has been filed. Each statement in this prospectus or incorporated by reference relating to a contract or document filed as an exhibit is qualified in all respects by the filed exhibit. The SEC maintains a web site (<http://www.sec.gov>) that contains reports, proxy and information statements and other information regarding issuers like us that file electronically with the SEC.

We are subject to the reporting and information requirements of the Exchange Act and, as a result, we file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy statements and other information will be available for inspection on the web site of the SEC referred to above.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference the information and reports we file with it, which means that we can disclose important information to you by referring you to these documents. The information incorporated by reference is an important part of this prospectus, and information that we file later with the SEC will automatically update and supersede the information already incorporated by reference. We are incorporating by reference the documents listed below, which we have already filed with the SEC, and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including all filings made after the date of the filing of this registration statement and prior to the effectiveness of this registration statement, except as to any portion of any future report or document that is not deemed filed under such provisions, after the date of this prospectus and prior to the termination of this offering:

- Annual Report on [Form 10-K](#) for the year ended December 31, 2021, as filed with the SEC on March 25, 2022;
- The information specifically incorporated by reference in our Annual Report on [Form 10-K](#) for the year ended December 31, 2021, from our Definitive Proxy Statement on [Schedule 14\(a\)](#), as filed with the SEC on April 28, 2022;
- Quarterly Reports on Form 10-Q for the quarters ended [March 31, 2022](#) and [June 30, 2022](#) as filed with the SEC on May 12, 2022 and August 8, 2022, respectively;

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- Current Report on Form 8-K (other than information furnished rather than filed) filed with the SEC on [April 20, 2022](#), [June 10, 2022](#), [July 28, 2022](#), [August 12, 2022](#); and
- The description of our common stock contained in our Registration Statement on [Form 8-A](#) (File No. 001-41200) as filed with the SEC on January 4, 2022, including any amendments or reports filed for the purpose of updating this description, including [Exhibit 4.3](#) to our Annual Report on [Form 10-K](#) for the year ended December 31, 2021, as filed with the SEC on March 25, 2022.

Notwithstanding the foregoing, unless specifically stated to the contrary, information that we furnish (and that is not deemed “filed” with the SEC) under Items 2.02 and 7.01 of any Current Report on Form 8-K, including the related exhibits under Item 9.01, is not incorporated by reference into this prospectus or the registration statement of which this prospectus is a part.

We will furnish without charge to you, on written or oral request, a copy of any or all of the documents incorporated by reference in this prospectus, including exhibits to these documents. You should direct any requests for documents to Vigil Neuroscience, Inc., 1 Broadway, 7th Floor, Suite 07-300, Cambridge, MA 02142, telephone: (857) 254-4445.

You also may access these filings on our website at www.vigilneuro.com. We do not incorporate the information on our website into this prospectus or any supplement to this prospectus and you should not consider any information on, or that can be accessed through, our website as part of this prospectus or any supplement to this prospectus (other than those filings with the SEC that we specifically incorporate by reference into this prospectus or any supplement to this prospectus).

Any statement contained in a document incorporated or deemed to be incorporated by reference in this prospectus will be deemed modified, superseded or replaced for purposes of this prospectus to the extent that a statement contained in this prospectus modifies, supersedes or replaces such statement.



**7,293,084 Shares of Common Stock
Up to 2,980,889 Shares of Common Stock Issuable upon Exercise of the Pre-Funded Warrants**

Offered by the Selling Stockholders

PRELIMINARY PROSPECTUS

, 2022

PART II**Information Not Required in Prospectus****Item 13. Other Expenses of Issuance and Distribution.**

The following table sets forth the fees and expenses, payable in connection with the registration of the common stock hereunder, other than underwriting discounts and commissions and expenses incurred by the Selling Stockholders for brokerage, accounting, tax or legal services, or any other expenses they incur in disposing of their shares. All amounts are estimates except the SEC registration fee.

Amount to be Paid

	Amount to be Paid
SEC registration fee	\$ 8,563
Printing expenses	30,000
Legal fees and expenses	30,000
Accounting fees and expenses	30,000
Miscellaneous	15,000
Total	<u>\$ 113,563</u>

Item 14. Indemnification of Directors and Officers.

Section 145 of the Delaware General Corporation Law, or DGCL, authorizes a corporation to indemnify its directors and officers against liabilities arising out of actions, suits and proceedings to which they are made or threatened to be made a party by reason of the fact that they have served or are currently serving as a director or officer to a corporation. The indemnity may cover expenses (including attorneys' fees) judgments, fines and amounts paid in settlement actually and reasonably incurred by the director or officer in connection with any such action, suit or proceeding. Section 145 permits corporations to pay expenses (including attorneys' fees) incurred by directors and officers in advance of the final disposition of such action, suit or proceeding. In addition, Section 145 provides that a corporation has the power to purchase and maintain insurance on behalf of its directors and officers against any liability asserted against them and incurred by them in their capacity as a director or officer, or arising out of their status as such, whether or not the corporation would have the power to indemnify the director or officer against such liability under Section 145.

We have adopted provisions in our third certificate of incorporation and amended and restated by-laws that limit or eliminate the personal liability of our directors to the fullest extent permitted by the DGCL, as it now exists or may in the future be amended. Consequently, a director will not be personally liable to us or our stockholders for monetary damages or breach of fiduciary duty as a director, except for liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- any unlawful payments related to dividends or unlawful stock purchases, redemptions or other distributions; or
- any transaction from which the director derived an improper personal benefit.

These limitations of liability do not alter director liability under the federal securities laws and do not affect the availability of equitable remedies such as an injunction or rescission.

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In addition, the by-laws provide that:

- we will indemnify our directors, officers and, in the discretion of our board of directors, certain employees to the fullest extent permitted by the DGCL, as it now exists or may in the future be amended; and
- we will advance reasonable expenses, including attorneys' fees, to our directors and, in the discretion of our board of directors, to our officers and certain employees, in connection with legal proceedings relating to their service for or on behalf of us, subject to limited exceptions.

We have entered into indemnification agreements with each of our directors and our executive officers. These agreements provide that we will indemnify each of our directors, our executive officers and, at times, their affiliates to the fullest extent permitted by Delaware law. We will advance expenses, including attorneys' fees (but excluding judgments, fines and settlement amounts), to each indemnified director, executive officer or affiliate in connection with any proceeding in which indemnification is available and we will indemnify our directors and officers for any action or proceeding arising out of that person's services as a director or officer brought on behalf of us or in furtherance of our rights. Additionally, certain of our directors or officers may have certain rights to indemnification, advancement of expenses or insurance provided by their affiliates or other third parties, which indemnification relates to and might apply to the same proceedings arising out of such director's or officer's services as a director referenced herein. Nonetheless, we have agreed in the indemnification agreements that our obligations to those same directors or officers are primary and any obligation of such affiliates or other third parties to advance expenses or to provide indemnification for the expenses or liabilities incurred by those directors are secondary.

We also maintain general liability insurance which covers certain liabilities of our directors and officers arising out of claims based on acts or omissions in their capacities as directors or officers, including liabilities under the Securities Act of 1933, as amended, or the Securities Act.

Item 15. Recent Sales of Unregistered Securities.

In the three years preceding the filing of this registration statement, we have issued the following securities that were not registered under the Securities Act:

(a) Issuances of Capital Stock

In June and July 2020, we issued and sold an aggregate of 4,850,000 shares of Common Stock at a purchase price of \$0.0001 per share for an aggregate purchase price of approximately \$485.

In September 2020, we issued and sold an aggregate of 11,778,560 shares of Series A Preferred Stock at a purchase price of \$2.547 per share for an aggregate purchase price of approximately \$30 million (including \$5 million of outstanding simple agreement for future equity, or SAFE, which was converted into shares of Series A Preferred Stock). Additionally, we issued 6,928,566 shares of Series A Preferred Stock pursuant to certain agreements with Amgen Inc.

In May 2021, we issued and sold an aggregate of 7,852,373 shares of Series A Preferred Stock at a purchase price of \$2.547 per share for an aggregate purchase price of approximately \$20 million. Additionally, we issued 1,963,093 shares of Series A Preferred Stock pursuant to certain agreements with Amgen Inc.

In August 2021, we issued and sold an aggregate of 25,657,096 shares of Series B Preferred Stock at a purchase price of \$3.5078 per share for an aggregate purchase price of approximately \$90 million.

In August 2022, we issued and sold in a private investment in public equity ("PIPE") financing (i) a total of 7,293,084 shares of common stock at a price of \$7.30 per share and (ii) pre-funded warrants to purchase up to a

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total of 2,980,889 shares of common stock at a purchase price of \$7.2999 per pre-funded warrant. The pre-funded warrants will have an exercise price of \$0.0001 per share of common stock, be immediately exercisable and remain exercisable until exercised in full.

No underwriters were involved in the foregoing sales of securities. Unless otherwise stated, the sales of securities described above were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act, including Regulation D and Rule 506 promulgated thereunder, as transactions by an issuer not involving a public offering. All of the purchasers in these transactions represented to us in connection with their purchase that they were acquiring the securities for investment and not distribution, that they could bear the risks of the investment and could hold the securities for an indefinite period of time. Such purchasers received written disclosures that the securities had not been registered under the Securities Act and that any resale must be made pursuant to a registration or an available exemption from such registration. All of the foregoing securities are deemed restricted securities for the purposes of the Securities Act.

(b) Grants and Exercises of Stock Options

Since our incorporation on June 22, 2020 until the closing of our initial public offering on January 11, 2022, we granted options to purchase an aggregate of 3,276,766 shares of common stock, with exercise prices ranging from \$1.89 to \$11.79 per share, to directors, employees and consultants pursuant to our 2020 Equity Incentive Plan, as amended, or the 2020 Plan. During such period, 22,717 shares of common stock were issued for gross proceeds of \$43 thousand upon the exercise of stock options pursuant to the 2020 Plan.

No underwriters were involved in the foregoing issuances of securities. The issuances of the securities described above were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act as transactions by an issuer not involving a public offering or Rule 701 promulgated under the Securities Act as transactions pursuant to compensatory benefit plans. All recipients either received adequate information about us or had access, through employment or other relationships, to such information. On January 10, 2022, we filed a registration statement on Form S-8 under the Securities Act to register all of the shares of our common stock subject to outstanding options and all shares of our common stock otherwise issuable pursuant to our equity compensation plans.

Item 16. Exhibits and Financial Statement Schedules.

(a) Exhibits

<u>Exhibit Number</u>	<u>Description</u>
3.1	<u>Third Amended and Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.2 of the Registrant's Registration Statement on Form S-1/A (File No. 333-261230) filed on January 3, 2022).</u>
3.2	<u>Amended and Restated Bylaws of the Registrant (incorporated by reference to Exhibit 3.3 of the Registrant's Registration Statement on Form S-1/A (File No. 333-261230) filed on January 3, 2022).</u>
4.1	<u>Amended and Restated Investors' Rights Agreement among the Registrant and certain of its stockholders, effective as of August 13, 2021 (incorporated by reference to Exhibit 4.2 of the Registrant's Registration Statement on Form S-1 (File No. 333-261230) filed on November 19, 2021).</u>
4.2	<u>Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.1 of the Registrant's Registration Statement on Form S-1/A (File No. 333-261230) filed on January 3, 2022).</u>
4.3	<u>Description of Securities (incorporated by reference to Exhibit 4.3 of the Registrant's Annual Report on Form 10-K filed on March 25, 2022).</u>

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- 4.4 [Form of Pre-Funded Warrant \(incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K filed on August 12, 2022\)](#)
- 10.1# [2020 Equity Incentive Plan and form of award agreement thereunder \(incorporated by reference to Exhibit 10.1 of the Registrant's Registration Statement on Form S-1 \(File No. 333-261230\) filed on November 19, 2021\).](#)
- 10.2# [2021 Stock Option and Incentive Plan and form of award agreements thereunder \(incorporated by reference to Exhibit 10.2 of the Registrant's Registration Statement on Form S-1/A \(File No. 333-261230\) filed on January 3, 2022\).](#)
- 10.3# [2021 Employee Stock Purchase Plan \(incorporated by reference to Exhibit 10.3 of the Registrant's Registration Statement on Form S-1/A \(File No. 333-261230\) filed on January 3, 2022\).](#)
- 10.4# [Form of Indemnification Agreement between the Registrant and each of its directors and executive officers \(incorporated by reference to Exhibit 10.4 of the Registrant's Registration Statement on Form S-1/A \(File No. 333-261230\) filed on January 3, 2022\).](#)
- 10.5# [Senior Executive Cash Incentive Bonus Plan \(incorporated by reference to Exhibit 10.5 of the Registrant's Registration Statement on Form S-1 \(File No. 333-261230\) filed on November 19, 2021\).](#)
- 10.6# [Form of Executive Employment Agreement \(incorporated by reference to Exhibit 10.6 of the Registrant's Registration Statement on Form S-1 \(File No. 333-261230\) filed on November 19, 2021\).](#)
- 10.7# [Non-Employee Director Compensation Policy \(incorporated by reference to Exhibit 10.7 of the Registrant's Registration Statement on Form S-1 \(File No. 333-261230\) filed on November 19, 2021\).](#)
- 10.8# [Transition Agreement, by and between the Registrant and Richard A. Fisher, dated November 17, 2021 \(incorporated by reference to Exhibit 10.8 of the Registrant's Registration Statement on Form S-1 \(File No. 333-261230\) filed on November 19, 2021\).](#)
- 10.9† [Exclusive License Agreement, by and between the Registrant and Amgen Inc., dated July 9, 2020 \(incorporated by reference to Exhibit 10.9 of the Registrant's Registration Statement on Form S-1 \(File No. 333-261230\) filed on November 19, 2021\).](#)
- 10.10† [Master Services Agreement, by and between the Registrant and Fujifilm Diosynth Biotechnologies UK Limited, Fujifilm Diosynth Biotechnologies Texas, LLC, Fujifilm Diosynth Biotechnologies U.S.A., Inc, and Fujifilm Diosynth Biotechnologies Denmark APS, dated February 24, 2021 \(incorporated by reference to Exhibit 10.10 of the Registrant's Registration Statement on Form S-1 \(File No. 333-261230\) filed on November 19, 2021\).](#)
- 10.11 [Lease, by and between 100 Forge Holding LLC and the Registrant, dated as of September 20, 2021 \(incorporated by reference to Exhibit 10.11 of the Registrant's Registration Statement on Form S-1 \(File No. 333-261230\) filed on November 19, 2021\).](#)
- 10.12 [Service Agreement and Space-Specific Amendment, by and between CIC Innovation Communities, LLC and the Registrant, dated as of October 13, 2021 \(incorporated by reference to Exhibit 10.12 of the Registrant's Registration Statement on Form S-1 \(File No. 333-261230\) filed on November 19, 2021\).](#)
- 10.13 [Securities Purchase Agreement, by and among the Registrant and the persons party thereto, dated as of August 12, 2022 \(incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on August 12, 2022\).](#)
- 10.14 [Registration Rights Agreement, by and among the Registrant and the persons party thereto, dated as of August 12, 2022 \(incorporated by reference to Exhibit 10.2 of the Registrant's Current Report on Form 8-K filed on August 12, 2022\).](#)

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21.1	Subsidiaries of the Registrant (incorporated by reference to Exhibit 21.1 of the Registrant's Registration Statement on Form S-1 (File No. 333-261230) filed on November 19, 2021).
5.1*	Opinion of Goodwin Procter LLP.
23.1*	Consent of PricewaterhouseCoopers LLP, independent registered public accounting firm.
23.2*	Consent of Goodwin Procter LLP (included in Exhibit 5.1).
24.1*	Power of Attorney (included on signature page).
107*	Registration Fee Table

* Filed herewith.

† Portions of this exhibit (indicated by asterisks) have been omitted pursuant to Item 601(b)(10) of Regulation S-K.

Indicates a management contract or any compensatory plan, contract or arrangement.

(b) Financial Statements Schedules:

Schedules have been omitted because the information required to be set forth therein is not applicable or is shown in the financial statements or notes thereto.

Item 17. Undertakings.

Insofar as indemnification for liabilities arising under the Securities Act of 1933, as amended, or the 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 Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is therefore unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

The Registrant hereby undertakes that:

(a) The Registrant will provide to the underwriter at the closing as specified in the underwriting agreement, certificates in such denominations and registered in such names as required by the underwriter to permit prompt delivery to each purchaser.

(b) For purposes of determining any liability under the Securities Act of 1933, as amended, the information omitted from a form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in the form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act of 1933, as amended, shall be deemed to be part of this registration statement as of the time it was declared effective.

(c) For the purpose of determining any liability under the Securities Act of 1933, as amended, 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.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this Registration Statement on Form S-1 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Cambridge, Massachusetts, on the 30th day of September, 2022.

VIGIL NEUROSCIENCE, INC.

By: /s/ Ivana Magovčević-Liebisch
Name: Ivana Magovčević-Liebisch
Title: President and Chief Executive Officer

Each individual whose signature appears below hereby constitutes and appoints Ivana Magovčević-Liebisch, Christopher Verni and Jennifer Ziolkowski as such person's true and lawful attorney-in-fact and agent with full power of substitution and resubstitution, for such person in such person's name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement (or any Registration Statement for the same offering that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933), and to file the same, with all exhibits thereto, and all documents in connection therewith, with the Securities and Exchange Commission granting unto each said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as such person might or could do in person, hereby ratifying and confirming all that any said attorney-in-fact and agent, or any substitute or substitutes of any of them, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement and Power of Attorney has been signed by the following person in the capacities and on the date indicated.

<u>Name</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Ivana Magovčević-Liebisch</u> Ivana Magovčević-Liebisch, PhD, JD	President and Chief Executive Officer (Principal Executive Officer)	September 30, 2022
<u>/s/ Jennifer Ziolkowski</u> Jennifer Ziolkowski, CPA	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	September 30, 2022
<u>/s/ Bruce Booth</u> Bruce Booth, D.Phil	Director, Chairperson	September 30, 2022
<u>/s/ Cheryl Renee Blanchard</u> Cheryl Renee Blanchard, PhD.	Director	September 30, 2022
<u>/s/ Suzanne Bruhn</u> Suzanne Bruhn, PhD.	Director	September 30, 2022
<u>/s/ Shaan Gandhi</u> Shaan Gandhi, MD, PhD, MBA	Director	September 30, 2022
<u>/s/ Gerhard Koenig</u> Gerhard Koenig, PhD	Director	September 30, 2022

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<u>Name</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Mary Thistle</u> Mary Thistle	Director	September 30, 2022
<u>/s/ Stefan Vitorovic</u> Stefan Vitorovic, MS, MBA	Director	September 30, 2022



Goodwin Procter LLP
100 Northern Avenue
Boston, MA 02210

goodwinlaw.com
+1 617 570 1000

September 30, 2022

Vigil Neuroscience, Inc.
1 Broadway, 7th Floor, Suite 07-300
Cambridge, MA 02142

Re: Securities Registered under Registration Statement on Form S-1

Ladies and Gentlemen:

We have acted as counsel to you in connection with your filing of a Registration Statement on Form S-1 (as amended or supplemented, the "Registration Statement") pursuant to the Securities Act of 1933, as amended (the "Securities Act"), relating to the registration of the offering by Vigil Neuroscience, Inc., a Delaware corporation (the "Company") of up to 10,273,973 shares of the Company's common stock, par value \$0.0001 per share ("Common Stock"), consisting of (i) 7,293,084 shares of Common Stock (the "Shares"), and (ii) up to 2,980,889 shares of Common Stock (the "Warrant Shares") issuable upon the exercise of pre-funded warrants (the "Warrants") to purchase shares of Common Stock at an exercise price equal to \$0.0001, to be sold by the selling stockholders listed in the Registration Statement under "Selling Stockholders" (the "Selling Stockholders"). The Shares and the Warrants were issued to the Selling Stockholders in connection with certain Securities Purchase Agreement dated as of August 12, 2022, by and among the Company and the parties named therein.

We have reviewed such documents and made such examination of law as we have deemed appropriate to give the opinions set forth below. We have relied, without independent verification, on certificates of public officials and, as to matters of fact material to the opinions set forth below, on certificates of officers of the Company.

The opinions set forth below are limited to the Delaware General Corporation Law.

Based on the foregoing, we are of the opinion that:

1. The Shares have been duly authorized and validly issued and are fully paid and non-assessable.
2. Assuming a sufficient number of authorized but unissued shares of Common Stock are available for issuance when the Warrants are exercised, the Warrant Shares, when and if issued upon exercise of the Warrants in accordance with the terms of the Warrants, will have been duly authorized and will be validly issued, fully paid and non-assessable.

We hereby consent to the inclusion of this opinion as Exhibit 5.1 to the Registration Statement and to the references to our firm under the caption “Legal Matters” in the Registration Statement. In giving our consent, we do not 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 thereunder.

Very truly yours,

/s/ Goodwin Procter LLP
GOODWIN PROCTER LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Registration Statement on Form S-1 of Vigil Neuroscience, Inc. of our report dated March 25, 2022 relating to the financial statements, which appears in Vigil Neuroscience, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2021. We also consent to the reference to us under the heading "Experts" in such Registration Statement.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
September 30, 2022

CALCULATION OF REGISTRATION FEE

Form S-1

Vigil Neuroscience, Inc.
(Exact Name of Registrant as Specified in its Charter)

Table 1 – Newly Registered Securities and Carry Forward Securities

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered(1)(2)	Proposed Maximum Offering Price Per Unit(3)	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial Effective Date	Filing Fee Previously Paid in Connection with Unsold Securities to be Carried Forward
Newly Registered Securities												
Fees to be Paid	Equity	Common Stock, par value \$0.00001 per share	457(c)	7,293,084	\$8.99	\$65,564,825.16	.0000927	\$6,077.86				
	Equity	Common Stock underlying Pre-Funded Warrants (4)	457(c)	2,980,889	\$8.99	\$26,798,192.11	.0000927	\$2,484.20				
Fees Previously Paid	—	—	—	—	—	—	—	—				
Carry Forward Securities												
Carry Forward Securities	—	—	—	—	—	—	—	—	—	—	—	—
	Total Offering Amounts					\$92,363,017.27		\$8,562.06				
	Total Fees Previously Paid							0				
	Total Fee Offsets							0				
	Net Fee Due							\$8,562.06				

- (1) The pre-funded warrants, each of which is exercisable to purchase one share of common stock, were initially issued to the Selling Securityholder named in this registration statement and are registered for resale. The issuance by the registrant of the shares of common stock upon exercise of the pre-funded warrants by transferees of such warrants is also being registered hereunder.
- (2) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), the registrant is also registering an indeterminate number of additional shares of common stock issuable by reason of any stock dividend, stock split, recapitalization or other similar transaction.
- (3) Pursuant to Rule 457(c) under the Securities Act, and solely for the purpose of calculating the registration fee, the proposed maximum offering price of the shares of common stock is \$8.99, which is the average of the high and low prices of the common stock on September 28, 2022 on the NASDAQ Capital Market.
- (4) Represents shares of Common Stock, par value \$0.00001 per share, issuable upon the exercise of pre-paid warrants at an exercise price of \$0.0001 per share, or the Pre-Funded Warrants.