As confidentially submitted to the Securities and Exchange Commission on March 17, 2021. This draft registration statement has not been publicly filed with the Securities and Exchange Commission and all information herein remains confidential.

Registration No. 333-

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-1

REGISTRATION STATEMENT

Under

The Securities Act of 1933

PRAXIS PRECISION MEDICINES, 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) One Broadway, 16th Floor 37-1657129 (I.R.S. Employer Identification Number)

Cambridge, MA 02142 617-300-8460 (Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

> Marcio Souza Chief Executive Officer One Broadway, 16th Floor Cambridge, MA 02142 617-300-8460

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Richard A. Hoffman, Esq. William D. Collins, Esq. Goodwin Procter LLP 100 Northern Avenue Boston, MA 02210 (617) 570-1000 Jonathan L. Kravetz, Esq. John T. Rudy, Esq. Mintz, Levin, Cohn, Ferris, Glovsky & Popeo, P.C. One Financial Center Boston, MA 02111 (617) 542-6000

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 \Box Accelerated Filer \Box

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.

CALCULATION OF REGISTRATION FEE

	Proposed	
	Maximum	
Title of Each Class of	Aggregate	Amount of
Securities to be Registered	Offering Price ⁽¹⁾	Registration Fee ⁽²⁾
Common Stock, par value \$0.0001 per share	\$	\$

(1) Estimated solely for the purpose of computing the amount of the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended. Includes the aggregate price of shares that the underwriters may purchase pursuant to an option to purchase additional shares.

2) Calculated pursuant to Rule 457(o) under the Securities Act of 1933, as amended, based on an estimate of the proposed maximum aggregate offering price.

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. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell nor does it seek an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

PROSPECTUS (Subject to Completion)

Dated , 2021

Shares

PRA

Common Stock

We are offering shares of our common stock. Our common stock is listed on The Nasdaq Global Select Market under the symbol "PRAX." The last reported sale price of our common stock on The Nasdaq Global Select Market on , 2021 was \$ per share. The final public offering price will be determined through negotiation between us and the underwriters, and the recent market price used throughout the prospectus may not be indicative of the actual public offering price.

We are an "emerging growth company" under applicable Securities and Exchange Commission rules and are subject to reduced public company reporting requirements for this prospectus and future filings.

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

Our business and an investment in our common stock involve significant risks. These risks are described under the caption "<u>Risk Factors</u>" beginning on page 12 of this prospectus.

Public offering price \$ Underwriting discounts(1) \$ Proceeds, before expenses, to Praxis Precision Medicines, Inc. \$	5 5 5	\$ \$ \$
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(1) See "Underwriting" beginning on page 34 of this prospectus for additional information regarding underwriting compensation.

The underwriters may also purchase up to an additional	shares from us at the public offering price, less the underwriting
discount, within 30 days from the date of this prospectus.	

The underwriters expect to deliver the shares against payment in New York, New York on

Book-running Managers

Cowen

Evercore ISI

Piper Sandler

Lead Manager

Wedbush PacGrow

, 2021.

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You should rely only on the information contained in this prospectus or in any free writing prospectus we file with the Securities and Exchange Commission, or the SEC. Neither we nor the underwriters have authorized anyone to provide you with information other than that contained 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. We and the underwriters 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.

For investors outside of the United States: We have not, and the underwriters have not, done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than the United States. Persons outside of the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of common stock and the distribution of this prospectus outside of the United States.

The market data and certain other statistical information used throughout this prospectus are based on independent industry publications, governmental publications, reports by market research firms or other independent sources that we believe to be reliable sources. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. We are responsible for all of the disclosure contained in this prospectus, and we believe that these sources are reliable; however, we have not independently verified the information contained in such publications. While we are not aware of any misstatements regarding any third-party information presented 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, including those discussed under the section entitled "Risk Factors" and elsewhere in this prospectus. Some data are also based on our good faith estimates.

PROSPECTUS SUMMARY

This summary highlights selected 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 and the information in our filings with the U.S. Securities and Exchange Commission, or the SEC, incorporated by reference in this prospectus. Unless the context otherwise requires, we use the terms "Praxis," "Company," "we," "us" and "our" in this prospectus to refer to Praxis Precision Medicines, Inc.

Company Overview

We are a clinical-stage biopharmaceutical company translating genetic insights into the development of therapies for central nervous system, or CNS, disorders characterized by neuronal imbalance. Normal brain function requires a delicate balance of excitation and inhibition in neuronal circuits, which, when dysregulated, can lead to abnormal function and disease. We are applying insights from genetic epilepsies to broader neurological and psychiatric disorders, using our understanding of shared biological targets and circuits in the brain. We apply a deliberate and pragmatic precision approach, leveraging a suite of translational tools including novel transgenic and predictive translational animal models and electrophysiology markers, to enable an efficient path to proof-of-concept in patients. Through this approach, we have established a broad portfolio, including multiple disclosed programs across CNS disorders, including depression, epilepsy, movement disorders and pain syndromes, with three clinical-stage product candidates.

Our insights into genetic mutations resulting in neuronal imbalance have enabled us to develop a pipeline addressing prevalent psychiatric and neurologic conditions and rare diseases, with the ability to expand into additional indications. We have established a broad portfolio, including five disclosed programs across multiple CNS disorders, including depression, epilepsy, movement disorders and pain syndromes. We expect multiple topline clinical trial readouts from all three programs in the next year and anticipate the launch of a new clinical development program in 2021. We intend to develop differentiated therapies that can deliver long-term benefits to human health by meaningfully impacting patients and society. Below is a summary of our portfolio of disclosed programs, addressing either broad psychiatric and neurologic conditions or rare diseases.

	GENETICALLY INFORMED TARGET	PROGRAM	DISCOVERY	PRE-CLN	PHASE 1	PHASE 2	PHASE 3	UPCOMING MILESTONE
MOOD DISORDERS	GABRG2/A1 GARA, receptor PAM	(A) PRAX-114				PERIMEN DEPRESSI		PH2/3 MDD TOPLINE HI 2022 PH2A PMD TOPLINE H2 2021
MOVEMENT DISORDERS	CACNAIG T-type calcium channel blocker	(A) PRAX-944				- ESSENTIA	L TREMOR	PH2A ET TOPLINE MID-2021
BARE	SCN2A / SCN8A Persistent sodium current blocker	(A) PRAX-562			DEVE	CEPHALGIA LOPMENTAL AN PHALOPATHIES		INITIATION OF POC TRIAL H2 2023
DISEASES	S C N 2 A Na,1.2 downregulation	Ø PRAX-222*		e scnz/	EPILEPSY	~		IND SUBMISSION Q1 2022
	KCNT1 Potassium channel T1 blocker	CONTI inhibitor	KCN	TI EPILEPSY		~	IV Molecules sense oligos	DC NOMINATION 2021

PRAX-222 is a collaboration with Ionis Pharmaceuticals, or Ionis, and RogCon Inc. Ionis is eligible to receive royalties as a percentage of net product sales worldwide in the low-20s.

PRAX-114

We are developing PRAX-114, an extrasynaptic GABAA receptor preferring positive allosteric modulator, or PAM, for the treatment of patients suffering from major depressive disorder, or MDD, and perimenopausal depression, or PMD. PRAX-114 is under development as a potentially differentiated treatment for a broad MDD population, as both a monotherapy and adjunctive therapy for both acute and maintenance treatment. We have a multi-cohort, three-part Phase 2a clinical trial ongoing in Australia. Parts A and C of the trial are treating patients with MDD while Part B has focused on patients with PMD. For all parts of the trial, PRAX-114 was generally well-tolerated. In Parts A and C, we observed marked improvements in depression scores in MDD patients within two weeks of treatment that were maintained throughout the treatment period. We expect complete topline data from Part B of the trial in the second half of 2021. In October 2020, we submitted an Investigational New Drug application, or IND, to support the initiation of a Phase 2/3 clinical trial in the United States. At the end of the 30-day review period, the U.S. Food and Drug Administration, or the FDA, notified us that the IND was placed on full clinical hold pending the resolution of certain non-clinical pharmacology and toxicology matters. We subsequently interacted with the FDA to gain agreement on a path to initiate the clinical study, which included a proposal to submit available non-clinical data while other good laboratory practice, or GLP, reproductive toxicology studies were being completed. Based on this submission, the FDA removed the clinical hold in March 2021. We are operationally ready and intend to initiate the Phase 2/3 monotherapy MDD trial by the end of March 2021. If positive, the Phase 2/3 trial is intended to serve as one of two registrational trials required by the FDA to support clinical efficacy for monotherapy treatment of MDD, and we expect topline data in the first half of 2022. In addition to the Phase 2/3 monotherapy trial, we intend to initiate a Phase 2 dose range finding, or DRF, trial for adjunctive treatment of MDD in the third guarter of 2021 to provide controlled data to support advancing a Phase 3 adjunctive MDD trial and will further inform dose selection for the future Phase 3 monotherapy trial.

There is significant unmet medical need in MDD and PMD with over 22 million individuals suffering from depressive symptoms in the United States. Current pharmacological interventions suffer from multiple shortcomings including slow onset of efficacy, low remission rates and side effects that limit patient compliance. PRAX-114 targets an increasingly well-understood neuronal circuit in the brain that we believe, when properly modulated, can result in a robust and rapid antidepressant effect with an advantageous safety and tolerability profile.

We believe that our PRAX-114 program has several advantages as compared to currently available therapies and product candidates in the GABAA PAM therapeutic class:

- Planned Path to a Potential Broad MDD Label. We have been diligently pursuing our strategy to advance PRAX-114 towards regulatory approval and commercialization to support a broad label in MDD that can be easily integrated into standard clinical practice. We intend to develop PRAX-114 in the United States and in other countries as both a monotherapy and adjunctive therapy for MDD for both acute and maintenance treatment.
- Wider Therapeutic Window. We have determined that PRAX-114 is approximately 10-fold more selective PAM of the extrasynaptic form of GABAA receptors compared to the synaptic form. By preferentially modulating extrasynaptic GABAA receptors, we believe PRAX-114 is able to uniquely activate the GABAergic target and has the potential to mediate antidepressant and anxiolytic activity without the significant sedation observed with less selective neuroactive steroids.
- Simple Nightly Dosing. We believe the ability to administer PRAX-114 and achieve targeted exposures, with or without food, is key for clinical and commercial success in MDD. This is

also critical for a patient-centric therapy because many patients with depression suffer from appetite disturbances. We have observed fast absorption of PRAX-114 within one to three hours of dosing and a predictable PK profile across multiple trials. Based on clinical findings to date, PRAX-114 achieves reproducible overall exposure (i.e., area under the concentration curve, or AUC) across a wide range of administration conditions, demonstrating consistent exposure when administered with or without food and at different times of day, whereas other GABAA PAM neuroactive steroids may require food to achieve therapeutic levels.

- Sustained Administration. After consultation with the FDA and other stakeholders in MDD and PMD therapy, we designed our Phase 2/3 trial of PRAX-114 to include 28-day nightly dosing to evaluate patients at 14 days to assess the rapidity and robustness of response and 28 days to measure initial of effect. We believe that having a dosing paradigm consistent with the duration of depressive episodes and easily integrated into standard clinical practice will provide the most substantial benefit to patients in controlling their disease, further differentiating PRAX-114 from other GABAA PAMs.
- Indication Expansion. Based on the novel pharmacology of PRAX-114 and its generally well-tolerated profile in clinical trials to date and our knowledge of disorders related to MDD that may be treatable through the GABAA PAM mechanism, we believe PRAX-114 is suitable for potential development across a wide-range of indications in psychiatry and neurology, providing for potentially sizable expansion opportunities to explore in addition to MDD.

PRAX-944

We are developing PRAX-944, a potentially differentiated selective small molecule inhibitor of T-type calcium channels for the treatment of Essential Tremor, or ET. We have evaluated the safety and tolerability of PRAX-944 in over 150 healthy volunteers in five separate clinical trials. We have studied the safety of PRAX-944 modified release formulation with titration up to 120mg/day and no maximum tolerated dose, or MTD, has been identified. We are currently conducting a Phase 2a proof-of-concept, open-label trial, in ET patients. Preliminary site data from six participants in the low dose cohort showed tremor reduction, which compares favorably to the standard of care agents and historical placebo response. Based on the observed safety profile in the healthy volunteer titration study and the safety and preliminary efficacy data in ET participants administered up to 40mg daily, we have added a second cohort to the ongoing ET Phase 2a trial where patients will be titrated to a dose of up to120mg/day of PRAX-944. We have also included a randomized, double-blind, placebo-controlled withdrawal phase to this later cohort in the trial, where participants will either be maintained on their final open-label dose or switched to placebo. We plan to announce topline open-label safety, tolerability and efficacy data, for the high dose cohort, in mid-year 2021. In addition, we plan to start a Phase 1 trial to explore short titration schemes by mid-2021 and to initiate a Phase 2b randomized controlled trial in ET in late 2021.

There is a large body of clinical, preclinical and genetic evidence that points to the involvement of T-type calcium channels in the cerebello-thalamo-cortical, or CTC, circuit, as a main driver of ET. ET is the most common movement disorder, affecting up to seven million patients in the United States, which is seven times more individuals compared to Parkinson's tremor. ET is a progressive and debilitating movement disorder with action tremors that significantly disrupt daily living. There is a high unmet need for ET patients given the limited treatment options, with only one approved pharmacotherapy that is poorly tolerated, resulting in high discontinuation rates and a small group of patients opting for invasive brain surgeries.

Successful development of T-type calcium channel modulators in ET likely requires a PK profile with a blunted Cmax and thoughtful clinical trial design and endpoint selection. We have designed our

development program to include careful selection of clinical endpoints, a modified release formulation and dose titration strategy. We believe the profile of PRAX-944 coupled with its modified release formulation positions it for development as a differentiated therapy in ET.

Because of the gatekeeper role of T-type calcium channels in regulating neuronal firing patterns in multiple neuronal circuits, we believe PRAX-944 is suitable for potential development across a wide-range of indications in psychiatry and neurology, providing sizable expansion opportunities in addition to ET.

PRAX-562

Our most advanced rare disease product candidate and third clinical program, PRAX-562, is the first selective persistent sodium current blocker in development for the treatment of a broad range of rare, devastating CNS disorders, such as severe pediatric epilepsies and rare adult cephalgias. To date, PRAX-562 has demonstrated pharmacological activity in preclinical in-vivo models at generally well-tolerated doses.

We initiated a Phase 1 trial of PRAX-562 in Australia to evaluate the safety, tolerability, PK and effects on an exploratory electroencephalography, or EEG, biomarker in up to 129 adult healthy volunteers. The single ascending dose, or SAD, portion up to the maximum planned dose has been completed with no dose limiting toxicities and the study has advanced to the multiple ascending dose, or MAD, phase. We anticipate initiating the first proof-of-concept trial in patients with rare adult cephalgias, including Short-lasting Unilateral Neuralgiform headache attacks with Conjunctival injection and Tearing, or SUNCT, Short-lasting Unilateral Neuralgiform headache attacks or SUNA, and Trigeminal Neuralgia, or TN, in the second half of 2021. The scope of the initial study has been expanded to include TN in addition to SUNCT and SUNA. In January 2021, the FDA granted rare pediatric disease designation for PRAX-562 for the treatment of SCN2A and SCN8A developmental epileptic encephalopathies, or SCN2A-DEE and SCN8A-DEE, respectively.

Preclinical Programs

In addition to our clinical programs, our most advanced preclinical stage program is PRAX-222, an antisense oligonucleotide, or ASO, designed to decrease the expression levels of the protein encoded by the gene SCN2A in patients with gain-of-function, or GOF, mutations in epilepsy. The FDA has granted both rare pediatric disease and orphan drug designations for PRAX-222 for the treatment of SCN2A-DEE. We have one disclosed discovery program in development for KCNT1 related epilepsy and in March 2021 we have entered into an innovative research collaboration with The Florey Institute of Neuroscience and Mental Health to develop three additional novel ASOs for the treatment of patients with severe genetic epilepsies, including a novel approach targeting SCN2A loss-of-function, or LOF mutations.

Our Approach

Each of our programs is based on four key principles that we believe will both increase the probability of success and allow us to efficiently translate insights into high-impact therapies for patients and society:

- 1. Focus on therapeutic targets identified through human genetics.
- 2. Utilize translational tools to validate the potential of our targets and product candidates.
- 3. Pursue efficient, rigorous clinical development paths to proof-of-concept in humans.
- 4. Apply patient-centric development strategies.

Our Team

Our company was founded by scientific innovators Kiran Reddy, M.D., David Goldstein, Ph.D. and Steven Petrou, Ph.D., who have pioneered work to identify and characterize de novo mutations in several dozen genes believed to cause a number of forms of severe pediatric epilepsies. These genes regulate key neuronal circuits in the brain which, when dysregulated, can result in severe seizure phenotypes as well as comorbid developmental delays, cognitive deficits, sensory-motor issues and often early death. Further, based on our understanding of a body of preclinical and clinical evidence, we now believe that these genes also play critical roles in the predisposition to other more prevalent neurologic and psychiatric disorders, such as mood disorders, movement disorders, pain syndromes, autism, migraine and schizophrenia, making them attractive targets for therapeutic intervention for a wide range of CNS disorders.

We have attracted a talented team of scientists and researchers in genetics and biology, chemistry and translational medicine as well as business leaders with established track records of successfully executing innovative drug discovery and development programs. Our Chief Executive Officer, Marcio Souza, previously served as Chief Operating Officer at PTC Therapeutics, Inc. and was instrumental in the development and commercialization of multiple approved products while at NPS Pharmaceuticals, Inc., Shire Human Genetic Therapies Inc. and Sanofi Genzyme Corporation. Our Chief Medical Officer, Bernard Ravina, M.D., previously Chief Medical Officer at Voyager Therapeutics, Inc., is a neurologist and movement disorder specialist who brings decades of neurologic drug development experience from roles at Biogen, the University of Rochester and the NIH's Institute of Neurological Disorders and Stroke.

Our Strategy

Our goal is to translate genetic insights into high-impact therapies for millions of people suffering from rare or prevalent CNS disorders characterized by neuronal imbalance. Key components of our strategy include:

- Advance PRAX-114 toward regulatory approval and commercialization as a potentially differentiated monotherapy and adjunctive therapy for MDD and PMD in both acute and maintenance settings.
- Advance PRAX-944 toward regulatory approval and commercialization as a potentially differentiated therapy for ET.
- Advance our rare disease programs and build our franchise of candidates addressing rare diseases such as DEEs based on precision medicine principles.
- Maximize the value of our product candidates through select indication expansion.
- Advance our understanding of genetics and neuronal imbalance to maintain our leadership and continue to build our pipeline.
- Build a sales and marketing infrastructure to reach prescribers in the United States and maximize the reach of our products globally, alone or in collaboration with others.

Risks Associated with Our Business

Our ability to implement our business strategy is subject to numerous risks, as more fully described in the section entitled "Risk Factors" immediately following this prospectus summary. These risks include, among others:

 We are a clinical-stage biopharmaceutical company and we have incurred significant losses since our inception. We anticipate that we will continue to incur significant losses for the foreseeable future.

- We will need substantial additional funding, and if we are unable to raise capital when needed, we could be forced to delay, reduce or eliminate our product discovery and development programs or commercialization efforts.
- Our business substantially depends upon the successful development of PRAX-114, PRAX-944 and PRAX-562. If we are
 unable to obtain regulatory approval for, and successfully commercialize, PRAX-114, PRAX-944 or PRAX-562, our
 business may be materially harmed.
- Clinical development involves a lengthy, complex and expensive process, with an uncertain outcome. The outcome of preclinical testing and early clinical trials may not be predictive of the success of later clinical trials, and the results of our clinical trials, which to date have primarily been conducted in Australia and New Zealand, may not satisfy the requirements of the FDA or comparable foreign regulatory authorities.
- Our product candidates may cause undesirable side effects or have other properties that could delay or prevent their regulatory approval, limit their commercial potential or result in significant negative consequences following regulatory approval, if obtained.
- The markets for PRAX-114 for major depressive disorder and perimenopausal disorder, PRAX-944 for essential tremor, PRAX-562 for multiple rare neurological conditions and any other product candidates we may develop may be smaller than we expect.
- We face significant competition in an environment of rapid technological and scientific change, and there is a possibility that our competitors may achieve regulatory approval before us or develop therapies that are safer, more advanced or more effective than ours, which may negatively impact our ability to successfully market or commercialize any product candidates we may develop and ultimately harm our financial condition.
- Our success depends in part on our ability to protect our intellectual property. It is difficult and costly to protect our proprietary rights and technology, and we may not be able to ensure their protection.
- We have entered into, and may enter into, license or other collaboration agreements that impose certain obligations on us. If we fail to comply with our obligations under such agreements with third parties, we could lose license rights that may be important to our business.
- Third-party claims of intellectual property infringement may prevent or delay our product discovery and development efforts.
- We expect to depend on collaborations with third parties for the research, development and commercialization of certain of the product candidates we may develop. If any such collaborations are not successful, we may not be able to realize the market potential of those product candidates.
- Business interruptions resulting from COVID-19 or a similar pandemic, epidemic or outbreak of an infectious disease in the United States or worldwide may adversely affect our business.
- The price of our stock may be volatile, and you could lose all or part of your investment.

Corporate Information

We were incorporated under the laws of the State of Delaware on September 22, 2015. Our principal executive office is located at One Broadway, 16th Floor, Cambridge, MA 02142, and our telephone number is (617) 300-8460. Our website address is www.praxismedicines.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.

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

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act, as amended, or the JOBS Act, enacted in April 2012. 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; and
- exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting.

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 the completion of this offering; (iii) the date on which we have issued more than \$1 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the U.S. Securities and Exchange Commission. We may choose to take advantage of some but not all of these exemptions. We have taken advantage of reduced reporting requirements in the registration statement of which this prospectus is a part. 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.

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 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 our annual revenues are less 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 offered by us	shares.				
Common stock to be outstanding immediately after this offering	shares (shares if the underwriters exercise their option to purchase additional shares in full).				
Underwriters' option to purchase additional shares	We have granted a 30-day option to the underwriters to purchase up to an aggregate of additional shares of common stock from us to cover over-allotments, if any, at the public offering price, less underwriting discounts and commissions, on the same terms as set forth in this prospectus.				
Use of proceeds	We estimate that we will receive net proceeds from the sale of shares of our common stock in this offering of approximately \$ million, or \$ million if the underwriters exercise their option to purchase additional shares in full, assuming a public offering price of \$ per share, which is the last reported sale price of our common stock on The Nasdaq Global Select Market on , 2021, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We currently intend to use the net proceeds from this offering along with our cash, cash equivalents and short-term investments to (i) advance PRAX-114 into and through the completion of our Phase 2/3 trial in MDD, which is intended to satisfy one of two registrational trials required by the FDA to support clinical efficacy, advance PRAX-114 into and through the complete Part B (PMD) Phase 2a clinical trial for PRAX-114, initiate a Phase 3 monotherapy trial in MDD and pursue the development of PRAX-114 in an additional indication; (ii) complete our ongoing Phase 2a clinical trial and a Phase 2/3 randomized, controlled clinical trial for PRAX-944 in ET and pursue the development of PRAX-944 in an additional indication; (iii) complete our ongoing Phase 1 healthy volunteer trial and the first patient trial for PRAX-562 and (iv) advance other programs in our pipeline and support working capital and other general corporate purposes. For a more complete description of our intended use of the proceeds from this offering, see "Use of Proceeds."				

Risk factors	You should carefully read the "Risk Factors" section of this prospectus, and the other information included in, or incorporated by reference into, for a discussion of factors that you should consider before deciding to invest in our common stock.
Nasdaq Global Select Market symbol	"PRAX"

The number of shares of our common stock after this offering is based on 38,268,543 shares of our common stock issued as of December 31, 2020 and excludes:

- 5,944,546 shares of our common stock issuable upon the exercise of stock options outstanding as of December 31, 2020 under our 2017 Stock Incentive Plan and 2020 Stock Option and Incentive Plan, at a weighted average exercise price of \$7.47 per share;
- 3,036,776 shares of our common stock reserved for future issuance under our 2020 Stock Option and Incentive Plan as of December 31, 2020, as well as an increase of 1,913,427 shares that automatically became effective on January 1, 2021 in accordance with the terms of the 2020 Stock Option and Incentive Plan and any additional automatic increases in the number of shares of common stock reserved for future issuance under the 2020 Stock Option and Incentive Plan; and
- 327,102 shares of our common stock reserved for future issuance under the 2020 Employee Stock Purchase Plan as of December 31, 2020, as well as an increase of 327,102 shares that automatically became effective on January 1, 2021 in accordance with the terms of the 2020 Employee Stock Purchase Plan and any additional automatic increases in the number of shares of common stock reserved for future issuance under the 2020 Employee Stock Purchase Plan.

Unless otherwise indicated, all information in this prospectus reflects or assumes the following:

- no exercise of outstanding options described above; and
- no exercise by the underwriters of their option to purchase up to offering.

additional shares of common stock in this

SUMMARY CONSOLIDATED FINANCIAL DATA

You should read the following summary consolidated financial data together with our consolidated financial statements and the related notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in our Annual Report on Form 10-K for the year ended December 31, 2020, which is incorporated by reference in this prospectus. We have derived the consolidated statement of operations data for the years ended December 31, 2020 and 2019 from our audited consolidated financial statements included in our Annual Report on Form 10-K for the year ended to preference in this prospectus.

		ar Ended ember 31,
	2020	2019
(in thousands, except share and per share data)		
Consolidated Statement of Operations Data:		
Operating expenses:		
Research and development	\$ 44,976	\$ 29,557
General and administrative	16,992	6,232
Total operating expenses	61,968	35,789
Loss from operations	(61,968)) (35,789)
Total other income:	· · ·	
Interest income	140	193
Total other income	140	193
Loss before benefit from income taxes	(61,828)) (35,596)
Benefit from income taxes	(8)) (84)
Net loss and comprehensive loss	\$ (61,820)) \$ (35,512)
Accretion and cumulative dividends on redeemable convertible preferred stock	(8,996)) (5,170)
Gain on repurchase of redeemable convertible preferred stock	493	-
Net loss attributable to common stockholders	\$ (70,323)) \$ (40,682)
Net loss per share attributable to common stockholders, basic and diluted(1)	\$ (7.86)	\$ (26.60)
Weighted average common shares outstanding, basic and diluted(1)	8,950,152	1,529,629

(1) See Note 12 to our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2020, which is incorporated by reference in this prospectus, for details on the calculation of basic and diluted net loss per share attributable to common stockholders.

(in thousands)	Actual	As Adjusted(2)
Consolidated Balance Sheet Data:		
Cash and cash equivalents	\$ 296,608	\$
Working capital(1)	\$ 286,606	\$
Total assets	\$ 303,177	\$
Additional paid-in-capital	\$ 437,007	
Accumulated deficit	\$(149,554)	\$
Total stockholders' equity	\$ 287,457	\$

- (1) We define working capital as current assets less current liabilities. See our consolidated financial statements and related notes included in our Annual Report on Form 10-K for the year ended December 31, 2020, which is incorporated by reference in this prospectus, for further details regarding our current assets and current liabilities.
- The as adjusted balance sheet data give effect to the issuance and sale of (2) shares of our common stock in this offering per share, which is the last reported sale price of our common stock on The at an assumed public offering price of \$, 2021, after deducting estimated underwriting discounts and commissions and Nasdag Global Select Market on estimated offering expenses payable by us. The as adjusted information discussed above is illustrative only and will change based on the actual public offering price and other terms of this offering determined at pricing. A \$1.00 increase (decrease) in the assumed public offering price of \$ per share, which is the last reported sale price of our common stock on The , 2021, would increase (decrease) the as adjusted amount of each of cash and cash Nasdag Global Select Market on equivalents, working capital, total assets and total stockholders' equity by \$, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. An increase (decrease) of 1,000,000 shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase (decrease) the as adjusted amount of each of cash and cash equivalents, working capital, total assets and total stockholders' equity by \$ assuming no change in the assumed public offering price per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the following risks and uncertainties, together with all other information in this prospectus, or incorporated by reference, including our consolidated financial statements and the related notes and the risks and uncertainties discussed under "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2020 which is incorporated by reference in this prospectus, before deciding to invest in our common stock. Any of the risk factors we describe below could adversely affect our business, financial condition or results of operations. The market price of our common stock could decline if one or more of these risks or uncertainties actually occur, causing you to lose all or part of the money you paid to buy our common stock.

Risks Related to This Offering

If you purchase our common stock in this offering, you will incur immediate and substantial dilution in the book value of your shares.

The public offering price will be substantially higher than the as adjusted net tangible book value per share of our common stock after this offering. Investors purchasing common stock in this offering will pay a price per share that substantially exceeds the as adjusted net tangible book value per share after this offering. As a result, investors purchasing common stock in this offering will incur immediate dilution of \$ per share, based on the public offering price of \$ per share, representing the difference between our as adjusted net tangible book value per share after giving effect to this offering and the public offering price. Further, investors purchasing common stock in this offering will contribute approximately % of the total amount invested by stockholders since our inception, but will own only approximately % of the shares of common stock outstanding after this offering.

This dilution is due to our investors who purchased shares prior to this offering having paid substantially less when they purchased their shares than the price offered to the public in this offering. To the extent outstanding options are exercised, there will be further dilution to new investors. As a result of the dilution to investors purchasing shares in this offering, investors may receive significantly less than the purchase price paid in this offering, if anything, in the event of our liquidation. For a further description of the dilution that you will experience immediately after this offering, see the section entitled "Dilution."

Substantial amounts of our outstanding shares may be sold into the market when lock-up or market standoff periods end. If there are substantial sales of shares of our common stock, the price of our common stock could decline.

If our existing stockholders sell, or indicate an intention to sell, substantial amounts of our common stock in the public market after the lock-up and other legal restrictions on resale discussed in this prospectus lapse, the trading price of our common stock could decline. Based on shares of common stock outstanding as of December 31, 2020, upon the completion of this offering we will have outstanding a total of shares of common stock.

The lock-up agreements pertaining to this offering will expire days from the date of this prospectus, subject to earlier release of all or a portion of the shares subject to such agreements by the representatives of the underwriters in this offering in their sole discretion. After the lock-up agreements expire, based upon the number of shares of common stock, on an as-converted basis, outstanding as of December 31, 2020, up to an additional shares of common stock will be eligible for sale in the public market. Approximately % of these additional shares are

beneficially held by directors, executive officers and their affiliates and will be subject to certain limitations of Rule 144 under the Securities Act of 1933, as amended, or the Securities Act.

In addition, shares of common stock that are either subject to outstanding options or reserved for future issuance under our existing equity compensation plans will become eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules, the lock-up agreements and Rule 144 and Rule 701 under the Securities Act. If these additional shares of common stock are sold, or if it is perceived that they will be sold, in the public market, the trading price of our common stock could decline. Additionally, the number of shares of our common stock reserved for issuance under our 2020 Stock Option and Incentive Plan, or the 2020 Plan, will automatically increase on January 1 of each year, beginning on January 1, 2021, by 5% of the total number of shares of our capital stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares determined by our board of directors or compensation committee. Moreover, the number of shares of our capital stock outstanding on January 1, 2021, by the lesser of 327,102 shares of common stock, 1% of the total number of shares of our capital stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares our stock, 1% of the total number of shares of our capital stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares of the preceding calendar year, or a lesser number of shares of the preceding calendar year, or a lesser number of shares of our capital stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares of the preceding calendar year, or a lesser number of shares determined by our board of directors or compensation committee. Unless our board of directors elects not to increase the number of shares available for future grant each year, our stockholders may experience additional dilution.

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

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

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference contain 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 success, cost and timing of our product development activities and clinical trials;
- our expectations regarding our ability to obtain and maintain intellectual property protection for our product candidates;
- the ability to license additional intellectual property relating to our product candidates from third parties and to comply with our existing license agreements and collaboration agreements;
- the ability and willingness of our third-party research institution collaborators to continue research and development activities relating to our product candidates;
- our ability to commercialize our products in light of the intellectual property rights of others;
- our ability to obtain funding for our operations, including funding necessary to complete further development and commercialization of our product candidates;
- the commercialization of our product candidates, if approved;
- our plans to research, develop and commercialize our product candidates;
- future agreements with third parties in connection with the commercialization of our 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;
- the rate and degree of market acceptance of our product candidates;
- the pricing and reimbursement of our product candidates, if approved;
- regulatory developments in the United States and foreign countries;
- our ability to contract with third-party suppliers and manufacturers and their ability to perform adequately;
- the success of competing therapies that are or may become available;
- our ability to attract and retain key scientific or management personnel;
- the accuracy of our estimates regarding expenses, future revenue, capital requirements and needs for additional financing;
- our expectations regarding the period during which we qualify as an emerging growth company under the JOBS Act, enacted in April 2012, or a smaller reporting company as defined in the Securities Exchange Act of 1934, as amended;
- the development of major public health concerns, including the novel coronavirus outbreak or other pandemics arising globally, and the future impact of it and COVID-19 on our clinical trials, business operations and funding requirements;
- our use of the proceeds from this offering; and
- other risks and uncertainties, including those listed under the caption "Risk Factors."

In some cases, forward-looking statements can be identified 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 "Risk Factors" and elsewhere 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 forwardlooking statement is a guarantee of future performance. You should read this prospectus and the documents that we reference in this prospectus and have filed with the Securities and Exchange Commission 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 includes statistical and other industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. We are responsible for all of the disclosure contained in this prospectus, and we believe that these sources are reliable; however, we have not independently verified the information contained in such publications.

USE OF PROCEEDS

We estimate that our net proceeds from the sale of shares of our common stock in this offering will be approximately \$ million, or \$ million if the underwriters exercise in full their option to purchase additional shares, assuming a public offering price of \$ per share, which is the last reported sale price of our common stock on The Nasdaq Global Select Market on , 2021, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

A \$1.00 increase (decrease) in the assumed public offering price of \$ per share would increase (decrease) the net proceeds to us from this offering by \$ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We may also increase or decrease the number of shares we are offering. Each increase (decrease) of 1,000,000 shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase (decrease) the net proceeds to us from this offering by \$ million, assuming no change in the assumed public offering price per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

We currently estimate that we will use the net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments as follows:

- approximately \$ to \$ million to advance PRAX-114 into and through the completion of our Phase 2/3 trial in MDD, which is intended to satisfy one of two registrational trials required by the FDA to support clinical efficacy, advance PRAX-114 into and through the completion of our Phase 2 trial for the adjunctive treatment of MDD, complete Part B (PMD) of our ongoing Phase 2a clinical trial for PRAX-114, initiate a Phase 3 monotherapy trial in MDD and pursue the development of PRAX-114 in an additional indication;
- approximately \$ to \$ million to complete our ongoing Phase 2a clinical trial and a Phase 2/3 randomized, controlled clinical trial for PRAX-944 in ET and pursue the development of PRAX-944 in an additional indication;
- approximately \$ to \$ million to complete our ongoing Phase 1 healthy volunteer trial and the first patient trial for PRAX-562; and
- the remainder for advancement of other programs in our pipeline and support of working capital and other general corporate purposes.

Based on our current plans, we believe that the net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments, will be sufficient to fund our operations for at least . We have based this estimate on assumptions that may prove to be incorrect, and we could use our available capital resources sooner than we currently expect.

This expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions. As of the date of this prospectus, we cannot predict with certainty all of the particular uses for the net proceeds to be received upon the closing of this offering or the amounts that we will actually spend on the uses set forth above. The amounts and timing of our actual expenditures and the extent of clinical development may vary significantly depending on numerous factors, including the progress of our development, the status of and results from preclinical studies or clinical trials we may commence in the future, as well as any collaborations that we may enter into with third parties for our product candidates, and any unforeseen cash needs. We may also use a portion of the net proceeds to in-license, acquire or invest in additional businesses, technologies, products or assets, although currently we have no specific agreements, commitments or understandings in this regard. As a result, our management will retain broad discretion over the allocation of the net proceeds from this offering.

Pending our use of proceeds from this offering, we intend to invest the net proceeds in a variety of capital preservation instruments, including short-term, investment-grade, interest-bearing instruments and U.S. government securities.

DIVIDEND POLICY

We have never declared or paid cash dividends on our capital stock. We 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. In addition, any future financing instruments could preclude us from paying dividends. Any future determination to pay dividends will be made at the discretion of our board of directors subject to applicable laws, and will depend upon, among other factors, our results of operations, financial condition, contractual restrictions and capital requirements. Investors should not purchase our common stock with the expectation of receiving cash dividends.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and our capitalization as of December 31, 2020:

- on an actual basis; and
- on an as adjusted basis to give effect to the issuance and sale of assumed public offering price of \$ per share, the last reported sale price of our common stock on The Nasdaq Global Select Market on , 2021, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The as adjusted information below is illustrative only, and our capitalization following the completion of this offering will depend on the actual public offering price and other terms of this offering determined at pricing.

You should read the information in this table together with the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and the related notes included in our Annual Report on Form 10-K for the year ended December 31, 2020, which is incorporated by reference in this prospectus,

	As of Decen	nber 31, 2020
	Actual	As Adjusted
(In thousands, except share and per share data)		
Cash and cash equivalents	\$ 296,608	\$
Stockholders' equity:		
Preferred stock, \$0.0001 par value; 10,000,000 shares authorized and no shares issued or		
outstanding, actual; 10,000,000 shares authorized and no shares issued or outstanding, as adjusted	_	
Common stock, \$0.0001 par value; 150,000,000 shares authorized and 38,268,543 shares issued and		
outstanding, actual; 150,000,000 shares authorized; shares issued and outstanding, as		
adjusted	4	
Additional paid-in capital	437,007	
Accumulated deficit	(149,554)	
Total stockholders' equity	287,547	
Total	\$ 287,547	\$

A \$1.00 increase (decrease) in the assumed public offering price of \$ per share, the last reported sale price of our common stock on The Nasdaq Global Select Market on , 2021, would increase (decrease) the as adjusted amount of each of cash and cash equivalents, additional paid-in capital, total stockholders' equity and total capitalization by \$ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, an increase (decrease) of 1,000,000 shares in the number of shares offered by us in this offering, as set forth of the cover page of this prospectus, would increase (decrease) the as adjusted amount of cash and cash equivalents, additional paid-in capital, total stockholders' equity and total capitalization by \$, assuming no change in the assumed public offering price per share, after deducting estimated underwriting discounts and commissions and estimated offering price per share, after deducting estimated underwriting discounts and commissions and estimated offering price per share, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

This table excludes:

- 5,944,546 shares of our common stock issuable upon the exercise of stock options outstanding as of December 31, 2020 under our 2017 Stock Incentive Plan and 2020 Stock Option and Incentive Plan, at a weighted average exercise price of \$7.47 per share;
- 3,036,776 shares of our common stock reserved for future issuance under our 2020 Stock Option and Incentive Plan as of December 31, 2020, as well as an increase of 1,913,427 shares that automatically became effective on January 1, 2021 in accordance with the terms of the 2020 Stock Option and Incentive Plan and any additional automatic increases in the number of shares of common stock reserved for future issuance under the 2020 Stock Option and Incentive Plan; and
- 327,102 shares of our common stock reserved for future issuance under the 2020 Employee Stock Purchase Plan as of December 31, 2020, as well as an increase of 327,102 shares that automatically became effective on January 1, 2021 in accordance with the terms of the 2020 Employee Stock Purchase Plan and any additional automatic increases in the number of shares of common stock reserved for future issuance under the 2020 Employee Stock Purchase Plan.

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DILUTION

If you invest in our common stock in this offering, your ownership interest will be diluted immediately to the extent of the difference between the public offering price per share of common stock in this offering and the as adjusted net tangible book value per share of common stock immediately after this offering.

Our historical net tangible book value as of December 31, 2020 was \$287.5 million, or \$7.51 per share of common stock. Our historical net tangible book value is the amount of our total tangible assets less our total liabilities. Historical net tangible book value per share represents historical net tangible book value divided by the 38,268,543 issued shares of our common stock as of December 31, 2020.

After giving further effect to the sale and issuance of shares of our common stock in this offering at an assumed public offering price of \$ per share, the last reported sale price of our common stock on The Nasdaq Global Select Market on , 2021, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, our as adjusted net tangible book value as of December 31, 2020 would have been \$, or \$ per share. This represents an immediate increase in as adjusted net tangible book value per share of \$ to existing stockholders and immediate dilution of \$ in as adjusted net tangible book value per share to new investors participating in this offering. Dilution per share to new investors is determined by subtracting the as adjusted net tangible book value per share after this offering from the assumed public offering price per share paid by new investors. The as adjusted information below is illustrative only and will depend on the actual public offering price and other terms of this offering determined at pricing.

The following table illustrates this dilution on a per share basis to new investors:

Assumed public offering price per share		\$
Historical net tangible book value per share as of December 31, 2020	\$7.51	
Increase in net tangible book value per share attributable to this offering		
As adjusted net tangible book value per share after this offering		
Dilution per share to new investors participating in this offering		\$

A \$1.00 increase (decrease) in the assumed public offering price of \$ per share, the last reported sale price of our common , 2021, would increase (decrease) our as adjusted net tangible book value by stock on The Nasdag Global Select Market on per share, and increase (decrease) the dilution per share to investors participating in this offering by , or \$ \$ per share, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the \$ same, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. An increase of 1,000,000 shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase our as adjusted , or \$ net tangible book value by \$ per share, and decrease the dilution per share to investors participating in this offering by \$ per share, assuming that the assumed public offering price remains the same, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. A decrease of 1,000,000 shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would decrease our as adjusted net tangible book value by \$ per share, and increase the dilution per share to investors participating in this offering by \$ per share, assuming or \$ that the assumed public

offering price remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

If the underwriters exercise their option in full to purchase adjusted net tangible book value per share after this offering would be \$, representing an immediate increase in as adjusted net tangible book value per share of \$ to existing stockholders and immediate dilution in as adjusted net tangible book value per share of \$ to investors participating in this offering, assuming a public offering price of \$ per share, the last reported sale price of our common stock on The Nasdaq Global Select Market on and commissions and estimated offering expenses payable by us.

The above discussion and table are based on issued shares of our common stock and exclude:

- 5,944,546 shares of our common stock issuable upon the exercise of stock options outstanding as of December 31, 2020 under our 2017 Stock Incentive Plan and 2020 Stock Option and Incentive Plan, at a weighted average exercise price of \$7.47 per share;
- 3,036,776 shares of our common stock reserved for future issuance under our 2020 Stock Option and Incentive Plan as of December 31, 2020, as well as an increase of 1,913,427 shares that automatically became effective on January 1, 2021 in accordance with the terms of the 2020 Stock Option and Incentive Plan and any additional automatic increases in the number of shares of common stock reserved for future issuance under the 2020 Stock Option and Incentive Plan; and
- 327,102 shares of our common stock reserved for future issuance under the 2020 Employee Stock Purchase Plan as of December 31, 2020, as well as an increase of 327,102 shares that automatically became effective on January 1, 2021 in accordance with the terms of the 2020 Employee Stock Purchase Plan and any additional automatic increases in the number of shares of common stock reserved for future issuance under the 2020 Employee Stock Purchase Plan.

You will experience further dilution if new options or warrants are issued under our equity incentive plans or we issue additional shares of common stock, other equity securities or convertible debt securities in the future. In addition, we may choose to raise additional capital because of market conditions or strategic considerations, even if we believe that we have sufficient funds for our current or future operating plans. If we raise additional capital through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

PRINCIPAL STOCKHOLDERS

The following table sets forth certain information known to us regarding beneficial ownership of our capital stock as of March 1, 2021, as adjusted to reflect the sale of common stock offered by us in this offering, for:

- each person or group of affiliated persons known by us to be the beneficial owner of more than five percent of our capital stock;
- each of our named executive officers;
- each of our directors; and
- all of our executive officers and directors as a group.

To the extent that the underwriters sell more than an additional shares at the public offering price less the underwriting discount.

Beneficial ownership is determined in accordance with the rules of the SEC and generally includes voting or investment power with respect to securities. Under those rules, beneficial ownership includes any shares as to which the individual or entity has sole or shared voting power or investment power. Except as noted by footnote, and subject to community property laws where applicable, we believe, based on the information provided to us, that the persons and entities named in the table below have sole voting and investment power with respect to all common stock shown as beneficially owned by them.

The percentage of beneficial ownership prior to this offering in the table below is based on 38,579,115 shares of common stock deemed to be outstanding as of March 1, 2021, and the percentage of beneficial ownership after this offering in the table below is based on shares of common stock assumed to be outstanding after the closing of the offering. The information in the table below assumes no exercise of the underwriters' option to purchase additional shares. Options to purchase shares of common stock that are exercisable within 60 days of March 1, 2021 are deemed to be beneficially owned by the persons holding these options for the purpose of computing percentage ownership of that person, but are not treated as outstanding for the purpose of computing any other person's ownership percentage.

	Shares Beneficially Owned	Percentage of Shares Beneficially Owned	
		Before Offering	After offering
5% or Greater Stockholders			
Entities affiliated with Blackstone(1)	8,501,487	22.0%	
FMR LLC(2)	4,163,834	10.8%	
Entities affiliated with Eventide(3)	3,513,081	9.1%	
Vida Ventures, LLC(4)	2,939,329	7.6%	
Novo Holdings A/S(5)	2,442,080	6.3%	
Directors, Named Executive Officers and Other Executive Officers			
Dean Mitchell	_	_	
Nicholas Galakatos, Ph.D.(1)	_	_	
Stefan Vitorovic(4)	2,939,329	7.6%	
Gregory Norden(6)	16,294	*	
Kiran Reddy, M.D.(1)(7)	698,217	1.8%	
William Young(8)	27,980	*	
Marcio Souza (9)	263,287	*	
Bernard Ravina(10)	130,335	*	
Nicole Sweeny	0	-	
All executive officers and directors as a group (10 persons)(11)	4,083,479	10.4%	

* Represents beneficial ownership of less than one percent.

- Based solely on information contained in a Schedule 13G filed jointly by Clarus Lifesciences III, L.P., or Clarus, BSOF Parallel (1) Master Fund L.P., Clarus Ventures III GP, L.P., Blackstone Clarus III L.L.C., Blackstone Strategic Opportunity Associates L.L.C., Blackstone Alternative Solutions L.L.C., Blackstone Holdings I L.P., Blackstone Holdings II L.P., Blackstone Holdings I/II GP L.L.C., The Blackstone Group Inc., Blackstone Group Management L.L.C. and Stephen A. Schwarzman with the SEC on February 16, 2021. Clarus directly holds 7,594,109 shares of common stock and BSOF Parallel Master Fund L.P. directly holds 907,378 shares of common stock. Clarus Ventures III GP, L.P. is the general partner of Clarus. Blackstone Clarus III L.L.C. is the general partner of Clarus GP. The sole member of Blackstone Clarus III L.L.C. is Blackstone Holdings II L.P. Blackstone Strategic Opportunity Associates L.L.C. is the general partner of BSOF Parallel Master Fund L.P. Blackstone Holdings II L.P. is the sole member of Blackstone Strategic Opportunity Associates L.L.C. Blackstone Alternative Solutions L.L.C. is the investment manager of BSOF Parallel Master Fund L.P. Blackstone Holdings I L.P. is the sole member of Blackstone Alternative Solutions L.L.C. The general partner of Blackstone Holdings I L.P. and Blackstone Holdings II L.P. is Blackstone Holdings I/II GP L.L.C. The sole member of Blackstone Holdings I/II GP L.L.C. is The Blackstone Group Inc. The sole holder of the Class C common stock of The Blackstone Group Inc. is Blackstone Group Management L.L.C. Blackstone Group Management L.L.C. is wholly-owned by Blackstone's senior managing directors and controlled by its founder, Stephen A. Schwarzman. Each of such entities and Mr. Schwarzman may be deemed to beneficially own the shares beneficially owned by the Blackstone Funds controlled by it or him, but each (other than the Blackstone Funds to the extent of their direct ownership) disclaims beneficial ownership of such shares. Each of Nicholas Galakatos, Ph.D. and Kiran Reddy, M.D., members of our board of directors, is an employee of an entity affiliated with the Blackstone Funds and each disclaims beneficial ownership of the shares beneficially owned by the Blackstone Funds. The address for each of Clarus and Clarus Ventures III GP, L.P. is c/o Clarus Ventures LLC, 101 Main Street, Suite 1210, Cambridge, MA 02142. The address for each of the other Blackstone entities and Mr. Schwarzman is c/o The Blackstone Group Inc., 345 Park Avenue, New York, NY 10154.
- (2) Based solely on information contained in a Schedule 13G/A filed by FMR LLC with the SEC on February 10, 2021. FMR LLC has sole voting power with respect to 1,564,801 shares of common

stock and sole dispositive power with respect to 4,163,834 shares of common stock. Abigail P. Johnson is a Director, the Chairman and the Chief Executive Officer of FMR LLC. Members of the Johnson family, including Abigail P. Johnson, are the predominant owners, directly or through trusts, of Series B voting common shares of FMR LLC, representing 49% of the voting power of FMR LLC. The Johnson family group and all other Series B shareholders have entered into a shareholders' voting agreement under which all Series B voting common shares will be voted in accordance with the majority vote of Series B voting common shares. Accordingly, through their ownership of voting common shares and the execution of the shareholders' voting agreement, members of the Johnson family may be deemed, under the Investment Company Act of 1940, to form a controlling group with respect to FMR LLC. Neither FMR LLC nor Abigail P. Johnson has the sole power to vote or direct the voting of the shares owned directly by the various investment companies registered under the Investment Company Act ("Fidelity Funds") advised by Fidelity Management & Research Company ("FMR Co"), a wholly owned subsidiary of FMR LLC, which power resides with the Fidelity Funds' Boards of Trustees. FMR Co carries out the voting of the shares under written guidelines established by the Fidelity Funds' Boards of Trustees. The address of FMR LLC is 245 Summer Street, Boston, MA 02210.

- (3) Based solely on information contained in a Schedule 13G filed by Eventide Asset Management, LLC with the SEC on February 12, 2021. Eventide Asset Management, LLC, a Delaware limited liability company, is the beneficial owner of 3,513,081 common shares by virtue of being the investment adviser to registered investment companies. Mutual Fund Series Trust, On Behalf Of Eventide Gilead Fund, or Eventide Gilead, directly holds 1,566,708 shares of common stock and the Mutual Fund Series Trust, On Behalf Of Eventide Healthcare & Life Sciences Fund, or Eventide Healthcare, directly holds 1,946,373 shares of common stock. The address for both Eventide Healthcare and Eventide Gilead is One International Place, Suite 4210, Boston, Massachusetts 02110.
- (4) Based solely on information contained in a Schedule 13G filed by Vida Ventures, LLC with the SEC on February 16, 2021. All shares are held directly by Vida Ventures, LLC, a United States limited liability company. Stefan Vitorovic is the Co-Founder and Managing Director of Vida Ventures, LLC and is also a member of our board of directors. VV Manager, LLC, or VV Manager, is the managing member of Vida. Stefan Vitorovic, Arjun Goyal, Fred Cohen, Arie Belldegrun and Leonard Potter are managers of VV Manager, and may be deemed to share voting and dispositive power over the shares held by Vida. The address of Vida is 40 Broad Street, Suite 201, Boston, Massachusetts 02109.
- (5) Based solely on information contained in a Schedule 13G filed by Novo Holdings A/S, or Novo, with the SEC on February 8, 2021. All shares are held directly by Novo Holdings A/S, a Danish limited liability company that manages investments and financial assets. Novo Holdings A/S is wholly owned by Novo Nordisk Foundation, or the Foundation, a Danish commercial foundation. Novo Holdings A/S is the holding company in the group of Novo companies (currently comprised of Novo Nordisk A/S and Novozymes A/S) and is responsible for managing the Foundation's assets, including its financial assets. Based on the governance structure of Novo Holdings A/S and the Foundation, the Foundation is not deemed to have any beneficial ownership of the shares held by Novo Holdings A/S. The address for Novo Holdings A/S is Tuborg Havnevej 19, DK-2900 Hellerup, Denmark.
- (6) Consists of 16,294 shares of common stock underlying options exercisable within 60 days of March 1, 2021.
- (7) Consists of (i) 467,289 shares of common stock and (ii) 230,928 shares of common stock underlying options exercisable within 60 days of March 1, 2021.
- (8) Consists of 27,980 shares of common stock underlying options exercisable within 60 days of March 1, 2021.
- (9) Consists of (i) 24,450 shares of common stock and (ii) 238,837 shares of common stock underlying options exercisable within 60 days of March 1, 2021.

- (10) Consists of (i) 56,021 shares of common stock and (ii) 74,314 shares of common stock underlying options exercisable within 60 days of March 1, 2021.
- (11) Consists of (i) 3,487,089 shares of common stock and (ii) 596,390 shares of common stock underlying options exercisable within 60 days of March 1, 2021.

SHARES ELIGIBLE FOR FUTURE SALE

Future sales of our common stock in the public market, or the availability of such shares for sale in the public market, could adversely affect market prices prevailing from time to time.

Based on the number of shares outstanding as of December 31, 2020, upon the completion of this offering, shares of our common stock will be outstanding, assuming no exercise of the underwriters' option to purchase additional shares and no exercise of outstanding options. Of the outstanding shares, all of the shares sold in this offering will be freely tradable, except that any shares held by our affiliates, as that term is defined in Rule 144 under the Securities Act, may only be sold in compliance with the limitations described below, and shares of our common stock are restricted shares of common stock subject to service-based vesting terms. These restricted securities were issued and sold by us, or will be issued and sold by us, in private transactions and are eligible for public sale only if registered under the Securities Act or if they qualify for an exemption from registration under the Securities Act, including the exemptions provided by Rule 144 or Rule 701, which rules are summarized below.

Rule 144

In general, a person who has beneficially owned restricted stock for at least six months would be entitled to sell their securities provided that (i) such person is not deemed to have been one of our affiliates at the time of, or at any time during the 90 days preceding, a sale and (ii) we are subject to the Securities Exchange Act of 1934, as amended, or the Exchange Act, periodic reporting requirements for at least 90 days before the sale. Persons who have beneficially owned restricted shares for at least six months but who are our affiliates at the time of, or any time during the 90 days preceding, a sale, would be subject to additional restrictions, by which such person would be entitled to sell within any three-month period only a number of securities that does not exceed the greater of either of the following:

- 1% of the number of shares then outstanding, which will equal approximately shares immediately after this offering, assuming no exercise of the underwriters' option to purchase additional shares, based on the number of shares outstanding as of December 31, 2020; or
- the average weekly trading volume of our common stock on The Nasdaq Global Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale;

provided, in each case, that we are subject to the Exchange Act periodic reporting requirements for at least 90 days before the sale. Such sales both by affiliates and by non-affiliates must also comply with the manner of sale, current public information and notice provisions of Rule 144.

Rule 701

Rule 701 under the Securities Act, as in effect on the date of this prospectus, permits resales of shares in reliance upon Rule 144 but without compliance with certain restrictions of Rule 144, including the holding period requirement. Most of our employees, executive officers or directors who purchased shares under a written compensatory plan or contract may be entitled to rely on the resale provisions of Rule 701, but all holders of Rule 701 shares are required to wait until 90 days after the date of this prospectus before selling their shares. However, substantially all Rule 701 shares are subject to lock-up agreements as described below and under "Underwriting" included elsewhere in this prospectus and will become eligible for sale upon the expiration of the restrictions set forth in those agreements.

Lock-Up Agreements

Immediately prior to our initial public offering, all of our directors and officers agreed not to sell or otherwise transfer or dispose of any of our securities for a period of 180 days from October 15, 2020,

subject to certain exceptions. The representatives of the underwriters in our initial public offering may, in their sole discretion, permit early release of shares subject to these lock-up restrictions.

In addition, all of our directors and officers have entered into or will enter into lock-up agreements with the underwriters of this offering, under which our directors and officers have agreed, subject to certain exceptions, not to sell or otherwise transfer or dispose of any of our securities for a period of days from the date of this prospectus. The representatives of the underwriters of this offering may, in their sole discretion, permit early release of shares subject to the lock-up agreements. See the section entitled "Underwriting," appearing elsewhere in this prospectus for more information.

Registration Rights

Certain holders of our securities are entitled to various rights with respect to registration of their shares under the Securities Act. Registration of these shares under the Securities Act would result in these shares becoming fully tradable without restriction under the Securities Act immediately upon the effectiveness of the registration. See the section entitled "Description of Capital Stock—Registration rights" appearing elsewhere in this prospectus for more information.

Equity Incentive Plans

We have filed a registration statement on Form S-8 under the Securities Act to register our shares issued or reserved for issuance under our equity incentive plans. Accordingly, shares registered under such registration statement will be available for sale in the open market, unless such shares are subject to vesting restrictions with us or the lock-up restrictions described above.

DESCRIPTION OF CAPITAL STOCK

The information required by this section is hereby incorporated herein by reference to Exhibit 4.3 filed with our Annual Report on Form 10-K for the year ended December 31, 2020.

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 that are pass-through entities for U.S. federal income tax purposes or persons that hold their common stock through partnerships or other pass-through entities. A partner in a partnership or 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 U.S. Internal Revenue Code of 1986, as amended, which we refer to as 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, which we refer to as 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 nor does it address any U.S. state, local or non-U.S. taxes, the alternative minimum tax, the Medicare tax on net investment income, the rules regarding qualified small business stock within the meaning of Section 1202 of the Code or "Section 1244 stock" within the meaning of Section 1244 of the Code, or any other aspect of any U.S. federal tax other than the income tax. 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:

- insurance companies;
- tax-exempt or governmental organizations;
- financial institutions;
- brokers or dealers in securities;
- regulated investment companies;
- pension plans;
- "controlled foreign corporations," "passive foreign investment companies" and corporations that accumulate earnings to avoid U.S. federal income tax;
- "qualified foreign pension funds," or entities wholly owned by a "qualified foreign pension fund";

- persons that elect to apply Section 1400Z-2 of the Code to gains recognized with respect to shares of our common stock;
- persons who hold or receive our common stock pursuant to the exercise of any employee stock option or otherwise as compensation;
- persons deemed to sell our common stock under the constructive sale provisions of the Code;
- persons that hold our common stock as part of a straddle, hedge, conversion transaction, synthetic security or other integrated investment; and
- certain 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 and non-U.S. tax consequences of the purchase, ownership and disposition of our common stock.

Distributions on Our Common Stock

As indicated in the "Dividend Policy" section of this prospectus, we have never declared or paid cash dividends on any of our capital stock and currently intend to retain all available funds and any future earnings to fund the development and growth of our business.

In the event that we do make distributions, subject to the discussions below under the sections titled "Backup Withholding and Information Reporting Requirements—FATCA", distributions paid on our common stock 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 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 Common Stock."

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 as may be 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 may be specified by an applicable income tax treaty between the United States and such holder's country of residence.

A non-U.S. holder 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 successor form) to the applicable 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 such lower rate of U.S. withholding tax as may be specified under an

income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing a U.S. tax return with the IRS.

Gain on Sale or Other Taxable Disposition of Our Common Stock

Subject to the discussions 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 or withholding tax on any gain realized upon such holder's sale or other taxable disposition of shares of our common stock unless:

- 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;
- 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
- 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, as defined by applicable U.S. Treasury Regulations, 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 5-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 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, 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. Non-U.S. holders should consult their own tax advisors about the consequences that could result if we are, or become, a U.S. real property holding corporation.

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 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 our common stock. 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 our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or

foreign, unless the holder certifies its status as a non-U.S. holder and satisfies certain other requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected outside the United States through a non-U.S. office of a broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker.

Non-U.S. holders should consult their 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

Provisions of the Code commonly referred to as the Foreign Account Tax Compliance Act, or FATCA, generally impose 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 our common stock, although under recently proposed U.S. Treasury Regulations (the preamble to which specifies that taxpayers are permitted to rely on such proposed U.S. Treasury Regulations pending finalization), no withholding will apply to such 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 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.

UNDERWRITING

We and the underwriters for the offering named below, have entered into an underwriting agreement with respect to the common stock being offered. Subject to the terms and conditions of the underwriting agreement, each underwriter has severally agreed to purchase from us the number of shares of our common stock set forth opposite its name below. Cowen and Company, LLC, Evercore Group L.L.C. and Piper Sandler & Co. are the representatives of the underwriters.

Underwriter	Number of Shares
Cowen and Company, LLC	
Evercore Group L.L.C.	
Piper Sandler & Co.	
Wedbush Securities Inc.	
Total	

The underwriting agreement provides that the obligations of the underwriters are subject to certain conditions precedent and that the underwriters have agreed, severally and not jointly, to purchase all of the shares sold under the underwriting agreement if any of these shares are purchased, other than those shares covered by the option to purchase additional shares described below. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the non-defaulting underwriters may be increased or the underwriting agreement may be terminated.

We have agreed to indemnify the underwriters against specified liabilities, including liabilities under the Securities Act of 1933, and to contribute to payments the underwriters may be required to make in respect thereof.

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

Discounts and Commissions. The following table shows the public offering price, underwriting discount and commissions and proceeds, before expenses to us. These amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

We estimate that the total expenses of the offering, excluding underwriting discounts and commissions, will be approximately million and are payable by us. We also have agreed to reimburse the underwriters for up to \$ for their FINRA counsel fee. In accordance with FINRA Rule 5110, this reimbursed fee is deemed underwriting compensation for this offering.

		Tota	Total	
	Per Share	Without Over- Allotment	With Over Allotment	
Public offering price				
Underwriting discount				
Proceeds, before expenses, to Praxis Precision Medicines, Inc.				

The underwriters propose to offer the shares of common stock to the public at the public offering price set forth on the cover of this prospectus. The underwriters may offer the shares of common stock to securities dealers at the public offering price less a concession not in excess of \$ per share. If all of the shares are not sold at the public offering price, the underwriters may change the offering price and other selling terms.

Option to Purchase Additional Shares. We have granted to the underwriters an option to purchase up to additional shares of common stock at the public offering price, less the underwriting discount. This option is exercisable for a period of 30 days. To the extent that the underwriters exercise this option, the underwriters will purchase additional shares from us in approximately the same proportion as shown in the table above.

Discretionary Accounts. The underwriters do not intend to confirm sales of the shares to any accounts over which they have discretionary authority.

Nasdaq Listing. The shares are listed on The Nasdaq Global Select Market under the symbol "PRAX".

Stabilization, Short Positions. In connection with this offering, the underwriters may engage in stabilizing transactions, options to purchase additional shares, syndicate covering transactions, penalty bids and purchases to cover positions created by short sales.

- Stabilizing transactions permit bids to purchase shares of common stock so long as the stabilizing bids do not exceed a
 specified maximum, and are engaged in for the purpose of preventing or retarding a decline in the market price of the common
 stock while the offering is in progress.
- Options to purchase additional shares involve sales by the underwriters of shares of common stock in excess of the number of shares the underwriters are obligated to purchase. This creates a syndicate short position which may be either a covered short position or a naked short position. In a covered short position, the number of shares over-allotted by the underwriters is not greater than the number of shares that they may purchase in the option to purchase additional shares. In a naked short position, the number of shares involved is greater than the number of shares additional shares. The underwriters may close out any short position by exercising their option to purchase additional shares and/or purchasing shares in the open market.
- Syndicate covering transactions involve purchases of common stock in the open market after the distribution has been completed in order to cover syndicate short positions. In determining the source of shares to close out the short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared with the price at which they may purchase shares through exercise of the option to purchase additional shares. If the underwriters sell more shares than could be covered by exercise of the option to purchase any additional shares and, therefore, have a naked short position, the position can be closed out only by buying shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that after pricing there could be downward pressure on the price of the shares in the open market that could adversely affect investors who purchase in the offering.
- Penalty bids permit the representatives to reclaim a selling concession from a syndicate member when the common stock originally sold by that syndicate member is purchased in stabilizing or syndicate covering transactions to cover syndicate short positions.

These stabilizing transactions, syndicate covering transactions and penalty bids may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock in the open market may be higher than it would otherwise be in the absence of these transactions. Neither we nor the underwriters make any representation or prediction as to the effect that the transactions described above may have on the price of our common stock. These transactions may be effected on the Nasdaq Stock Market, in the over-the-counter market or otherwise and, if commenced, may be discontinued at any time.

Similar to other purchase transactions, the underwriters' purchases to cover the syndicate short sales may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market. The underwriters may conduct these transactions on the New York Stock Exchange, in the over-the-counter market or otherwise.

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

Electronic Offer, Sale and Distribution of Shares. A prospectus in electronic format may be made available on the websites maintained by one or more of the underwriters or selling group members, if any, participating in this offering and one or more of the underwriters participating in this offering may distribute prospectuses electronically. The representatives may agree to allocate a number of shares to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the underwriters and selling group members that will make internet distributions on the same basis as other allocations. Other than the prospectus in electronic format, the information on these websites is not part of this prospectus or the registration statement of which this prospectus forms a part, has not been approved or endorsed by us or any underwriter in its capacity as underwriter, and should not be relied upon by investors.

Passive Market Making. In connection with this offering, underwriters and selling group members may engage in passive market making transactions in our common stock on the Nasdaq Stock Market in accordance with Rule 103 of Regulation M under the Securities Exchange Act of 1934, as amended, during a period before the commencement of offers or sales of common stock and extending through the completion of the distribution. A passive market maker must display its bid at a price not in excess of the highest independent bid of that security. However, if all independent bids are lowered below the passive market maker's bid, such bid must then be lowered when specified purchase limits are exceeded.

Lock-Up Agreements. Pursuant to certain "lock-up" agreements, we and our executive officers, directors and the holders of certain of our capital stock and securities convertible into or exchangeable for our capital stock, have agreed, subject to certain exceptions, not to offer, sell, assign, transfer, pledge, contract to sell, or otherwise dispose of or announce the intention to otherwise dispose of, or enter into any swap, hedge or similar agreement or arrangement that transfers, in whole or in part, the economic consequence of ownership of, directly or indirectly, or make any demand or request or exercise any right with respect to the registration of, or file with the SEC a registration statement under the Securities Act relating to, any common stock or securities convertible into or exchangeable or exercisable for any common stock without the prior written consent of Cowen and Company, LLC, Evercore Group L.L.C. and Piper Sandler & Co. for a period of days after the date of the pricing of the offering.

This lock-up provision applies to common stock and to securities convertible into or exchangeable or exercisable for common stock. It also applies to common stock owned now or acquired later by the person executing the agreement or for which the person executing the agreement later acquires the power of disposition. The exceptions permit us, among other things and subject to restrictions, to: (a) issue common stock or options pursuant to employee benefit plans, (b) issue common stock upon exercise of outstanding options or warrants or (c) file registration statements on Form S-8.

The exceptions permit parties to the "lock-up" agreements, among other things and subject to restrictions, to: (a) make certain gifts, (b) if the party is a corporation, partnership, limited liability company or other business entity, make transfers to any shareholders, partners, members of or owners of similar equity interests in, the party, or to an affiliate of the party, if such transfer is not for value, (c) if the party is a corporation, partnership, limited liability company or other business entity, make transfers in connection with the sale or transfer of all of the party's capital stock, partnership interests, membership interests or other similar equity interests, as the case may be, or all or substantially all of the party's assets, in any such case not undertaken for the purpose of avoiding the restrictions imposed by the "lock-up" agreement and (d) participate in tenders involving the acquisition of 75% or more of our stock. In addition, the lock-up provision will not restrict broker-dealers from engaging in market making and similar activities conducted in the ordinary course of their business.

Other Relationships. Certain of the underwriters and their affiliates have provided, and may in the future provide, various investment banking, commercial banking and other financial services for us and our affiliates for which they have received, and may in the future receive, customary fees.

Notice to Prospective Investors in Canada. The common stock may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 *Prospectus Exemptions* or subsection 73.3(1) of the *Securities Act* (Ontario), and are permitted clients, as defined in National Instrument 31-103 *Registration Requirements, Exemptions and Ongoing Registrant Obligations*. Any resale of the common stock must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 *Underwriting Conflicts* (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

Notice to Prospective Investors in Switzerland. The securities will not be offered, directly or indirectly, to the public in Switzerland and this prospectus does not constitute a public offering prospectus as that term is understood pursuant to article 652a or 1156 of the Swiss Federal Code of Obligations.

Notice to Prospective Investors in the European Economic Area. In relation to each Member State of the European Economic Area and the United Kingdom (each, a "Member State"), no shares have been offered or will be offered pursuant to the offering to the public in that Member State prior to the publication of a prospectus in relation to the shares which has been approved by the competent authority in that Member State or, where appropriate, approved in another Member State and notified to the competent authority in that Member State, all in accordance with the Prospectus Regulation, except that shares may be offered to the public in that Member State at any time:

- A. to any legal entity which is a qualified investor as defined under Article 2 of the Prospectus Regulation;
- B. to fewer than 150 natural or legal persons (other than qualified investors as defined under Article 2 of the Prospectus Regulation), subject to obtaining the prior consent of the representatives; or

C. in any other circumstances falling within Article 1(4) of the Prospectus Regulation,

provided that no such offer of the shares shall require the Company or any of the representatives to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation and each person who initially acquires any shares or to whom any offer is made will be deemed to have represented, acknowledged and agreed to and with each of the underwriters and the Company that it is a "qualified investor" within the meaning of Article 2(e) of the Prospectus Regulation.

In the case of any shares being offered to a financial intermediary as that term is used in Prospectus Regulation, each such financial intermediary will be deemed to have represented, acknowledged and agreed that the shares acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer of any shares to the public other than their offer or resale in a Member State to qualified investors as so defined or in circumstances in which the prior consent of the underwriters have been obtained to each such proposed offer or resale.

For the purposes of this provision, the expression an "offer to the public" in relation to shares in any Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares, and the expression "Prospectus Regulation" means Regulation (EU) 2017/1129.

References to the Prospectus Regulation includes, in relation to the United Kingdom, the Prospectus Regulation as it forms part of the United Kingdom domestic law by virtue of the European Union (Withdrawal) Act of 2018.

Notice to Prospective Investors in the United Kingdom. No shares have been offered or will be offered pursuant to the offering to the public in the United Kingdom prior to the publication of a prospectus in relation to the shares which has been approved by the Financial Conduct Authority, except that the shares may be offered to the public in the United Kingdom at any time:

- A. to any legal entity which is a qualified investor as defined under Article 2 of the UK Prospectus Regulation;
- B. to fewer than 150 natural or legal persons (other than qualified investors as defined under Article 2 of the UK Prospectus Regulation), subject to obtaining the prior consent of the representatives for any such offer; or
- C. in any other circumstances falling within Section 86 of the FSMA,

provided that no such offer of the shares shall require the Issuer or any Manager to publish a prospectus pursuant to Section 85 of the FSMA or supplement a prospectus pursuant to Article 23 of the UK Prospectus Regulation. For the purposes of this provision, the expression an "offer to the public" in relation to the shares in the United Kingdom means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares and the expression "UK Prospectus Regulation" means Regulation (EU) 2017/1129 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018.

Notice to Prospective Investors in Hong Kong. The shares have not been offered or sold and will not be offered or sold in Hong Kong, by means of any document, other than (a) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong) (the "SFO") of Hong Kong and any rules made thereunder; or (b) in other circumstances which do not

result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong) (the "CO"), or which do not constitute an offer to the public within the meaning of the CO. No advertisement, invitation or document relating to the shares has been or may be issued or has been or may be in the possession of any person for the purposes of issue, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the SFO and any rules made thereunder.

Notice to Prospective Investors in Singapore. Each underwriter has acknowledged that this prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, each underwriter has represented and agreed that it has not offered or sold any shares or caused the shares to be made the subject of an invitation for subscription or purchase and will not offer or sell any shares or cause the shares to be made the subject of an invitation for subscription or purchase, and has not circulated or distributed, nor will it circulate or distribute, this prospectus or any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares, whether directly or indirectly, to any person in Singapore other than:

- A. to an institutional investor (as defined in Section 4A of the Securities and Futures Act (Chapter 289) of Singapore, as modified or amended from time to time (the "SFA")) pursuant to Section 274 of the SFA;
- B. to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA; or
- C. otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

- A. a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or
- B. a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities or securities-based derivatives contracts (each term as defined in Section 2(1) of the SFA) of that corporation or the beneficiaries' rights and interest (however described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares pursuant to an offer made under Section 275 of the SFA except:

- (i) to an institutional investor or to a relevant person, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;
- (ii) where no consideration is or will be given for the transfer;
- (iii) where the transfer is by operation of law;
- (iv) as specified in Section 276(7) of the SFA; or
- (v) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018.

Singapore SFA Product Classification—In connection with Section 309B of the SFA and the CMP Regulations 2018, unless otherwise specified before an offer of shares, we have determined, and hereby notify all relevant persons (as defined in Section 309A(1) of the SFA), that the shares are "prescribed capital markets products" (as defined in the CMP Regulations 2018) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

Notice to Prospective Investors in Israel. In the State of Israel this prospectus shall not be regarded as an offer to the public to purchase shares of common stock under the Israeli Securities Law, 5728 –1968, which requires a prospectus to be published and authorized by the Israel Securities Authority, if it complies with certain provisions of Section 15 of the Israeli Securities Law, 5728 – 1968, including, inter alia, if: (i) the offer is made, distributed or directed to not more than 35 investors, subject to certain conditions (the "Addressed Investors"); or (ii) the offer is made, distributed or directed to certain qualified investors defined in the First Addendum of the Israeli Securities Law, 5728 – 1968, subject to certain conditions (the "Qualified Investors"). The Qualified Investors shall not be taken into account in the count of the Addressed Investors and may be offered to purchase securities in addition to the 35 Addressed Investors. The company has not and will not take any action that would require it to publish a prospectus in accordance with and subject to the Israeli Securities Law, 5728 – 1968. We have not and will not distribute this prospectus or make, distribute or direct an offer to subscribe for our common stock to any person within the State of Israel, other than to Qualified Investors and up to 35 Addressed Investors.

Qualified Investors may have to submit written evidence that they meet the definitions set out in of the First Addendum to the Israeli Securities Law, 5728 – 1968. In particular, we may request, as a condition to be offered common stock, that Qualified Investors will each represent, warrant and certify to us and/or to anyone acting on our behalf: (i) that it is an investor falling within one of the categories listed in the First Addendum to the Israeli Securities Law, 5728 – 1968; (ii) which of the categories listed in the First Addendum to the Israeli Securities Law, 5728 – 1968 regarding Qualified Investors is applicable to it; (iii) that it will abide by all provisions set forth in the Israeli Securities Law, 5728 – 1968 and the regulations promulgated thereunder in connection with the offer to be issued common stock; (iv) that the shares of common stock that it will be issued are, subject to exemptions available under the Israeli Securities Law, 5728 – 1968: (a) for its own account; (b) for investment purposes only; and (c) not issued with a view to resale within the State of Israel, other than in accordance with the provisions of the Israeli Securities Law, 5728 – 1968; and (v) that it is willing to provide further evidence of its Qualified Investor status. Addressed Investors may have to submit written evidence in respect of their identity and may have to sign and submit a declaration containing, inter alia, the Addressed Investor's name, address and passport number or Israeli identification number.

We have not authorized and do not authorize the making of any offer of securities through any financial intermediary on our behalf, other than offers made by the underwriters and their respective affiliates, with a view to the final placement of the securities as contemplated in this document. Accordingly, no purchaser of the shares, other than the underwriters, is authorized to make any further offer of shares on our behalf or on behalf of the underwriters.

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. Certain legal matters related to this offering will be passed upon for the underwriters by Mintz, Levin, Cohn, Ferris, Glovsky & Popeo, P.C., Boston, Massachusetts.

EXPERTS

The consolidated financial statements of Praxis Precision Medicines, Inc. appearing in the Praxis Precision Medicines, Inc's. Annual Report (Form 10-K) for the year ended December 31, 2020 have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1 (File Number 333to the common stock we are offering by this prospectus. This prospectus does not contain all of the information included in the registration statement. For further information pertaining to us and our common stock, you should refer to the registration statement and to its exhibits. Whenever we make reference in this prospectus to any of our contracts, agreements or other documents, the references are not necessarily complete, and you should refer to the exhibits attached to the registration statement for copies of the actual contract, agreement or other document.

We are subject to the informational requirements of the Exchange Act and will file annual, quarterly and current reports, proxy statements and other information with the SEC. You can read our SEC filings, including the registration statement, at the SEC's website at www.sec.gov. We also maintain a website at http://praxismedicines.com. The information contained in or accessible from our website is not incorporated into this prospectus, and you should not consider it part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to "incorporate by reference" information from other documents that we file, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus. We incorporate by reference into this prospectus and the registration statement of which this prospectus is a part the information or documents listed below that we have filed with the SEC (SEC File No. 001-39620):

- our Annual Report on Form 10-K for the year ended December 31, 2020, filed with the SEC on March 17, 2021; and
- the description of our common stock contained in our registration statement on Form 8-A filed with the SEC on October 14, 2020, including any amendments or reports filed for the purposes of updating this description.

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 Praxis Precision Medicines, Inc., One Broadway, 16th Floor, Cambridge, Massachusetts 02142.

You also may access these filings on our website at http://praxismedicines.com. We do not incorporate the information contained on or accessible through 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.

Shares



Common Stock

PROSPECTUS

Book-running Managers

Evercore ISI

Piper Sandler

Lead Manager

Wedbush PacGrow

Cowen

PART II

Information Not Required in Prospectus

Item 13. Other expenses of issuance and distribution.

The following table sets forth the costs and expenses, other than underwriting discounts and commissions, to be paid by us in connection with the sale of the shares of common stock being registered hereby. All amounts shown are estimates except for the Securities and Exchange Commission, or SEC, registration fee, the Financial Industry Regulatory Authority, Inc., or FINRA, filing fee and the Nasdaq Global Market initial listing fee.

	 unt to be Paid
SEC registration fee	\$ *
FINRA filing fee	*
Printing and mailing	*
Legal fees and expenses	*
Accounting fees and expenses	*
Transfer agent and registrar fees and expenses	*
Blue Sky fees and expenses	*
Miscellaneous	*
Total	\$ *

* To be provided by amendment.

Item 14. Indemnification of directors and officers.

Section 145 of the Delaware General Corporation Law (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 amended and restated certificate of incorporation and amended and restated bylaws 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.

In addition, our bylaws will provide that:

- we will indemnify our directors, officers and, at 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, at 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 certain of our executive officers. These agreements provide that we will indemnify each of our directors, certain of 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.

In the underwriting agreement that we enter into in connection with the sale of shares of our common stock in this offering, a form of which will be filed as Exhibit 1.1 to this registration statement, there will be provisions for indemnification of us and our directors and officers by the underwriters against certain liabilities under the Securities Act and the Exchange Act.

Item 15. Recent sales of unregistered securities.

The following list sets forth information regarding all unregistered securities sold by us since January 1, 2018. No underwriters were involved in the sales and the certificates representing the securities sold and issued contain legends restricting transfer of the securities without registration under the Securities Act or an applicable exemption from registration.

(a) Preferred stock issuances

In March 2018, we issued an aggregate of 902,916 shares of our Series B preferred stock at a price per share of \$2.25 pursuant to the conversion of a promissory note. In March 2018, we issued an aggregate of 383,269 shares of our Series B preferred stock at a price per share of \$2.625 pursuant to the conversion of a promissory note.

In June 2019, we issued and sold an aggregate of 2,666,666 shares of our Series B-1 preferred stock at a per share purchase price of \$3.75 for aggregate gross consideration of \$10.0 million.

From November 2019 to May 2020, we issued and sold an aggregate of 14,368,935 shares of our Series C preferred stock at a per share purchase price of \$5.15 for aggregate gross consideration of \$74.0 million. From February 2020 to March 2020, we repurchased 5,825,243 shares of our Series C preferred stock at the original issuance price of \$5.15 per share for an aggregate cash repurchase price of \$30.0 million.

From July 2020 to August 2020, we issued and sold an aggregate of 19,444,453 shares of our Series C-1 preferred stock at a per share purchase price of \$5.67 for aggregate gross consideration of \$110.3 million.

(b) Option issuances

From January 1, 2018 through October 15, 2020, we granted to employees, officers, directors, consultants and other service providers options to purchase an aggregate of 5,866,168 shares of our common stock, with exercise prices ranging from \$2.27 to \$8.91 per share, pursuant to the 2017 Stock Incentive Plan, or the 2017 Plan. Through March 1, 2021, 341,068 shares of common stock have been issued upon the exercise of stock options pursuant to the 2017 Plan.

On October 15, 2020, our 2020 Stock Option and Incentive Plan, or the 2020 Plan, became effective, and, as a result, no further awards were made under our 2017 Plan.

On October 15, 2020, and prior to our Registration Statement on Form S-8 becoming effective on October 16, 2020, we granted to employees options to purchase an aggregate of 37,615 shares of our common stock, with an exercise price of \$19.00 per share, pursuant to the 2020 Plan.

We deemed the offers, sales, and issuances of the securities described above to be exempt from registration under the Securities Act, in reliance on Section 4(a)(2) of the Securities Act, including Regulation D and Rule 506 promulgated thereunder, regarding transactions by an issuer not involving a public offering. All purchasers of securities in transactions exempt from registration pursuant to Regulation D represented to us that they were accredited investors and were acquiring the shares for investment purposes only and not with a view to, or for sale in connection with, any distribution thereof and that they could bear the risks of the investment and could hold the securities for an indefinite period of time. The 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 statement or an available exemption from such registration.

Item 16. Exhibits and financial statement schedules.

(a) Exhibits

The exhibits to the registration statement are listed in the Exhibit Index to this registration statement and are incorporated herein by reference.

(b) Financial Statement Schedules

All schedules have been omitted because they are not required or because the required information is given in the financial statements or notes to those statements.

Item 17. Undertakings.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the 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 undersigned Registrant hereby undertakes:

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

(2) That for the purpose of determining any liability under the Securities Act, 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.

EXHIBIT INDEX

1.1* Form of Underwriting Agreement

- 3.1 Amended and Restated Certificate of Incorporation of Praxis Precision Medicines, Inc. (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K (File No. 001-39620) filed on October 20, 2020)
- 3.2 Amended and Restated Bylaws of Praxis Precision Medicines, Inc. (incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K (File No. 001-39620) filed on October 20, 2020)
- 4.1 Specimen Stock Certificate Evidencing the Shares of Common Stock (incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-1/A (File No. 333-249074) filed on October 9, 2020)
- 4.2 Fourth Amended and Restated Investors' Rights Agreement among Praxis Precision Medicines, Inc. and certain of its stockholders, effective as of July 24, 2020 (incorporated by reference to Exhibit 4.2 to the Registrant's Registration Statement on Form S-1 (File No. 333-249074) filed on September 25, 2020)
- 5.1* Opinion of Goodwin Procter LLP
- 10.1 Form of Director Indemnification Agreement, as amended (incorporated by reference to Exhibit 10.1 to the Registrant's Registration Statement on Form S-1/A (File No. 333-249074) filed on October 9, 2020)
- 10.2 Form of Officer Indemnification Agreement (incorporated by reference to Exhibit 10.2 to the Registrant's Registration Statement on Form S-1 (File No. 333-249074) filed on September 25, 2020)
- 10.3# Praxis Precision Medicines, Inc. 2017 Stock Incentive Plan, as amended, and form of award agreements thereunder (incorporated by reference to Exhibit 10.3 to the Registrant's Annual Report on Form 10-K filed on March 17, 2021)
- 10.4# Praxis Precision Medicines, Inc. 2020 Stock Option and Incentive Plan (incorporated by reference to Exhibit 10.4 to the Registrant's Registration Statement on Form S-1/A (File No. 333-249074) filed on October 9, 2020)
- 10.5# Form of Incentive Stock Option Agreement under the 2020 Stock Option and Incentive Plan (incorporated by reference to Exhibit 10.5 to the Registrant's Registration Statement on Form S-1/A (File No. 333-249074) filed on October 9, 2020)
- 10.6# Form of Non-Qualified Stock Option Agreement for Company Employees under the 2020 Stock Option and Incentive Plan (incorporated by reference to Exhibit 10.6 to the Registrant's Registration Statement on Form S-1/A (File No. 333-249074) filed on October 9, 2020)
- 10.7# Form of Non-Qualified Stock Option Agreement for Non-Employee Directors under the 2020 Stock Option and Incentive Plan (incorporated by reference to Exhibit 10.7 to the Registrant's Registration Statement on Form S-1/A (File No. 333-249074) filed on October 9, 2020)
- 10.8# Form of Restricted Stock Award Agreement under the 2020 Stock Option and Incentive Plan (incorporated by reference to Exhibit 10.8 to the Registrant's Registration Statement on Form S-1/A (File No. 333-249074) filed on October 9, 2020)

- 10.9# Form of Restricted Stock Award Agreement for Company Employees under the 2020 Stock Option and Incentive Plan (incorporated by reference to Exhibit 10.9 to the Registrant's Registration Statement on Form S-1/A (File No. 333-249074) filed on October 9, 2020)
- 10.10# Form of Restricted Stock Award Agreement for Non-Employee Directors under the 2020 Stock Option and Incentive Plan (incorporated by reference to Exhibit 10.10 to the Registrant's Registration Statement on Form S-1/A (File No. 333-249074) filed on October 9, 2020)
- 10.11# Praxis Precision Medicines, Inc. 2020 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.11 to the Registrant's Registration Statement on Form S-1/A (File No. 333-249074) filed on October 9, 2020)
- 10.12# Form of Amended and Restated Employment Agreement (incorporated by reference to Exhibit 10.11 to the Registrant's Quarterly Report on Form 10-Q (File No. 001-39620) filed on November 23, 2020)
- 10.13# Non-Employee Director Compensation Policy (incorporated by reference to Exhibit 10.13 to the Registrant's Registration Statement on Form S-1/A (File No. 333-249074) filed on October 9, 2020)
- 10.14[†] License Agreement, dated December 31, 2017, by and between Purdue Neuroscience Company and Praxis Precision Medicines, Inc. (incorporated by reference to Exhibit 10.14 to the Registrant's Registration Statement on Form S-1 (File No. 333-249074) filed on September 25, 2020)
- 10.15[†] Cooperation and License Agreement, dated September 11, 2019, by and between RogCon Inc. and Praxis Precision Medicines, Inc. (incorporated by reference to Exhibit 10.15 to the Registrant's Registration Statement on Form S-1 (File No. 333-249074) filed on September 25, 2020)
- 10.16[†] Research Collaboration, Option and License Agreement, dated September 11, 2019, by and between Ionis Pharmaceuticals, Inc. and Praxis Precision Medicines, Inc. (incorporated by reference to Exhibit 10.16 to the Registrant's Registration Statement on Form S-1 (File No. 333-249074) filed on September 25, 2020)
- 10.17 Sublease, dated October 4, 2018, by and between Highland Capital Partners, LLC and Praxis Precision Medicines, Inc. (incorporated by reference to Exhibit 10.17 to the Registrant's Registration Statement on Form S-1 (File No. 333-249074) filed on September 25, 2020)
- 10.18 Consent to Sublease, First Amendment of Lease and Amendment, dated November 2, 2018, by and among Highland Capital Partners, LLC, MIT One Broadway, LLC and Praxis Precision Medicines, Inc. (incorporated by reference to Exhibit 10.18 to the Registrant's Registration Statement on Form S-1 (File No. 333-249074) filed on September 25, 2020)
- 21.1 Subsidiaries of the Registrant (incorporated by reference to Exhibit 21.1 to the Registrant's Registration Statement on Form S-1 (File No. 333-249074) filed on September 25, 2020)
- 23.1* Consent of Ernst & Young 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)

Portions of this exhibit (indicated by asterisks) have been omitted in accordance with the rules of the Securities and Exchange Commission.

^{*} To be filed by amendment.

[#] Indicates a management contract or any compensatory plan, contract or arrangement.

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 Cambridge, Massachusetts, on the day of 2021.

PRAXIS PRECISION MEDICINES, INC.

By:

Marcio Souza Chief Executive Officer

SIGNATURES AND POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Marcio Souza and Alex Nemiroff, and each of them, either of whom may act without the joinder of the other, as his or her true and lawful attorneys-in-fact and agents with full power of substitution and re-substitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, and to sign any registration statement for the same offering covered by the registration statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act, and all post-effective amendments thereto, and to file the same, with all exhibits thereto and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, 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 he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or his or their substitute or substitutes, may lawfully do or cause to be done or by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement on Form S-1 has been signed by the following person in the capacities and on the date indicated.

Name	Title	Date
Marcio Souza	Chief Executive Officer and Director (Principal Executive Officer)	, 2021
Lauren Mastrocola	Principal Accounting Officer and Interim Principal Financial Officer	, 2021
Dean Mitchell	- Chairman of the Board	, 2021
Nicholas Galakatos, Ph.D.	– Director	, 2021

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Confidential Treatment Requested by Praxis Precision Medicines, Inc. Pursuant to 17 C.F.R. Section 200.83

Name	<u>Title</u>	Date
Gregory Norden	Director	, 2021
Kiran Reddy, M.D.	Director	, 2021
Stefan Vitorovic	Director	, 2021
William Young	Director	, 2021