As filed with the Securities and Exchange Commission on January 10, 2025.

Registration No. 333-

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

FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

INHIBIKASE THERAPEUTICS, INC.
(Exact name of registrant as specified in its charter)

Delaware	26-3407249
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

3350 Riverwood Parkway SE, Suite 1900
Atlanta, GA 30339
(678) 392-3419
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Milton H. Werner, Ph.D.
President and Chief Executive Officer
Inhibikase Therapeutics, Inc.
3350 Riverwood Parkway SE, Suite 1900
Atlanta, GA 30339
(678) 392-3419
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:
Danielle Lauzon
Marishka DeToy
100 Northern Avenue
Boston, MA 02210 (617) 570-1000

Approximate date of commencement of proposed sale to the public: **From time to time after the effective date of this Registration Statement.**

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box: ☐

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, other than securities offered only in connection with dividend or interest reinvestment plans, 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 registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. ☐

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. ☐

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

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

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

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

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The information in this prospectus is not complete and may be changed. The selling stockholders may not sell these securities or accept an offer to buy these securities until the registration statement filed with the Securities and Exchange Commission is effective. This 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.

SUBJECT TO COMPLETION, DATED JANUARY 10, 2025

PRELIMINARY PROSPECTUS

Inhibikase Therapeutics, Inc.

Up to 40,139,474 Shares Underlying Series A-1 Warrants
Up to 73,813,529 Shares Underlying Series B-1 Warrants

This prospectus relates to the sale or other disposition from time to time of (i) 40,139,474 shares of our common stock issuable upon the exercise of Series A-1 Warrants ("Series A-1 Warrants") or, in lieu thereof, pre-funded warrants to purchase the same number of shares of our common stock and (ii) 73,813,529 shares of our common stock issuable upon the exercise of Series B-1 Warrants ("Series B-1 Warrants" and, together with the Series A-1 Warrants, the "Warrants"), or, in lieu thereof, pre-funded warrants to purchase the same number of shares of our common stock all held by the selling stockholders named in this prospectus, including their transferees, pledgees, donees or successors. We are not selling any shares of common stock or Warrants to purchase common stock or prefunded warrants in lieu thereof under this prospectus and will not receive any of the proceeds from the sale of such securities by the selling stockholders.

The Warrants were issued to investors in a private placement that closed on October 21, 2024. See "*Prospectus Summary – Recent Events*" for more details.

The selling stockholders may sell or otherwise dispose of the securities covered by this prospectus in a number of different ways and at varying prices. We provide more information about how the selling stockholders may sell or otherwise dispose of their securities in the section entitled "*Plan of Distribution*" beginning on page 21. The selling stockholders will pay all brokerage fees and commissions and similar expenses. We will pay all expenses (except brokerage fees and commissions and similar expenses) relating to the registration of the securities with the U.S. Securities and Exchange Commission (the "SEC"). No underwriter or other person has been engaged to facilitate the sale of the securities in this offering.

Our common stock is listed on The Nasdaq Capital Market under the symbol "IKT." On January 8, 2025, the last reported sale price of our common stock was $3.10 per share. We recommend that you obtain current market quotations for our common stock prior to making an investment decision.

We are an "emerging growth company" as defined in Section 2(a) of the Securities Act of 1933, as amended (the "Securities Act"), and, as such, have elected to comply with certain reduced disclosure and regulatory requirements.

Investing in our securities involves a high degree of risk. See "*Risk Factors*" beginning on page 12 of this prospectus and under similar headings in the documents incorporated by reference herein for a discussion of information that should be considered in connection with an investment in our securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense. The securities are not being offered in any jurisdiction where the offer is not permitted.

The date of this prospectus is , 2025

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ABOUT THIS PROSPECTUS

You should rely only on the information that we have provided or incorporated by reference in this prospectus and any prospectus supplement that we may authorize to be provided to you. We have not, and the selling stockholders have not, authorized anyone to provide you with different information. No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus or any prospectus supplement that we may authorize to be provided to you. If anyone provides you with different or inconsistent information, you should not rely on it. You should assume that the information in this prospectus and any prospectus supplement or incorporated herein or therein is accurate only as of the date on the cover of such document, regardless of the time of delivery of this prospectus or any prospectus supplement or any sale of a security. Our business, financial condition, results of operations and prospects may have changed since those dates. To the extent there is a conflict between the information contained in this prospectus and any prospectus supplement having a later date, the statement in the prospectus supplement having the later date modifies or supersedes the earlier statement.

We urge you to carefully read this prospectus and any prospectus supplement, together with the information incorporated herein or therein by reference as described under the heading "*Where You Can Find Additional Information*" and "*Incorporation of Certain Information by Reference.*"

This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. Copies of some of the documents referred to herein have been filed or are incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the heading "*Where You Can Find Additional Information."*

When used herein, unless the context requires otherwise, references to "Inhibikase," "IKT," the "Company," "we," "our" and "us" refer to Inhibikase Therapeutics, Inc., a Delaware corporation.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the documents incorporated by reference herein and therein, and any free writing prospectus that we have authorized for use in connection with this offering, contain forward-looking statements concerning our business, operations and financial performance and condition, as well as our plans, objectives and expectations for our business operations and financial performance and condition. All statements included or incorporated by reference in this prospectus, other than statements or characterizations of historical fact, are forward-looking statements. Forward-looking statements can generally be identified by the fact that they do not relate strictly to historical or current facts and include, but are not limited to, statements using terminology such as "can", "may", "could", "should", "assume", "forecasts", "believe", "designed to", "will", "expect", "plan", "anticipate", "estimate", "potential", "position", "predicts", "strategy", "guidance", "intend", "seek", "budget", "project" or "continue", or the negative thereof or other comparable terminology regarding beliefs, plans, expectations or intentions regarding the future. You should read statements that contain these words carefully because they:

- discuss our future expectations;
- contain projections of our clinical trials, future results of operations or of our financial condition; and
- state other "forward-looking" information.

We believe it is important to communicate our expectations. However, forward-looking statements are based on our current expectations, assumptions, estimates, approximations and projections about our business and our industry and management's beliefs, all of which are subject to change. Forward-looking statements are not guarantees of future performance and are subject to known and unknown risks, uncertainties and other factors. Accordingly, our actual results and the timing of certain events may differ materially and adversely from those expressed or implied in such forward-looking statements due to a variety of factors and risks, including, but not limited to, those set forth under "Risk Factors" in this prospectus, including the documents incorporated herein by reference, and the following factors and risks:

- We are a clinical-stage drug development company with limited resources, a limited operating history and have no products approved for commercial sale, which may make it difficult to evaluate our current business and predict our future success and viability;
- If we are unable to successfully raise additional capital, particularly with respect to our neurodegenerative programs, our future clinical trials and product development could be limited and our long-term viability may be threatened;
- While the U.S. Food and Drug Administration ("FDA") lifted the clinical holds with respect to the risvodetinib(IkT-148009) programs relating to Parkinson's disease ("PD") and Multiple System Atrophy ("MSA"), we may be subject to further clinical holds by the FDA in the future;
- IkT-001Pro may not improve the side effect profile compared to imatinib mesylate or may not be effective as an add-on treatment for Pulmonary Arterial Hypertension ("PAH");
- Drug development is a highly uncertain undertaking and involves a substantial degree of risk. We have never generated any revenue from product sales, we may never generate any revenue from product sales, and we may fail to generate further revenue from grants or contracts or to be profitable;
- The wars between Russia and Ukraine and between Israel and Hamas could materially adversely affect our business, results of operations, and financial condition;
- Our results of operations have been adversely affected and, in the future, could be materially adversely impacted by the COVID-19 virus;
- Adverse developments affecting financial institutions, companies in the financial services industry or the financial services industry generally, including those we do business with, could adversely affect our operations and liquidity;

- We have incurred significant net losses since our inception and anticipate that we will continue to incur net losses for the foreseeable future;
- Due to the significant resources required for the development of our programs, and depending on our ability to access capital, we must prioritize development of certain product candidates;
- We currently contract with various research institutions to perform the research and development activities needed to develop our products, and if we ever choose to or need to find alternative research institutions, we may not be able to do so at all or, if we are able to do so, it may be costly and may cause significant delays in the development and commercialization of our products;
- Positive results from early preclinical or clinical studies of our product candidates are not necessarily predictive of the results of later preclinical studies and any current and future clinical trials of our product candidates;
- We have no history of completing clinical trials for novel drug substances or commercializing pharmaceutical products, which may make it difficult to evaluate the prospects for our future viability;
- Our clinical trials may reveal significant adverse events, toxicities or other side effects not seen in our preclinical studies and may result in a safety profile that could inhibit regulatory approval or market acceptance of any of our product candidates;
- We have concentrated much of our research and development efforts to date on the treatment of neurodegenerative diseases, a field that has seen limited success in drug development, although we now intend to expend considerable resources on PAH;
- We may encounter substantial delays in our current and planned clinical trials, or may not be able to conduct or complete our clinical trials on the timelines we expect, if at all;
- Our current and planned clinical trials may fail to demonstrate substantial evidence of the safety and efficacy of our product candidates, which would prevent, delay or limit the scope of regulatory approval and commercialization;
- Clinical development is a lengthy and expensive process with an uncertain outcome, and failure can occur at any stage of clinical development;
- The manufacture of our product candidates is complex and difficulties may be encountered in production;
- If, in the future, we are unable to establish sales and marketing capabilities or enter into agreements with third parties to sell and market any product candidates we may develop, we may not be successful in commercializing those product candidates if and when they are approved;
- Even if any product candidates we develop receive marketing approval, they may fail to achieve the degree of market acceptance by physicians, patients, healthcare payors, and others in the medical community necessary for commercial success;
- Even if we are able to commercialize any product candidates, such products may become subject to unfavorable pricing regulations, third-party reimbursement practices, or healthcare reform initiatives, which would harm our business;
- The regulatory approval processes of the FDA, European Medicines Agency and comparable foreign regulatory authorities are lengthy, time consuming, and inherently unpredictable. Regulatory authorities have substantial discretion in the approval process and may refuse to accept an application, may disagree with our regulatory strategy or proposed pathway for approval or may decide that our data are insufficient for approval and require additional preclinical, clinical or other studies;
- We expect to depend in whole or in part on collaborations with third parties for the research, development and commercialization of any product candidates we may develop;

- We contract with third parties for the manufacture of materials for our research programs, preclinical studies and current clinical trials and expect to continue to do so for any future clinical trials and for commercialization of any product candidates that we may develop;
- We depend on a small number of third-party suppliers for key raw materials used in the manufacturing processes for our product candidates, and the loss of these third-party suppliers or their inability to supply us with adequate raw materials could harm our business; and
- If we are unable to obtain and maintain patent protection for any product candidates we develop, our competitors could develop and commercialize products or technology similar or identical to ours, and our ability to successfully commercialize any product candidates we may develop, and our technology may be adversely affected. Any or all of our forward-looking statements may turn out to be wrong. They may be affected by inaccurate assumptions that we might make or by known or unknown risks and uncertainties. Actual outcomes and results may differ materially from what is expressed or implied in our forward-looking statements.

All forward-looking statements and risk factors included in this prospectus are made as of the date hereof, and all forward-looking statements and risk factors included in documents incorporated herein by reference are made as of their original date, in each case based on information available to us as of the date hereof, or in the case of documents incorporated by reference, the original date of any such document, and we assume no obligations to update any forward-looking statement or risk factor, unless we are required to do so by law. If we do update one or more forward-looking statements, no inference should be drawn that we will make updates with respect to other forward-looking statements or that we will make any further updates to those forward-looking statements at any future time.

Forward-looking statements may include our plans and objectives for future operations, including plans and objectives relating to our product candidates and our future economic performance, projections, business strategy and timing and likelihood of success. Assumptions relating to the forward-looking statements included in this prospectus involve judgments with respect to, among other things, future economic, competitive and market conditions, future business decisions, and the time and money required to successfully complete development and commercialization of our product candidates, all of which are difficult or impossible to predict accurately and many of which are beyond our control.

Any of the assumptions underlying the forward-looking statements contained in this prospectus could prove inaccurate and, therefore, we cannot assure you that any of the results or events contemplated in any of such forward-looking statements will be realized. Based on the significant uncertainties inherent in these forward-looking statements, the inclusion of any such statement should not be regarded as a representation or as a guarantee by us that our objectives or plans will be achieved, and we caution you against relying on any of the forward-looking statements contained herein.

PROSPECTUS SUMMARY

This summary highlights certain information about us, this offering and information appearing elsewhere in this prospectus and in the documents we incorporate by reference in this prospectus. This summary is not complete and does not contain all of the information that you should consider before investing in our securities. After you carefully read this summary, to fully understand our Company and this offering and its consequences to you, you should read this entire prospectus and any related free writing prospectus authorized by us, including the information referred to under the heading "Risk Factors" in this prospectus beginning on page 12, and any related free writing prospectus, as well as the other documents that we incorporate by reference into this prospectus, including our financial statements and the notes to those financial statements, which are incorporated herein by reference from our Annual Report on Form 10-K for the year ended December 31, 2023, filed on March 27, 2024, and our Quarterly Reports on Form 10-Q for (i) the period ended March 31, 2024, filed on May 15, 2024, (ii) the period ended June 30, 2024, filed on August 14, 2024, and (iii) the period ended September 30, 2024, filed on November 14, 2024. Please read "Where You Can Find More Information" on page 23 of this prospectus.

In this prospectus, unless context requires otherwise, references to "we," "us," "our," or "the Company" refer to Inhibikase Therapeutics, Inc., a Delaware corporation and its consolidated subsidiaries. We own or have rights to trademarks and trade names that we use in connection with the operation of our business. In addition, our name, logos and website name and address are our trademarks. Solely for convenience, in some cases, the trademarks and trade names referred to in this prospectus are listed without the applicable ® and ™ symbols, but we will assert, to the fullest extent under applicable law, our rights to these trademarks and trade names. Other trademarks and trade names appearing in this prospectus are the property of their respective owners.

Company Overview

We are a clinical-stage pharmaceutical company developing protein kinase inhibitor therapeutics to modify the course of cardiopulmonary and neurodegenerative diseases and other diseases that arise from aberrant signaling through the Abelson Tyrosine Kinases. The Company's multi-therapeutic pipeline has developed IkT-001Pro, a prodrug of the anticancer agent imatinib mesylate, for PAH. In 2023, the Company completed a bioequivalence clinical trial in healthy volunteers to determine the dose of IkT-001Pro that is equivalent to either 400 mg or 600 mg imatinib mesylate and the results are being utilized to set the doses in a Phase 2b trial to determine if IkT-001Pro could be a disease-modifying treatment for PAH. The Company has also developed risvodetinib (also known as IkT-148009), a selective inhibitor of the non-receptor Abelson Tyrosine Kinases that targets the treatment of Parkinson's disease inside and outside the brain. In 2021, the Company commenced clinical development of risvodetinib. In 2023, the Company initiated the Phase 2 201 trial for risvodetinib (IkT-148009) as a treatment for Parkinson's disease and completed that trial on October 6, 2024.

IkT-001 Pro and PAH. IkT-001Pro emerged from the Company's medicinal chemistry program that aimed to improveon-dosing side effects for drugs that inhibit the Abelson Tyrosine Kinase family. IkT-001Pro, a prodrug of the anticancer agent imatinib mesylate, was designed to mask areas of the molecule that might play a role in the on-dosing GI and other side effects commonly observed with oral imatinib mesylate. A three-part dose finding/dose equivalence study in 66 healthy volunteers (known as 'the 501 trial') was completed with IkT-001Pro in 2023. The study was designed to evaluate the 96-hour single-dose pharmacokinetics of imatinib delivered as IkT-001Pro and determine the dose of IkT-001Pro that can deliver the equivalent of either 400 mg or 600 mg imatinib mesylate. Bioequivalence to 400 mg imatinib mesylate was established to our satisfaction for a 600 mg dose of IkT-001Pro. We further evaluated 600 mg imatinib mesylate and believe that a dose between 800 mg and 900 mg of IkT-001Pro is the preferred dose of IkT-001Pro to deliver a dose of imatinib equivalent to 600 mg imatinib mesylate. On January 19, 2024, members of the Company along with its medical consultants met with the FDA Hematological Malignancy Review Team (the "Review Team") in a Pre-New Drug Application, or pre-NDA, meeting to discuss our bioequivalence studies of IkT-001Pro and its path to approval. All questions were addressed and summarized in official meeting minutes issued by the FDA on February 12, 2024. During the

meeting, we inquired whether additional clinical studies would be needed to seek approval and discussed manufacturing and quality control requirements for approval. The Review Team acknowledged that the 505(b)(2) pathway appeared to be the appropriate pathway for approval of IkT-001Pro and indicated that, pending formal review of our clinical data, clinical studies completed to date indicate that 600 mg and 800 mg IkT-001Pro provide similar exposures to 400 mg and 600 mg imatinib mesylate, respectively. The Review Team also discussed the possible difference between IkT- 001Pro and imatinib mesylate absorption in the gut and recommended that we evaluate whether IkT-001Pro and imatinib mesylate behave differently with respect to certain gut transporters that regulate absorption. This evaluation was completed and determined that IkT-001Pro and imatinib mesylate have similar behavior toward the transporters P-glycoprotein (PGP) and the Breast Cancer Resistance Protein BCRP. Finally, a number of recommendations were discussed to prevent the potential mix-up between IkT-001Pro and imatinib mesylate either at the pharmacy or by patients for two drugs delivering the same active ingredient. The Company discussed alternate dosage forms for IkT-001Pro relative to imatinib mesylate as the primary mitigation strategy and will provide a justification of the dosage forms chosen and why they are unlikely to cause medication errors if/when the Company submits an NDA for approval of IkT-001Pro in these cancer indications.

In 2013, the outcome of a Phase 3 trial evaluating imatinib mesylate as a treatment for PAH was reported, demonstrating that imatinib can modify the course of disease in PAH. Co-administration of medications with harmful drug-drug interactions precluded the approval of imatinib asadd-on therapy in PAH despite the success of the Phase 3 trial. PAH is a rare disease of the pulmonary microvasculature, with about 30,000 cases in the U.S. that principally afflicts women between the ages of 30 and 60. The global PAH market size was valued at $7.66 billion in 2023 and is estimated to grow at a compound annual growth rate (CAGR) of 5.4% between 2024 to 2030. As the Company considered revisiting the use of imatinib in PAH, the Company recognized that changes in standard-of-care for these patients may have alleviated much of the safety risk previously observed for imatinib in PAH patients. This analysis prompted the Company to file a pre-IND (“PIND”) meeting request to discuss the application of IkT-001Pro as a potential disease-modifying treatment for PAH. To evaluate this further, members of the Company met with the FDA Division of Cardiology and Nephrology in a PIND meeting to discuss the Company’s plan to utilize IkT-001Pro at 300 mg or 500 mg in a Phase 2b efficacy, safety and tolerability study in PAH. At the meeting, the FDA confirmed that IkT-001Pro would be viewed as a New Molecular Entity (NME) and that the appropriate path for approval remained to be the 505(b)(2) statute. This opens up the possibility of IkT-001Pro being granted NME status and patent exclusivity on approval. The FDA requested at the PIND meeting that we conduct a comparative cell-culture based study of the hERG ion channel, a standard cardiovascular safety test performed for any NME for which a new IND is to be opened. Neither IkT-001Pro nor imatinib mesylate were found to be inhibitors of hERG. Following completion of this study, the IND was filed with the FDA on August 9, 2024 and cleared to initiate a Phase 2b trial on September 9, 2024. On October 21, 2024, the Company closed a private placement with an initial investment of approximately $110 million, before deducting placement fees and offering expenses, to support this program. If the warrants are exercised for cash, the aggregate financing may be up to $275 million. The Company intends to use the net proceeds from the private placement to finance the initiation of a Phase 2b trial in PAH and for general corporate purposes. The Company has also applied for Orphan Drug Designation for delivery of imatinib by IkT-001Pro for PAH.

Risvodetinib and neurodegenerative diseases. Risvodetinib emerged from the Company’s RAMPTM medical chemistry program and was shown to be a selective inhibitor of the non-receptor Abelson Tyrosine Kinases. In a series ofpre-clinical studies, including therapeutic dosing animal models of inherited and sporadic Parkinson’s disease, risvodetinib was shown to be an effective, disease-modifying therapeutic. These studies established that risvodetinib is capable of protecting neurons from degradation, restoring lost motor and non-motor function, suppressing neuroinflammation and clearing the pathology arising from alpha-synuclein aggregate deposition in animal models of human disease. These studies prompted clinical development of risvodetinib in patients in untreated Parkinson’s disease. The Phase 2 ‘201 Trial’ was a twelve-week study of three doses of risvodetinib in participants who have untreated Parkinson’s disease and was placebo controlled with 1:1:1:1 randomization. The primary endpoints of this trial were safety and tolerability and a secondary endpoint included a hierarchy of 15

endpoints whose purpose was to evaluate treatment benefit in the brain and GI tract. The 201 Trial was completed on October 6, 2024 and trial outcomes are anticipated to be made public in the first quarter of 2025.

In March 2023, we opened our IND to evaluate risvodetinib(IkT-148009) as a treatment for MSA. Our evaluation of risvodetinib(IkT-148009) in MSA was benefited by a grant received from the National Institute of Neurological Diseases and Stroke, an Institute of the National Institutes of Health, for $0.39 million to fund animal model studies of risvodetinib (IkT-148009) as a therapy for MSA. Two different animal studies were undertaken to evaluate whether risvodetinib (IkT-148009) could have an impact on disease in the animal. One model evaluated the ability of risvodetinib(IkT-148009) to modify disease early in its progression, while the second model is evaluating whether risvodetinib (IkT-148009) can correct functional loss much later in the disease course. The early progression model study has now been shown to preserve nearly normal functional activity following 20 weeks of once daily dosing relative to untreated controls. Preservation of function in this model occurred with substantial reduction of the underlying alpha-synuclein protein pathology. The second model evaluating risvodetinib (IkT-148009) late in the disease course is ongoing. In addition, risvodetinib (IkT-148009) was recently given Orphan Drug Designation by the FDA for the treatment of MSA. We are working with the National Institute of Neurological Diseases and Stroke to possibly initiate a Phase 2/3 program to evaluate risvodetinib (IkT-148009) as a treatment for MSA through a clinical trial network supported by the Institute. The proposed Phase 2/3 study will have a primary efficacy endpoint following once daily dosing at one of two dose levels for twelve months. We plan to submit complementary regulatory documents for risvodetinib (IkT-148009) to European Union authorities in 2024 or 2025.

We have also improved drug delivery of risvodetinib (IkT-148009) through development of a tablet formulation, which we measured to nearly double the concentration of risvodetinib (IkT-148009) delivered relative to the same dose previously administered as a gelatin capsule. This provides the opportunity to lower the effective oral dose, which could lead to further safety and tolerability improvements for risvodetinib (IkT-148009). The Company plans to introduce the tablet formulation into the 12-month extension study, once implemented, as well as in all future clinical trials.

Finally, we are evaluating a number of research phase molecules (IkT-148x and BIP 4-7) for a variety of neurodegenerative disease indications across our pre-clinical development pipeline. A similar effort has begun to identify novel, second generation candidate molecules for PAH.

To increase the probability of success, we are making parallel investments in several product candidates andback-up candidates, and plan to advance only those candidates to the later stages of clinical development that show strong preclinical and early clinical data. By developing a portfolio of product candidates across therapeutic indications, we can continuously apply learnings and tools across programs and leverage economies of scale in our research and development organization. Our target indications include orphan indications, such as PAH and Multiple System Atrophy, and diseases with large patient populations, such as PD.

We currently have commercialization rights to all of our development programs and patent protection in the United States until 2033 forIkT-001Pro and 2036 for risvodetinib (IkT-148009). Additional patent filings could extend this period of exclusivity.

Recent Developments

October 2024 Offering

On October 21, 2024, the Company announced the closing of a private placement of approximately $110 million from the issuance and sale of shares of the Company's common stock and accompanying warrants to certain institutional and other accredited investors (the "Purchasers") with potential aggregate financing of up to approximately $275 million upon the full cash exercise of the warrants issued in the private placement, before deducting placement agent fees and offering expenses (the "October 2024 Offering"). The October 2024 Offering

consisted of (i) 58,310,000 shares of our common stock sold at $1.37 per share, or, in lieu thereof, pre-funded warrants to purchase up to 21,985,000 shares of our common stock with an exercise price of $0.001 ("Pre-Funded Warrants"), (ii) Series A-1 Warrants to purchase an aggregate of 40,139,474 shares of our common stock with an exercise price of $1.37, or, in lieu thereof, pre-funded warrants to purchase the same number of shares of our common stock, and (iii) Series B-1 Warrants to purchase an aggregate of 73,813,529 shares of our common stock with an exercise price of $1.49, or, in lieu thereof, pre-funded warrants to purchase the same number of shares of our common stock.

The Pre-Funded Warrants and pre-funded warrants underlying the Series A-1 Warrants and Series B-1 Warrants are exercisable at any time after their original issuance and will not expire. The Series A-1 Warrants and the Series B-1 Warrants will become exercisable at the earlier of (a) the 75th calendar day following the initial filing of the related registration statement covering the resale of the shares of our common stock issuable upon the exercise of the Series A-1 Warrants and Series B-1 Warrants, if the SEC notifies the Company that it will review such registration statement, and (b) the 5th business day after the date the Company is notified by the SEC that such registration statement will not be subject to further review. Each Series A-1 Warrant will be exercisable for one share of our common stock and will expire at 5:00 p.m. (New York City time) on the 30th day following the later of (a) the Company's public announcement of the Phase 2b 12 week safety readout for IkT-001Pro for PAH and (b) the Company both obtaining stockholder approval for and filing an amendment to its charter to increase the number of authorized shares of common stock to a number of shares of our common stock sufficient to allow for the full exercise of the warrants (the "Charter Amendment"). Each Series B-1 Warrant will be exercisable for one share of our common stock, will become exercisable by an investor once all of such investor's Series A-1 Warrants have been exercised and will expire at 5:00 p.m. (New York City time) on the 30th day following the later of (a) the Company's public announcement of its Phase 2b efficacy readout for IkT-001Pro with respect to PAH and (b) the Company both obtaining stockholder approval for and filing the Charter Amendment. The Series A-1 Warrants have an exercise price of $1.37 per share and the Series B-1 Warrants have an exercise price of $1.49 per share.

The Company intends to use the net proceeds from the private placement to finance the initiation of a Phase 2b trial in PAH and for general corporate purposes.

Appointment and Resignation of Directors

As previously disclosed, on September 19, 2024, the Company's board of directors (the "Board") increased the Company's authorized number of directors from five to seven, creating two vacancies. In connection with the closing of the October 2024 Offering, on October 21, 2024, the Board appointed Roberto Bellini to serve as a Class I director of the Board, Amit Munshi and David Canner to serve as Class II directors of the Board, and Arvind Kush to serve as a Class III director of the Board, effective immediately prior to the close of the Offering (Mr. Bellini, Mr. Munshi, Mr. Canner and Mr. Kush, together, the "Closing Directors"). Mr. Munshi and Mr. Canner will each serve as a director for a term expiring at the Company's annual meeting of stockholders in 2025 or until their respective successor is elected and qualified, Mr. Kush will serve as a director for a term expiring at the Company's annual meeting of stockholders in 2026 or until his successor is elected and qualified and Mr. Bellini will serve as a director for a term expiring at the Company's annual meeting of stockholders in 2027 or until his successor is elected and qualified, each Closing Director being subject to his earlier resignation or removal. The Closing Directors were all nominated by the Board's Corporate Governance and Nominating Committee and are all expected to be independent as determined pursuant to Listing Rule 5605(a)(2) of the Nasdaq Stock Market LLC. The Board has elected Mr. Bellini as independent Chairperson of the Board.

In connection with the closing of the October 2024 Offering, on October 21, 2024, the resignations of Dr. Paul Grint and Ms. Gisele Dion previously tendered to the Board became effective as of the effectiveness of the appointment of their respective successors. Neither Dr. Grint's nor Ms. Dion's decision to resign was the result of a disagreement with the Company on any matter relating to the Company's operations, policies or practices. All option grants previously made by the Company to either of Dr. Grint or Ms. Dion vested in full upon the

effectiveness of their resignations and each of them were paid in full (including any committee and chair assignments as of their date of resignation) until December 31, 2024.

Company Information

We were incorporated in Delaware in 2010 as a successor to a Georgia limited liability company and commenced operations in September 2008. Our principal executive offices are located at 3350 Riverwood Parkway SE, Suite 1900, Atlanta, Georgia, 30339. We also maintain offices at 1 Cranberry Hill, Ste 200, Lexington, Massachusetts, 02421. Our telephone number is (678) 392-3419. Our website address is www.inhibikase.com. Information contained on our website is not incorporated by reference into this prospectus, and it should not be considered to be part of this prospectus.

Implications of Being an Emerging Growth Company

As a company with less than $1.235 billion in revenues during our last completed fiscal year, we qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. An emerging growth company may take advantage of specified reduced reporting requirements that are otherwise applicable generally to public companies. These reduced reporting requirements include:

- an exemption from compliance with the auditor attestation requirement on the effectiveness of our internal control over financial reporting;
- an exemption from compliance with any requirement that the Public Company Accounting Oversight Board may adopt regarding a supplement to the auditor's report providing additional information about the audit and the financial statements;
- reduced disclosure about our executive compensation arrangements; and
- an exemption from the requirements to obtain anon-binding advisory vote on executive compensation or a stockholder approval of any golden parachute arrangements.

We have elected to take advantage of some, but not all, of the available benefits under the JOBS Act. Accordingly, the information contained herein may be different from the information you receive from other public companies in which you hold stock. Further, pursuant to Section 107 of the JOBS Act, as an emerging growth company, we have elected to use the extended transition period for complying with new or revised accounting standards until those standards would otherwise apply to private companies. As a result, our consolidated financial statements may not be comparable to the financial statements of issuers who are required to comply with the effective dates for new or revised accounting standards that are applicable to public companies, which may make our common stock less attractive to investors.

We will remain an emerging growth company until the earliest to occur of: (i) the end of the first fiscal year in which our annual gross revenues are $1.235 billion or more; (ii) the end of the first fiscal year in which we are deemed to be a "large accelerated filer," as defined in the Securities Exchange Act of 1934, as amended (the "Exchange Act"); (iii) the date on which we have, during the previous three-year period, issued more than $1.0 billion in non-convertible debt securities; and (iv) December 31, 2025.

THE OFFERING

Up to 40,139,474 Shares Underlying Series A-1 Warrants
Up to 73,813,529 Shares Underlying Series B-1 Warrants

This prospectus relates to the resale or other disposition from time to time of (i) up to 40,139,474 shares of our common stock issuable upon the exercise of Series A-1 Warrants, or, in lieu thereof, pre-funded warrants to purchase the same number of shares of our common stock and (ii) up to 73,813,529 shares of our common stock issuable upon the exercise of Series B-1 Warrants, or, in lieu thereof, pre-funded warrants to purchase the same number of shares of our common stock, all held by the selling stockholders named in this prospectus, including their transferees, pledgees, donees or successors. All of the Warrants were issued on October 21, 2024, to certain investors in our October 2024 Offering, all of whom are identified as selling stockholders hereunder.

Common stock offered by the selling stockholders	113,953,003
Common stock outstanding before the offering(1)	69,362,439
Common stock to be outstanding after the offering(2)	183,315,442
Common stock Nasdaq Capital Market symbol	IKT

(1) The total number of shares of our common stock is based on the number of shares outstanding as of December 31, 2024 and excludes:

- 16,825,296 shares reserved for issuance upon exercise of outstanding options issued under our stock option plans;
- 15,105,412 shares available for issuance pursuant to our 2020 Equity Incentive Plan;
- 6,319,540 shares reserved for issuance upon exercise of outstanding warrants to purchase shares of our common stock;
- 40,139,474 shares reserved for issuance upon exercise of the Series A-1 Warrants and 73,813,529 shares reserved for issuance upon exercise of the Series B-1 Warrants; and
- 19,815,131 shares of our common stock underlying the Pre-Funded Warrants.

(2) The total number of shares of our common stock is based on 69,362,439 shares outstanding as of December 31, 2024 plus 40,139,474 shares reserved for issuance upon exercise of the Series A-1 Warrants and 73,813,529 shares reserved for issuance upon exercise of the Series B-1 Warrants, and excludes:

- 19,815,131 shares of our common stock underlying the Pre-Funded Warrants;
- 16,825,296 shares reserved for issuance upon exercise of outstanding options issued under our stock option plans;
- 15,106,412 shares available for issuance pursuant to our 2020 Equity Incentive Plan; and
- 6,319,540 shares reserved for issuance upon exercise of outstanding warrants to purchase shares of our common stock.

The Warrants include beneficial ownership limitations such that each Purchaser, together with its affiliates, will not own more than 4.99% or 9.99% of the Company's outstanding common stock.

The Pre-Funded Warrants include beneficial ownership limitations such that each Purchaser, together with its affiliates, will not own more than 4.99% or 9.99% (or, at the election of the Purchaser, not more than 19.99%) of the Company's outstanding common stock.

Use of Proceeds

The selling stockholders will receive all of the net proceeds from the sale of the shares of our common stock offered pursuant to this prospectus. We will not receive any of the proceeds from these sales. However, we will receive proceeds from the exercise of the Warrants if exercised for cash. For further information, see "*Use of Proceeds*" in this prospectus.

We will incur all costs associated with this registration statement and prospectus.

Plan of Distribution

The selling stockholders may sell or otherwise dispose the shares of our common stock covered by this prospectus in a number of different ways and at varying prices. For further information, see "*Plan of Distribution*" in this prospectus.

Dividend Policy

We have never paid dividends on our capital stock and do not anticipate paying any dividends for the foreseeable future.

RISK FACTORS

Investing in our securities involves a high degree of risk. In addition to the other information included or incorporated by reference in this prospectus, you should carefully consider the risks described below and in the section titled "Risk Factors" in our Annual Report on Form 10-K for our most recent fiscal year filed with the SEC, subsequent Quarterly Reports on Form 10-Q, any amendment or updates thereto reflected in subsequent filings with the SEC, and in other reports we file with the SEC that are incorporated by reference herein, before making an investment decision. The following risks are presented as of the date of this prospectus and we expect that these will be updated from time to time in our periodic and current reports filed with the SEC, which will be incorporated herein by reference. Please refer to these subsequent reports for additional information relating to the risks associated with investing in our securities.

The risks and uncertainties described therein and below could materially adversely affect our business, operating results and financial condition, as well as cause the value of our securities to decline. You may lose all or part of your investment as a result. You should also refer to the other information contained in this prospectus, or incorporated by reference, including our financial statements and the notes to those statements, and the information set forth under the caption "Special Note Regarding Forward-Looking Statements." Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks mentioned below. Forward-looking statements included in this prospectus are based on information available to us on the date hereof, and all forward-looking statements in documents incorporated by reference are based on information available to us as of the date of such documents. We disclaim any intent to update any forward-looking statements. The risks described below and contained in our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and in our other periodic reports are not the only ones that we face. Additional risks not presently known to us or that we currently deem immaterial may also adversely affect our business operations.

Risks Related to this Offering

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

To the extent that the selling stockholders sell shares of our common stock pursuant to this prospectus, the market price of the shares of our common stock may decrease due to the additional selling pressure in the market. In addition, the dilution from exercise of the Warrants and the prefunded warrants underlying the Warrants may cause stockholders to sell their shares of our common stock, which could further contribute to any decline in the price of our common stock. Any downward pressure on the price of the shares of our common stock caused by the sale or potential sale of such shares could encourage short sales by third parties. Such sales could place downward pressure on the price of our common stock by increasing the number of shares of our common stock being sold, which could further contribute to any decline in the market price of the shares of our common stock.

Risks Related to Our Common Stock and Other Securities

We may be required to repurchase certain of our warrants.

Under the Series A-1 Warrants and the Series B-1 Warrants, in the event of a "Fundamental Transaction" (as defined in the applicable warrant and/or warrant agreement, which generally includes any merger with another entity, the sale, transfer or other disposition of all or substantially all of our assets to another entity, or the acquisition by a person of more than 50% of our common stock), each warrant holder will have the right at any time concurrently with, or within 30 days after, the consummation of the Fundamental Transaction to require us to repurchase the warrant for a purchase price in cash equal to the Black Scholes value (as calculated under the warrant agreement) of the then remaining unexercised portion of such warrant on the date of such Fundamental Transaction, which may materially adversely affect our financial condition and/or results of operations and may prevent or deter a third party from acquiring us.

Risks Related to Our Business

Our focus on IkT-001 Pro as a treatment for PAH may not prove successful.

It is possible that IkT-001Pro may not improve the side effect profile for the treatment of PAH compared to imatinib mesylate or may not be effective as an add-on treatment for PAH. There can be no assurance that the Company's clinical trial in PAH for IkT-001Pro will be successful and even if successful that IkT-001Pro will be approved by the FDA for PAH or achieve marketplace success.

USE OF PROCEEDS

This prospectus relates to the potential resale from time to time of (i) up to 40,139,474 shares of our common stock issuable upon the exercise of Series A-1 Warrants, or, in lieu thereof, pre-funded warrants to purchase the same number of shares of our common stock and (ii) up to 73,813,529 shares of our common stock issuable upon the exercise of Series B-1 Warrants, or, in lieu thereof, pre-funded warrants to purchase the same number of shares of our common stock by the selling stockholders and will be sold for the accounts of the selling stockholders named in this prospectus. As a result, all proceeds from the sales of such securities offered for resale hereby will go to the selling stockholders and we will not receive any proceeds from the resale of those securities by the selling stockholders.

We may receive up to a total of approximately $165 million in gross proceeds if all of the Warrants to purchase up to 113,953,003 shares of our common stock are exercised for cash for shares of common stock. However, as we are unable to predict the timing or amount of potential exercises of the Warrants, we have not allocated any proceeds of such exercises to any particular purpose. Accordingly, all such proceeds are allocated to working capital. Pursuant to conditions set forth in the Warrants, the Warrants are exercisable on a cashless basis, and should a selling stockholder exercise on a cashless basis we will not receive any proceeds from the sale of common stock issued upon the cashless exercise of the Warrants.

We will incur all costs associated with this registration statement and prospectus.

SELLING STOCKHOLDERS

The common stock being offered by the selling stockholders are those issuable to the selling stockholders upon exercise of the Warrants sold in the October 2024 Offering, pursuant to that certain Securities Purchase Agreement, dated October 9, 2024, by and among the Company and the selling stockholders signatory thereto (the "Purchase Agreement"). For additional information regarding the October 2024 Offering, see "*Prospectus Summary – Recent Events*." We are registering the shares of our common stock in order to permit the selling stockholders to offer such shares for sale from time to time. Except for the purchase and ownership of the shares of our common stock and as otherwise noted herein, the selling stockholders (except to the extent that Amit Munshi, Roberto Bellini and Arvind Kush (members of our Board of Directors) either directly or indirectly participated in the October 2024 Offering and to the extent that David Canner (a member of our Board of Directors) is a partner of, and has an economic interest in, Soleus Capital Management, L.P. (the investment manager of certain funds that participated in the October 2024 Offering) and Soleus Private Equity GP III, LLC (the general partner of one such fund)) have not had any material relationship with us within the past three years.

The table below lists the selling stockholders and other information regarding the beneficial ownership of our common stock of each of the selling stockholders. The second column lists the number of shares of common stock beneficially owned by each selling stockholder, including their ownership of the Pre-Funded Warrants, and Warrants, as of December 31, 2024 unless otherwise noted, assuming exercise of all Pre-Funded Warrants and Warrants held by such selling stockholder on that date, without regard to any limitations on exercise.

This prospectus generally covers the resale of the maximum number of shares of our common stock issuable upon exercise of the Warrants, determined as if the outstanding Warrants were exercised in full as of the trading day immediately preceding the date the registration statement of which this prospectus forms a part was initially filed with the SEC, each as of the trading day immediately preceding the applicable date of determination and all subject to adjustment as provided in the registration right agreement, without regard to any limitations on the exercise of the Warrants. The third column assumes the sale of all of the shares of common stock offered by the selling stockholders pursuant to this prospectus.

Under the terms of the Warrants, a selling securityholder may not exercise Warrants (other than a pre funded warrant), to the extent such exercise would cause such selling stockholder, together with its affiliates and attribution parties, to beneficially own a number of shares of our common stock which would exceed 4.99% or 9.99%, as applicable, of our then outstanding shares of common stock following such exercise, excluding for purposes of such determination the shares of our common stock issuable upon exercise of the Warrants which have not been exercised. The number of shares of our common stock in the columns below does not reflect this limitation. The selling stockholders may sell all, some or none of their shares of our common stock acquired in the October 2024 Offering in this offering. See "*Plan of Distribution*."

Name of Selling Stockholder	Shares Beneficially Owned prior to Offering	Maximum Number of Shares to be Sold Pursuant to this Prospectus	Shares Beneficially Owned after Offering	Percentage of Shares Beneficially Owned after Offering (1)
ADAR1 Capital Management, LLC (2)	12,356,461	7,253,456	5,103,005	2.78%
Blackwell Partners LLC – Series A (3)	3,379,436	1,982,665	1,396,771	*
BSQUARED CAPITAL Inc. (4)	3,532,416	2,072,416	1,460,000	*
CDK Associates, L.L.C. (5)	11,835,362	6,942,925	4,892,437	2.67%
Commodore Capital Master LP (6)	23,435,319	15,020,188	8,415,131	4.59%
Fairmount Healthcare Fund II L.P. (7)	25,605,395	15,020,395	10,585,000	5.77%
FMB Research LLC (8)	751,963	361,963	390,000	*
Arvind Kush (9)	350,822	205,822	145,000	*
Amit Munshi (10)	883,104	518,104	365,000	*

Name of Selling Stockholder	Shares Beneficially Owned prior to Offering	Maximum Number of Shares to be Sold Pursuant to this Prospectus	Shares Beneficially Owned after Offering	Percentage of Shares Beneficially Owned after Offering (1)
Nantahala Capital Partners Limited Partnership (11)	1,188,202	697,100	491,102	*
NCP RFM LP (12)	730,986	428,859	302,127	*
Perceptive Life Sciences Master Fund, Ltd. (13)	16,245,875	9,530,875	6,715,000	3.66%
Sands Capital Life Sciences Pulse Fund II, L.P. (14)	26,493,120	15,543,120	10,950,000	5.97%
Soleus Capital (15)	37,963,764	22,268,764	15,695,000	8.56%
Spruce Street Aggregator L.P. (16)	6,834,675	4,009,395	2,825,280	1.54%
Spruce Street Capital LP (17)	2,201,711	1,291,711	910,000	*
Stonepine Capital, LP (18)	3,532,416	2,072,416	1,460,000	*
SP IKT Holdings LLC (19)	14,129,664	8,289,664	5,840,000	3.19%
Third Street Holdings LLC (20)	755,448	443,165	312,283	*

* Represents beneficial ownership of less than one percent.

(1) Based on 69,362,439 shares of our common stock outstanding as of December 31, 2024, plus (i) 40,139,474 shares reserved for issuance upon exercise of the Series A-1 Warrants and 73,813,529 shares reserved for issuance upon exercise of the Series B-1 Warrants, which are subject to stockholder approval; and excludes (i) 19,815,131 shares of our common stock underlying the Pre-Funded Warrants; (ii) 16,825,296 shares reserved for issuance upon exercise of outstanding options issued under our stock option plans; (iii) 15,106,412 shares available for issuance pursuant to our 2020 Equity Incentive Plan; and (iv) 6,319,540 shares reserved for issuance upon exercise of outstanding warrants to purchase shares of our common stock. The number and percentage of shares beneficially owned is determined in accordance with Rule 13d-3 of the Exchange Act and the information is not necessarily indicative of beneficial ownership for any other purpose. Under such rule, beneficial ownership includes any shares as to which the person has sole or shared voting power or investment power and also any shares that the person has the right to acquire within 60 days of December 31, 2024 through the exercise of any stock options, warrants or other rights or the conversion of preferred stock. Any shares that a person has the right to acquire within 60 days are deemed to be outstanding for the purpose of computing the percentage ownership of such person but are not deemed outstanding for the purpose of computing the percentage ownership of any other person.

(2) Consists of (i) 5,103,005 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 2,555,000 shares of our common stock issuable upon exercise of Series A-1 Warrants and (iii) 4,698,456 shares of our common stock issuable upon exercise of Series B-1 Warrants; of which (a) 4,094,788 shares, 2,046,577 Series A-1 Warrants and 3,763,505 Series B-1 Warrants are directly held by ADAR1 Partners, LP ("ADAR1 Partners"), (b) 497,268 shares, 252,948 Series A-1 Warrants and 465,153 Series B-1 Warrants are directly held by Spearhead Insurance Solutions IDF, LLC—Series ADAR1 ("Spearhead") and (c) 510,949 shares, 255,475 Series A-1 Warrants and 469,798 Series B-1 Warrants are directly held by ADAR1 SPV I, LP ("ADAR1 SPV"). ADAR1 Capital Management, LLC ("ADAR1 Capital Management") acts as an investment adviser to, and manages investment and trading accounts of, ADAR1 Partners and ADAR1 SPV. ADAR1 Capital Management GP, LLC ("ADAR1 General Partner") acts as the general partner of ADAR1 Partners and ADAR1 SPV. ADAR1 Capital Management and ADAR1 General Partner may be deemed to indirectly beneficially own the securities held by ADAR1 Partners and ADAR1 SPV. Daniel Schneeberger is the Manager of ADAR1 Capital Management and ADAR1 General Partner. Mr. Schneeberger may be deemed to indirectly beneficially own securities held by ADAR1 Partners and ADAR1 SPV. ADAR1 Capital Management serves as sub-advisor to Spearhead and Mr. Schneeberger, as manager of ADAR1 Capital Management, may also be deemed to indirectly beneficially own the securities held by Spearhead. Ken Foley is the managing member of Spearhead and may be deemed to indirectly own the securities held by Spearhead. The address of each of ADAR1 Partners, ADAR1 SPV, ADAR1 Capital Management,

ADAR1 General Partner and Mr. Schneeberger is 3503 Wild Cherry Drive, Building 9, Austin, TX 78738 and the address of Spearhead and Mr. Foley is 3828 Kennett Pike, Ste 202, Greenville, DE 19807.

(3) Consists of (i)1,396,771 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 698,386 shares of our common stock issuable upon exercise of Series A-1 Warrants and (iii) 1,284,279 shares of our common stock issuable upon exercise of SeriesB-1 Warrants. Nantahala Capital Management, LLC is a Registered Investment Adviser and has been delegated the legal power to vote and/or direct the disposition of such securities on behalf of the selling stockholder as a General Partner, Investment Manager, or Sub-Advisor and would be considered the beneficial owner of such securities. The above shall not be deemed to be an admission by the record owners or the selling stockholder that they are themselves beneficial owners of these securities for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, or any other purpose. Wilmot Harkey and Daniel Mack are managing members of Nantahala Capital Management, LLC and may be deemed to have voting and dispositive power over the shares held by the selling stockholder.
The addresses of Blackwell are 280 South Mangum Street, Suite 210, Durham, NC 27701 and c/o Nantahala Capital Management, LLC, 130 Main St, 2nd Floor, New Canaan, CT 06840 and the address of each of Nantahala Capital Management, LLC, Mr. Harkey and Mr. Mack is c/o Nantahala Capital Management, 130 Main St, 2nd Floor, New Canaan, CT 06840.

(4) Consists of (i) 1,460,000 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 730,000 shares of our common stock issuable upon exercise of Series A-1 Warrants and (iii) 1,342,416 shares of our common stock issuable upon exercise of SeriesB-1 Warrants. Roberto Bellini is a shareholder and officer of BSQUARED CAPITAL Inc. (“BSQ”). Roberto Bellini and Carlo Bellini have shared voting and dispositive power with respect to such securities and expressly disclaim beneficial ownership of such securities except to the extent of any pecuniary interest therein. The address of BSQ is 275 Armand-Frappier Boulevard, Laval, Quebec, H7V 4A7 Canada.

(5) Consists of (i) 3,056,362 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 1,836,075 shares of our common stock issuable upon exercise of Pre-Funded Warrants, (iii) 2,445,616 shares of our common stock issuable upon exercise of SeriesA-1 Warrants and (iv) 4,497,309 shares of our common stock issuable upon exercise of Series B-1 Warrants. The Pre-Funded Warrants are subject to a beneficial ownership limitation of 4.99%. Bruce Kovner controls CDK Associates, L.L.C. (“CDK Associates”) and may deemed to beneficially own the securities held by CDK Associates. Mr. Kovner expressly disclaims beneficial ownership of such securities except to the extent of any pecuniary interest therein. The address of each of CDK Associates and Mr. Kovner is CAM Capital, 731 Alexander Road, Bldg 2, Suite 500, Princeton, NJ 08540.

(6) Consists of (i) 5,925,000 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 2,490,131 shares of our common stock issuable upon exercise of Pre-Funded Warrants, (iii) 5,290,799 shares of our common stock issuable upon exercise of SeriesA-1 Warrants and (iv) 9,729,389 shares of our common stock issuable upon exercise of Series B-1 Warrants. The Pre-Funded Warrants are subject to a beneficial ownership limitation of 9.99%. The securities are directly held by Commodore Capital Master LP. Commodore Capital LP is the investment manager to Commodore Capital Master LP and may be deemed to beneficially own the shares held by Commodore Capital Master LP. Michael Kramarz and Robert Egen Atkinson are the managing partners of Commodore Capital LP and exercise investment discretion with respect to these shares. Commodore Capital LP and Commodore Capital Master LP have shared voting and dispositive power with respect to these shares. The address of each of Commodore Capital LP and Commodore Capital Master LP is 444 Madison Avenue, 35th Floor, New York, NY 10022.

(7) Consists of (i) 6,125,000 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 4,460,000 shares of our common stock issuable upon exercise of Pre-Funded Warrants, (iii) 5,290,872 shares of our common stock issuable upon exercise of SeriesA-1 Warrants and (iv) 9,729,523 shares of our common stock issuable upon exercise of Series B-1 Warrants. The Pre-Funded Warrants are subject to a beneficial ownership limitation of 9.99%. The securities are directly held by Fairmount Healthcare Fund II L.P. (“Fairmount Fund II”). Fairmount Funds Management LLC (“Fairmount”) serves as investment manager for Fairmount Fund II. Fairmount Fund II has delegated to Fairmount the sole power to vote and the sole power to dispose of all securities held in Fairmount Fund II’s portfolio. Because Fairmount Fund II

has divested itself of voting and investment power over the securities it holds and may not revoke that delegation on less than 61 days' notice, Fairmount Fund II disclaims beneficial ownership of the securities it holds. The general partner of Fairmount is Fairmount Funds Management GP LLC ("Fairmount GP"). As managing members of Fairmount GP, Peter Harwin and Tomas Kiselak may be deemed to have voting and investment power over the shares held by Fairmount Fund II. Fairmount, Fairmount GP, Peter Harwin and Tomas Kiselak disclaim beneficial ownership of such shares, except to the extent of any pecuniary interest therein. The address of each of the entities and individuals listed is 200 Barr Harbor Drive, Suite 400, West Conshohocken, PA 19428.

(8) Consists of (i) 255,000 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 127,500 shares of our common stock issuable upon exercise of Series A-1 Warrants, (iii) 234,463 shares of our common stock issuable upon exercise of Series B-1 Warrants and (iv) 135,000 additional shares of our common stock. Franklin M. Berger controls FMB Research LLC and may deemed to beneficially own the securities held by FMB Research LLC. Mr. Berger expressly disclaims beneficial ownership of such securities except to the extent of any pecuniary interest therein. The address of each of FMB Research LLC and Mr. Berger is 600 Lexington Avenue, 30th Floor, New York, NY 10022.

(9) Consists of (i) 145,000 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 72,500 shares of our common stock issuable upon exercise of Series A-1 Warrants and (iii) 133,322 shares of our common stock issuable upon exercise of Series B-1 Warrants. The address of Mr. Kush is 5858 Aster Meadows Pl, San Diego, CA 92130.

(10) Consists of (i) 365,000 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 182,500 shares of our common stock issuable upon exercise of Series A-1 Warrants and (iii) 335,604 shares of our common stock issuable upon exercise of Series B-1 Warrants. The securities are directly held by the Amit Munshi Revocable Trust, which is controlled by Mr. Munshi. The address of each of Mr. Munshi and the Amit Munshi Revocable Trust is 7518 N Sage Meadow Rd, Park City, UT 84098.

(11) Consists of (i) 491,102 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 245,550 shares of our common stock issuable upon exercise of Series A-1 Warrants and (iii) 451,550 shares of our common stock issuable upon exercise of Series B-1 Warrants. Nantahala Capital Management, LLC is a Registered Investment Adviser and has been delegated the legal power to vote and/or direct the disposition of such securities on behalf of the selling stockholder as a General Partner, Investment Manager, or Sub-Advisor and would be considered the beneficial owner of such securities. The above shall not be deemed to be an admission by the record owners or the selling stockholder that they are themselves beneficial owners of these securities for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, or any other purpose. Wilmot Harkey and Daniel Mack are managing members of Nantahala Capital Management, LLC and may be deemed to have voting and dispositive power over the shares held by the selling stockholder. The address of each of the entities and individuals listed is c/o Nantahala Capital Management, LLC, 130 Main St, 2nd Floor, New Canaan, CT 06840.

(12) Consists of (i) 302,127 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 151,064 shares of our common stock issuable upon exercise of Series A-1 Warrants and (iii) 277,795 shares of our common stock issuable upon exercise of Series B-1 Warrants. Nantahala Capital Management, LLC is a Registered Investment Adviser and has been delegated the legal power to vote and/or direct the disposition of such securities on behalf of the selling stockholder as a General Partner, Investment Manager, or Sub-Advisor and would be considered the beneficial owner of such securities. The above shall not be deemed to be an admission by the record owners or the selling stockholder that they are themselves beneficial owners of these securities for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, or any other purpose. Wilmot Harkey and Daniel Mack are managing members of Nantahala Capital Management, LLC and may be deemed to have voting and dispositive power over the shares held by the selling stockholder. The address of each of the entities and individuals listed is c/o Nantahala Capital Management, LLC, 130 Main St, 2nd Floor, New Canaan, CT 06840.

(13) Consists of (i) 5,925,000 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 790,000 shares of our common stock issuable upon exercise of Pre-Funded Warrants, (iii) 3,357,211 shares of our common stock issuable upon exercise of Series A-1 Warrants and (iv) 6,173,664 shares of our common stock issuable upon exercise of Series B-1 Warrants. The Pre-Funded Warrants are subject to a

9.99% beneficial ownership limitation. The securities are directly held by Perceptive Life Sciences Master Fund, Ltd. Perceptive Advisors LLC is the investment manager to Perceptive Life Sciences Master Fund, Ltd. and may be deemed to beneficially own the securities directly held by Perceptive Life Sciences Master Fund, Ltd. Joseph Edelman is the managing member of Perceptive Advisors LLC and may be deemed to beneficially own the shares held by Perceptive Life Sciences Master Fund, Ltd. Each of Perceptive Advisors LLC and Mr. Edelman expressly disclaims beneficial ownership of such securities except to the extent of any pecuniary interest therein. The address of Perceptive Life Sciences Master Fund, Ltd. is 51 Astor Place, 10th Floor, New York, NY 10003.

(14) Consists of (i) 10,950,000 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 5,475,000 shares of our common stock issuable upon exercise of Series A-1 Warrants and (iii) 10,068,120 shares of our common stock issuable upon exercise of SeriesB-1 Warrants. The securities are directly held by Sands Capital Life Sciences Pulse Fund II, L.P. ("Sands Pulse Fund II"). Sands Capital Life Sciences Pulse Fund II-GP, L.P. ("Sands Pulse GP L.P.") is the sole general partner of Sands Pulse Fund II. Sands Capital Life Sciences Pulse FundII-GP, LLC ("Sands Pulse GP LLC" and, together with Sands Pulse GP L.P., the "Sands General Partners") is the sole general partner of Sands Pulse GP L.P. Sands Capital Ventures, LLC ("SCV") is the investment manager of Sands Pulse Fund II and thus may be deemed to beneficially own the shares held by Sands Pulse Fund II. Frank M. Sands holds ultimate voting and investment power over securities held by Sands Pulse Fund II, and thus may be deemed to beneficially own the shares held by Sands Pulse Fund II. Each of Mr. Sands, SCV, Sands Pulse GP L.P. and Sands Pulse GP LLC disclaim beneficial ownership of such securities except to the extent of their relative pecuniary interest therein. The address of each of the entities and the individual listed is c/o Sands Capital Ventures, LLC, 1000 Wilson Boulevard, Suite 3000, Arlington, VA 22209.

(15) Consists of (i) 6,325,000 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 9,370,000 shares of our common stock issuable upon exercise of Pre-Funded Warrants, (iii) 7,844,080 shares of our common stock issuable upon exercise of SeriesA-1 Warrants and (iv) 14,424,684 shares of our common stock issuable upon exercise of Series B-1 Warrants. The Pre-Funded Warrants are subject to a 9.99% beneficial ownership limitation. 4,264,968 of such shares of our common stock, 6,318,221 shares of our common stock issuable upon exercise of Pre-Funded Warrants, 5,289,288 Series A-1 Warrants and 9,726,610 Series B-1 Warrants are directly held by Soleus Capital Master Fund, L.P. ("Soleus Master Fund"). 2,060,032 of such shares of our common stock, 3,051,779 shares of our common stock issuable upon exercise of Pre-Funded Warrants, 2,554,792 Series A-1 Warrants and 4,698,074 Series B-1 Warrants are directly held by Soleus Private Equity Fund III, L.P. ("Soleus PE Fund III"). Soleus Capital, LLC ("Soleus Capital") is the sole general partner of Soleus Master Fund, Soleus Capital Group, LLC ("SCG") is the sole managing member of Soleus Capital and Guy Levy is the sole managing member of SCG. Each of SCG, Soleus Capital and Mr. Levy disclaims beneficial ownership of the shares held by Soleus Master Fund, except to the extent of his or its pecuniary interest therein. Soleus Private Equity GP III, LLC is the sole general partner of Soleus PE Fund III, Soleus PE GP III, LLC is the sole manager of Soleus Private Equity GP III, LLC and Mr. Levy is the sole managing member of Soleus PE GP III, LLC. Each of Mr. Levy, Soleus PE GP III, LLC and Soleus Private Equity GP III, LLC disclaims beneficial ownership of the shares held by Soleus PE Fund III, except to the extent of his or its pecuniary interest therein. Soleus Capital Management, L.P. is the investment manager of each of Soleus Master Fund and Soleus PE Fund III and has been delegated voting and dispositive power over the shares held by such funds. Soleus GP, LLC is the general partner of Soleus Capital Management, L.P. and Guy Levy is the managing member of Soleus GP, LLC. Each of Soleus Capital Management, L.P. and Soleus GP, LLC disclaims beneficial ownership of the shares held by Soleus Master Fund and Soleus PE Fund III, except to the extent of its pecuniary interest therein. The address of Mr. Levy and of each of the entities listed is c/o Soleus Capital Management, L.P., 104 Field Point Road, 2nd Floor, Greenwich, CT 06830.

(16) Consists of (i) 2,073,551 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 751,729 shares of our common stock issuable upon exercise of Pre-Funded Warrants, (iii) 1,412,293 shares of our common stock issuable upon exercise of SeriesA-1 Warrants and (iv) 2,597,102 shares of our common stock issuable upon exercise of Series B-1 Warrants. The Pre-Funded Warrants are subject to a 4.99% beneficial ownership limitation. The securities are directly held by Spruce Street Aggregator L.P. ("Spruce Street Aggregator"). Blackstone Alternative Asset Management Associates LLC is the general

partner of Spruce Street Aggregator. Blackstone Holdings II L.P. is the sole member of Blackstone Alternative Asset Management Associates LLC. Blackstone Holdings I/II GP L.L.C. is the general partner of Blackstone Holdings II L.P. Blackstone Inc. is the sole member of Blackstone Holdings I/II GP L.L.C. Blackstone Group Management L.L.C. is the sole holder of the Series II preferred stock of Blackstone Inc. Blackstone Group Management L.L.C. is wholly owned by its senior managing directors and controlled by its founder, Stephen A. Schwarzman. Each of such Blackstone entities and Mr. Schwarzman may be deemed to beneficially own the securities beneficially owned by Spruce Street Aggregator directly or indirectly controlled by it or him, but each (other than Spruce Street Aggregator to the extent of its direct holdings) disclaims beneficial ownership of such securities. The address of Spruce Street Aggregator, Mr. Schwarzman and each of the Blackstone entities listed is c/o Blackstone Inc., 345 Park Avenue, New York, New York 10154.

(17) Consists of (i) 910,000 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 455,000 shares of our common stock issuable upon exercise of Series A-1 Warrants and (iii) 836,711 shares of our common stock issuable upon exercise of SeriesB-1 Warrants. 173,200 of such shares are held by Spruce Street Capital LP ("Spruce Street Advisor"), as discretionary manager on behalf of a separate account client solely with respect to the assets for which Spruce Street Advisor acts as investment manager, and 736,800 of such shares are directly held by Spruce Street Capital Master Fund LP ("Spruce Street Fund"). Simon Basseyn and Alex Ryan Rosen have shared voting and dispositive power with respect to such securities and expressly disclaim beneficial ownership of such securities except to the extent of any pecuniary interest therein. The address of each of Spruce Street Advisor and Spruce Street Fund is 777 Third Avenue, Suite 1704, New York, NY 10017.

(18) Consists of (i) 1,460,000 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 730,000 shares of our common stock issuable upon exercise of Series A-1 Warrants and (iii) 1,342,416 shares of our common stock issuable upon exercise of SeriesB-1 Warrants held as of immediately following the October 2024 Offering. Stonepine Capital Management, LLC ("Stonepine Management") is the investment adviser of Stonepine Capital, LP ("Stonepine LP") and Stonepine GP, LLC ("Stonepine GP") is the general partner of Stonepine LP. Jon M. Plexico is the control person of Stonepine GP. Each of Stonepine Management, Stonepine GP, Stonepine LP and Mr. Plexico disclaims beneficial ownership of such securities except to the extent of its or his pecuniary interest therein. The address of each of Stonepine Management, Stonepine GP, Stonepine LP and Mr. Plexico is 919 NW Bond Street, Suite 204, Bend, OR 97703.

(19) Consists of (i) 5,840,000 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 2,920,000 shares of our common stock issuable upon exercise of Series A-1 Warrants and (iii) 5,369,664 shares of our common stock issuable upon exercise of SeriesB-1 Warrants. The securities are directly held by SP IKT Holdings LLC, a Delaware Limited Liability Company ("SP IKT"), and may be deemed to be beneficially owned by: SP Soleus Holdings LLC ("Soleus Holdings"), as the sole member of SP IKT. Soleus Holdings is managed by a four-member board of managers, which currently includes Charles A. Davis, Stephen Friedman, David J. Wermuth and Christopher Timchak, each of whom may be deemed to beneficially own the securities held by SP IKT. Each of Messrs. Davis, Friedman, Wermuth and Timchak disclaims beneficial ownership of such securities except to the extent of any pecuniary interest therein. The address of SP IKT is c/o SP Soleus Holdings LLC, 20 Horseneck Ln., Greenwich, CT 06880.

(20) Consists of (i) 195,087 shares of our common stock issued pursuant to the Purchase Agreement, (ii) 117,196 shares of our common stock issuable upon exercise of Pre-Funded Warrants, (iii) 156,103 shares of our common stock issuable upon exercise of SeriesA-1 Warrants and (iv) 287,062 shares of our common stock issuable upon exercise of Series B-1 Warrants. The Pre-Funded Warrants are subject to a beneficial ownership limitation of 4.99%. Peter P. D'Angelo controls Third Street Holdings LLC ("Third Street") and may deemed to beneficially own the securities held by Third Street. Mr. D'Angelo expressly disclaims beneficial ownership of such securities except to the extent of any pecuniary interest therein. The address of each of Third Street and Mr. D'Angelo is CAM Capital, 731 Alexander Road, Bldg 2, Suite 500, Princeton, NJ 08540.

PLAN OF DISTRIBUTION

The selling stockholders, which as used herein includes donees, pledgees, transferees or othersuccessors-in-interest selling shares of common stock or interests in shares of common stock received after the date of this prospectus from a selling stockholder as a gift, pledge, partnership distribution or other transfer, may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock or interests in shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices.

Each selling stockholder may, from time to time, sell any or all of their shares of our common stock covered hereby on the Nasdaq Stock Market LLC or any other stock exchange, market or trading facility on which the shares are traded or in private transactions. These sales may be at fixed prices, at prevailing market prices at the time of the sale, at varying prices determined at the time of sale, or privately negotiated prices. The selling stockholders may use any one or more of the following methods when disposing of shares or interests therein:

- distributions to members, partners, stockholders or other equity holders of the selling stockholders;
- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales and settlement of short sales entered into after the effective date of the registration statement of which this prospectus is a part;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

The selling stockholders may, from time to time, pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock, from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act, amending the list of selling stockholders to include the pledgee, transferee or other successors in interest as selling stockholders under this prospectus. The selling stockholders also may transfer the shares of common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling stockholders for purposes of this prospectus.

In connection with the sale of our common stock or interests therein, the selling stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the common stock in the course of hedging the positions they assume. The selling stockholders may also sell shares of our common stock short and deliver these securities to close out their short positions, or loan or pledge the common stock to broker-dealers that in turn may sell these securities. The selling stockholders may also enter

into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The aggregate proceeds to the selling stockholders from the sale of the common stock offered by them will be the purchase price of the common stock less discounts or commissions, if any. Each of the selling stockholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of common stock to be made directly or through agents. We will not receive any of the proceeds from this offering. Upon any exercise of the pre-funded warrants by payment of cash, however, we will receive the exercise price of thepre-funded warrants.

The selling stockholders also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act, provided that they meet the criteria and conform to the requirements of that rule, or another available exemption from the registration requirements under the Securities Act.

The selling stockholders and any underwriters, broker-dealers or agents that participate in the sale of the common stock or interests therein may be "underwriters" within the meaning of Section 2(a)(11) of the Securities Act (it being understood that the selling stockholders shall not be deemed to be underwriters solely as a result of their participation in this offering). Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. Selling stockholders who are "underwriters" within the meaning of Section 2(a)(11) of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act.

To the extent required, the shares of our common stock to be sold, the names of the selling stockholders, the respective purchase prices and public offering prices, the names of any agent, dealer or underwriter, and any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

In order to comply with the securities laws of some states, if applicable, the common stock may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the common stock may not be sold unless it has been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

We have advised the selling stockholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling stockholders and their affiliates. In addition, to the extent applicable, we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling stockholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling stockholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

We have agreed to indemnify the selling stockholders against liabilities, including liabilities under the Securities Act and state securities laws, relating to the registration of the shares offered by this prospectus.

We have agreed with the selling stockholders to use our reasonable best efforts to cause the registration statement of which this prospectus constitutes a part to become effective and to remain continuously effective until the earlier of: (i) the date on which the selling stockholders shall have resold or otherwise disposed of all the shares covered by this prospectus and (ii) the date on which the shares covered by this prospectus no longer constitute "Registrable Securities" as such term is defined in the Registration Rights Agreement, such that they may be resold by the selling stockholders without registration and without regard to any volume or manner of sale limitations and without current public information pursuant to Rule 144 under the Securities Act or any other rule of similar effect.

LEGAL MATTERS

The validity of the issuance of our securities offered in this prospectus will be passed upon for us by Goodwin Procter LLP, Boston, Massachusetts.

EXPERTS

The consolidated financial statements of Inhibikase Therapeutics, Inc. and Subsidiary for the years ended December 31, 2023 and 2022 have been audited by CohnReznick LLP, independent registered public accounting firm, as set forth in their report thereon appearing in Inhibikase Therapeutics, Inc. and Subsidiary's Annual Report on Form 10-K for the year ended December 31, 2023, and incorporated by reference herein. Such consolidated financial statements are incorporated by reference herein in reliance upon such report, which includes an explanatory paragraph on Inhibikase Therapeutics, Inc. and Subsidiary's ability to continue as a going concern, given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. The SEC maintains a website at www.sec.gov that contains reports, proxy and information statements and other information regarding registrants. Our SEC filings, including our registration statement of which this prospectus is a part and the exhibits and schedules thereto, are available on the SEC website at *www.sec.gov*.

We also maintain a website at http://www.inhibikase.com. You may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. Information contained on our website is not a part of this prospectus, and the inclusion of our website address in this prospectus is an inactive textual reference only. You may also request a copy of these filings, at no cost, by writing or telephoning us at: 3350 Riverwood Parkway SE, Suite 1900, Atlanta, Georgia 30339, Attention: Chief Financial Officer, (678) 392-3419.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to "incorporate by reference" into this prospectus the information in documents we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be a part of this prospectus, and information that we file later with the SEC will automatically update and supersede this information. Any statement contained in any document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in or omitted from this prospectus or any accompanying prospectus supplement, or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein, modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

We incorporate by reference the documents listed below and any future documents that we file with the SEC (excluding any portion of such documents that are furnished and not filed with the SEC) under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (1) on and after the date of the initial filing of the registration statement of which this prospectus is a part, (2) prior to the effectiveness of the registration statement of which this prospectus is a part and (3) after the date of effectiveness of this prospectus until the offering of the underlying securities is terminated; provided, however, we are not incorporating by reference any information furnished (but not filed) under Item 2.02 or Item 7.01 of any Current Report on Form 8-K:

- Our Annual Report on Form 10-K for the fiscal year ended December 31, 2023 filed with the SEC on March 27, 2024;
- Our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2024 filed with the SEC on May 15, 2024;
- Our Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2024 filed with the SEC on August 14, 2024;
- Our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2024 filed with the SEC on November 14, 2024;
- Our Current Reports on Form 8-K filed with the SEC on January 16, 2024, as amended by the Form8-K/A filed with the SEC on April 2, 2024, February 1, 2024, February 7, 2024, April 30, 2024 (excluding Item 7.01), May 20, 2024 (excluding Item 7.01), June 10, 2024; August 6, 2024, October 10, 2024 (excluding Item 7.01), October 22, 2024 (excluding Item 7.01); December 5, 2024 and January 6, 2025;
- Our Definitive Proxy Statement on Schedule 14A filed with the SEC on November 18, 2024; and
- The description of our common stock contained in the Company's Registration Statement on Form8-A filed with the SEC on October 29, 2020 (File No. 001-39676), together with any amendment thereto filed with the SEC for the purpose of updating such description. Upon written or oral request, we will provide without charge to each person, including any beneficial owner, to whom a copy of the prospectus is delivered a copy of the documents incorporated by reference in this prospectus (other than exhibits to such documents unless such exhibits are specifically incorporated by reference in this prospectus). You may request a copy of these filings, at no cost, by writing or telephoning us at the following address: Inhibikase Therapeutics, Inc., 3350 Riverwood Parkway SE, Suite 1900, Atlanta, GA 30339, Attention: Chief Financial Officer, (678) 392-3419. You may also access these documents on our website at*www.inhibikase.com*.

Information on our website, including subsections, pages, or other subdivisions of our website, or any website linked to by content on our website, is not part of this prospectus and you should not rely on that information unless that information is also in this prospectus or incorporated by reference in this prospectus.

Inhibikase Therapeutics, Inc.

Up to 40,139,474 Shares Underlying Series A-1 Warrants
Up to 73,813,529 Shares Underlying Series B-1 Warrants

PRELIMINARY PROSPECTUS

, 2025

PART II

INFORMATION NOT REQUIRED IN THE PROSPECTUS

Item 14. ***Other Expenses of Issuance and Distribution***

The following table sets forth the expenses to be incurred in connection with the offering described in this Registration Statement. All amounts are estimates except the SEC's registration fee.

	Amount to be Paid
SEC Registration Fee	$ 56,264.02
Printing expenses	$ 20,000.00
Legal fees and expenses	$ 50,000.00
Accounting fees and expenses	$ 10,000.00
Total	$ 136,264.02

Item 15. ***Indemnification of Directors and Officers***

Section 145 of the Delaware General Corporation Law empowers a corporation to indemnify its directors and officers and to purchase insurance with respect to liability arising out of their capacity or status as directors and officers, provided that the person acted in good faith and in a manner the person reasonably believed to be in our best interests, and, with respect to any criminal action, had no reasonable cause to believe the person's actions were unlawful. The Delaware General Corporation Law further provides that the indemnification permitted thereunder shall not be deemed exclusive of any other rights to which the directors and officers may be entitled under the corporation's bylaws, any agreement, a vote of stockholders or otherwise. The amended and restated certificate of incorporation of the registrant provides for the indemnification of the registrant's directors and officers to the fullest extent permitted under the Delaware General Corporation Law. In addition, the amended and restated bylaws of the registrant require the registrant to fully indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding (whether civil, criminal, administrative or investigative) by reason of the fact that such person is or was a director or officer of the registrant, or is or was a director or officer of the registrant serving at the registrant's request as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorney's fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding, to the fullest extent permitted by applicable law.

Section 102(b)(7) of the Delaware General Corporation Law permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, except (i) for any breach of the director's duty of loyalty to the corporation or its stockholders; (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law; (iii) for payments of unlawful dividends or unlawful stock repurchases or redemptions; or (iv) for any transaction from which the director derived an improper personal benefit. The registrant's amended and restated certificate of incorporation provides that the registrant's directors shall not be personally liable to it or its stockholders for monetary damages for breach of fiduciary duty as a director and that if the Delaware General Corporation Law is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of the registrant's directors shall be eliminated or limited to the fullest extent permitted by the Delaware General Corporation Law, as so amended.

As permitted by the Delaware General Corporation Law, the registrant has entered into separate indemnification agreements with each of the registrant's directors and certain of the registrant's officers which require the registrant, among other things, to indemnify them against certain liabilities which may arise by reason of their status as directors, officers or certain other employees.

The registrant has obtained and maintains insurance policies under which its directors and officers are insured, within the limits and subject to the limitations of those policies, against certain expenses in connection with the defense of, and certain liabilities which might be imposed as a result of, actions, suits or proceedings to which they are parties by reason of being or having been directors or officers. The coverage provided by these policies may apply whether or not the registrant would have the power to indemnify such person against such liability under the provisions of the Delaware General Corporation Law.

These indemnification provisions and the indemnification agreements the registrant intends to enter into between the registrant and the registrant's officers and directors may be sufficiently broad to permit indemnification of the registrant's officers and directors for liabilities (including reimbursement of expenses incurred) arising under the Securities Act of 1933, as amended.

The registration rights agreement between the registrant and the selling stockholders filed as Exhibit 10.2 to this registration statement provides for the indemnification by the selling stockholders of the registrant against specified liabilities, including liabilities under the Securities Act with respect to information provided by the selling stockholders specifically for inclusion in the registration statement.

Item 16. ***Exhibits***

(a) Exhibits.

			Incorporated by Reference to SEC Filing		
Exhibit No.	**Filed Exhibit Description**	**Form**	**Exhibit No.**	**File No.**	**Date Filed**
4.1	Form of Pre-Funded Warrant (October 2024)	8-K	4.1	001-39676	10/10/2024
4.2	Form of Series A-1 Warrant (October 2024)	8-K	4.2	001-39676	10/10/2024
4.3	Form of Series B-1 Warrant (October 2024)	8-K	4.3	001-39676	10/10/2024
5.1	Opinion of Goodwin Procter LLP	—	—	—	Filed herewith
10.1	Securities Purchase Agreement, dated as of October 9, 2024	8-K	10.1	001-39676	10/10/2024
10.2	Form of Registration Rights Agreement	8-K	10.2	001-39676	10/10/2024
10.3	Form of Support Agreement	8-K	10.3	001-39676	10/10/2024
23.1	Consent of CohnReznick LLP, independent registered public accounting firm	—	—	—	Filed herewith
23.2	Consent of Goodwin Procter LLP (included in Exhibit 5.1)	—	—	—	Filed herewith
24.1	Power of Attorney (included on the signature page of the registration statement)	—	—	—	Filed herewith
107	Filing Fee Table	—	—	—	Filed herewith

Item 17. ***Undertakings***

The undersigned registrant hereby undertakes:

(a)

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the U.S. Securities and Exchange Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (1)(i), (1)(ii) and (1)(iii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Securities and Exchange Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(A) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5) or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii) or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to the effective date; or

(5) That for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

(b) That, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to any charter provision, by law 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 Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than 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 Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Atlanta, State of Georgia, on the 10th day of January, 2025.

INHIBIKASE THERAPEUTICS, INC.

By: /s/ Milton H. Werner
Milton H. Werner, Ph.D.
President and Chief Executive Officer

KNOW ALL PERSONS BY THESE PRESENTS, that each officer and director of Inhibikase Therapeutics, Inc. whose signature appears below constitutes and appoints Milton H. Werner, Ph.D. and Garth Lees-Rolfe and each of them, his true and lawful attorney-in-fact and agent, with full power of substitution and revocation, for him and in his name, place and stead, in any and all capacities, to execute any or all amendments including any post-effective amendments and supplements to this Registration Statement, and any additional Registration Statement filed pursuant to Rule 462(b), and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

****

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Milton H. Werner Milton H. Werner, Ph.D.	President, Chief Executive Officer and Director (Principal Executive Officer)	January 10, 2025
/s/ Garth Lees-Rolfe Garth Lees-Rolfe, CPA	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	January 10, 2025
/s/ Roberto Bellini Roberto Bellini	Chairperson	January 10, 2025
/s/ Dennis Berman Dennis Berman	Director	January 10, 2025
/s/ David Canner David Canner	Director	January 10, 2025
/s/ Roy Freeman, M.D. Roy Freeman, M.D.	Director	January 10, 2025
/s/ Arvind Kush Arvind Kush	Director	January 10, 2025
/s/ Amit Munshi Amit Munshi	Director	January 10, 2025

Exhibit 5.1

Goodwin Procter LLP
100 Northern Avenue
Boston, MA 02210
goodwinlaw.com
+1 617 570 1000

January 10, 2025

Inhibikase Therapeutics, Inc.
3350 Riverwood Parkway SE, Suite 1900
Atlanta, Georgia 30339

Re: Securities Registered under Registration Statement on Form S-3

We have acted as counsel to you in connection with your filing of a Registration Statement on Form S-3 (as amended or supplemented, the "Registration Statement") filed on January 10, 2025, with the Securities and Exchange Commission (the "Commission") pursuant to the Securities Act of 1933, as amended (the "Securities Act"), relating to the registration of the offering by Inhibikase Therapeutics, Inc., a Delaware corporation (the "Company"), of up to 113,953,003 shares (the "Shares") of the Company's common stock, par value $0.001 per share ("Common Stock") to be sold by the selling stockholders listed in the Registration Statement under "Selling Stockholders" (the "Selling Stockholders"), consisting of (a) 40,139,474 shares of Common Stock issuable upon the exercise of Series A-1 Warrants (the "Series A-1 Warrants") and (b) 73,813,529 shares of Common Stock issuable upon the exercise of Series B-1 Warrants (the "Series B-1 Warrants," together with the Series A-1 Warrants, the "Warrants").

We have reviewed such documents and made such examination of law as we have deemed appropriate to give the opinions set forth below. We have relied, without independent verification, on certificates of public officials and, as to matters of fact material to the opinions set forth below, on certificates of officers of the Company. For purposes of the opinion set forth below, we have assumed that before the Shares are issued the Company does not issue shares of Common Stock or reduce the total number of shares of Common Stock the Company is authorized to issue under its certificate of incorporation such that the number of unissued shares of Common Stock authorized under the Company's certificate of incorporation is less than the number of Shares.

The opinion set forth below is limited to the Delaware General Corporation Law.

Based on the foregoing, we are of the opinion that the Shares, when delivered and paid for upon exercise of the Warrants in accordance with the terms of the Warrants, will have been duly authorized and validly issued and will be fully paid and nonassessable.

This opinion letter and the opinion it contains shall be interpreted in accordance with the Core Opinion Principles as published in 74 *Business Lawyer* 815 (Summer 2019).

We hereby consent to the inclusion of this opinion as Exhibit 5.1 to the Registration Statement and to the references to our firm under the caption "Legal Matters" in the Registration Statement. In giving our consent, we do not admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations thereunder.

Very truly yours,

/s/ Goodwin Procter LLP

GOODWIN PROCTER LLP

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in this Registration Statement on FormS-3 and related Prospectus, of our report dated March 27, 2024, with respect to the consolidated financial statements of Inhibikase Therapeutics, Inc. and Subsidiary as of December 31, 2023 and 2022, and for the years then ended which report is included in the Annual Report on Form 10-K of Inhibikase Therapeutics, Inc. for the year ended December 31, 2023, filed with the Securities and Exchange Commission. Our audit report includes an explanatory paragraph relating to Inhibikase Therapeutics, Inc. and Subsidiary's ability to continue as a going concern.

We also consent to the reference to our firm under the caption "Experts."

/s/ CohnReznick LLP

Holmdel, New Jersey
January 10, 2025

EXHIBIT 107

Calculation of Filing Fee Tables

Form S-3
(Form Type)

Inhibikase Therapeutics, Inc.
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered and Carry Forward Securities

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered(1)	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Newly Registered Securities								
Fees to Be Paid	Equity	Common Stock issuable upon exercise of Series A-1 Warrants	457(c)	40,139,474(2)	$3.225(3)	$129,449,803.65	$0.00015310	$19,818.77
Fees to Be Paid	Equity	Common Stock issuable upon exercise of Series B-1 Warrants	457(c)	73,813,529(2)	$3.225(3)	$238,048,631.025	$0.00015310	$36,445.25
Fees Previously Paid								
Carry Forward Securities								
Carry Forward Securities	—	—	—	—	—	—		—
	Total Offering Amounts					$367,498,434.675		$56,264.02
	Total Fees Previously Paid					—		$0
	Total Fee Offsets					—		$0
	Net Fee Due							$56,264.02

(1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), this registration statement also registers an indeterminate number of shares of Inhibikase Therapeutics, Inc.'s common stock, $0.001 par value per share (the "Common Stock"), which may become issuable by reason of any stock dividend, stock split or other similar transaction effected without the receipt of consideration that results in an increase in the number of the outstanding shares of Common Stock.

(2) The shares of Common Stock will be offered for resale by the selling stockholders pursuant to the prospectus contained in the registration statement to which this exhibit is attached. The registration statement registers the resale of an aggregate of 113,953,003 shares of Common Stock, which consists of (i) 40,139,474 shares of Common Stock issuable upon the exercise of outstanding Series A-1 Warrants, or in lieu thereof, pre-funded warrants to purchase the same number of shares of Common Stock and (ii) 73,813,529 shares of Common Stock issuable upon the exercise of outstanding Series B-1 Warrants, or in lieu thereof, pre-funded warrants to purchase the same number of shares of Common Stock.

(3) Estimated solely for the purpose of calculating the amount of the registration fee pursuant to Rule 457(c) under the Securities Act, based on the average of the high and low prices of the Common Stock as reported on Nasdaq Capital Market on January 7, 2025 of $3.225 per share.