Filed Pursuant to Rule 424(b)(4)
Registration No. 333-269775 and 333-271342

PROSPECTUS

3,686,006 Shares of Common Stock and Accompanying
Common Warrants to Purchase 3,686,006 Shares of Common Stock
and
3,686,006 Shares of Common Stock Issuable Upon Exercise of the Common Warrants

---

We are offering 3,686,006 shares of our common stock, par value $0.001, or common stock, and warrants to purchase 3,686,006 shares of common stock, or the common warrants, pursuant to this prospectus. The combined public offering price for each share of our common stock, together with a common warrant to purchase one share of common stock, is $2.93. Each common warrant will have an exercise price of $2.93 per share, will be exercisable immediately and will expire on the fifth anniversary of the date of issuance. The shares of our common stock and the common warrants are immediately separable and will be issued separately, but will be purchased together in this offering. This prospectus also relates to the offering of the shares of common stock issuable upon exercise of the common warrants. We collectively refer to the shares of common stock and common warrants offered hereby and the shares of common stock underlying the common warrants as the "securities."

There is no established public trading market for the common warrants and we do not expect a market to develop. We do not intend to apply for listing of the common warrants on any securities exchange or other nationally recognized trading system. Without an active trading market, the liquidity of the common warrants will be limited. Our common stock is listed on the Nasdaq Capital Market under the symbol "WINT". On April 19, 2023, the last reported sale price of our common stock on the Nasdaq Capital Market was $5.60 per share.

We are a "smaller reporting company" as defined under the federal securities laws and, as such, have elected to comply with certain reduced public company reporting requirements for this prospectus and the documents incorporated by reference herein and may elect to comply with reduced public company reporting requirements in future filings. See "*Prospectus Summary Implications of Being a Smaller Reporting Company*."

Investing in our securities involves a high degree of risk. Before deciding whether to invest in our securities, you should consider carefully the risks that we have described beginning on page 10 of this prospectus under the caption "*Risk Factors*", and under similar headings in any amendment or supplement to this prospectus or in any other documents incorporated by reference into this prospectus.

	Per Share and Accompanying Common Warrant	Total
Public offering price	$ 2.93	$ 10,799,997.58
Underwriting discounts and commissions(1)	$ 0.2344	$ 863,999.81
Proceeds to us, before expenses(2)	$ 2.6956	$ 9,935,997.77

(1) We have agreed to reimburse the underwriters for certain expenses. See "*Underwriting*" on page 76 for additional information regarding underwriting compensation.
(2) The above summary of offering proceeds does not give effect to any proceeds from the exercise of the common warrants being issued in this offering.

We have granted the underwriters an option for a period of up to 45 days from the date of this prospectus to purchase up to 552,900 additional shares of our common stock at the public offering price of $2.92 per share, and/or common warrants to purchase up to 552,900 shares of our common stock at the public offering price of $0.01 per common warrant, or any combination thereof, as determined by the underwriters, less underwriting discounts and commissions, in each case solely to cover over-allotments, if any.

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

The underwriters expect to deliver the securities against payment in New York, NY on or about April 24, 2023.

Ladenburg Thalmann

Prospectus dated April 20, 2023

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS

The registration statement we filed with the Securities and Exchange Commission, or the SEC, includes exhibits that provide more detail of the matters discussed in this prospectus. You should read this prospectus, the related exhibits filed with the SEC, and the documents incorporated by reference herein before making your investment decision. You should rely only on the information provided in this prospectus and the documents incorporated by reference herein or any amendment thereto.

You should not assume that the information contained in this prospectus or any related free writing prospectus is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference herein or therein is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus or any related free writing prospectus is delivered, or securities are sold, on a later date. This prospectus contains or incorporates by reference summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been or will be filed or have been or will be incorporated by reference as exhibits to the registration statement of which this prospectus forms a part, and you may obtain copies of those documents as described in this prospectus under the heading "*Where You Can Find More Information*."

You should rely only on the information that we have included or incorporated by reference in this prospectus and any related free writing prospectus that we may authorize to be provided to you. We have not, and the underwriters have not, authorized anyone to give any information or to make any representation other than those contained or incorporated by reference in this prospectus or any related free writing prospectus that we may authorize to be provided to you. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus or any related free writing prospectus. This prospectus and any related free writing prospectus do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor do this prospectus or any related free writing prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction.

In addition, while we believe the industry, market and competitive position data included in this prospectus, including the information incorporated by reference herein is reliable and based on reasonable assumptions, such data involve risks and uncertainties and are subject to change based on various factors. These factors could cause results to differ materially from those expressed in the estimates made by the independent parties or by us.

Unless the context otherwise requires, references in this prospectus to "Windtree," "Windtree Therapeutics," "the Company," "we," "our," and "us" refer to Windtree Therapeutics, Inc., a Delaware corporation, and our consolidated subsidiaries.

We use "Windtree Therapeutics," as our trademark, and we have been granted a trademark or have a trademark application on file with the United States Patent and Trademark Office. All trademarks or trade names referred to in this prospectus and the documents incorporated by reference herein are the property of their respective owners. Solely for convenience, the trademarks and trade names in this prospectus and the documents incorporated by reference herein are referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto. We do not intend the use or display of other companies' trademarks and trade names to imply a relationship with, or endorsement or sponsorship of us, by any other companies.

PROSPECTUS SUMMARY

This summary highlights information contained elsewhere in this prospectus. This summary is not complete and does not contain all of the information you should consider in making your investment decision. You should carefully read the entire prospectus, including the risks of investing in our securities discussed under the heading "Risk Factors" and under similar headings in the other documents that are incorporated by reference into this prospectus. You should also carefully read the information incorporated by reference into this prospectus, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part. Unless the context otherwise requires, the terms "Windtree", "the Company," "we," "us," "our" and similar references in this prospectus refer to Windtree Therapeutics, Inc. and its consolidated subsidiaries.

Overview

We are a clinical-stage biopharmaceutical company focused on the development of novel therapeutics intended to address significant unmet medical needs in important cardiovascular care markets. Our development programs are primarily focused on the treatment of cardiovascular diseases. Our lead product candidate, istaroxime, is a first-in-class, dual-acting agent being developed to improve cardiac function in patients with acute heart failure, or AHF, with a potentially differentiated safety profile from existing treatments. Istaroxime demonstrated significant improvement in both diastolic and systolic aspects of cardiac function and was generally well tolerated in three Phase 2 clinical trials. Istaroxime has been granted Fast Track designation for the treatment of AHF by the U.S. Food and Drug Administration, or FDA. Based on the profile observed in our Phase 2 clinical studies in AHF, where istaroxime significantly improved cardiac function and systolic blood pressure, or SBP, in acute decompensated heart failure patients, we initiated a Phase 2 global clinical study to evaluate istaroxime for the treatment of early cardiogenic shock (Society for Cardiovascular Angiography and Interventions Stage B shock), a severe form of AHF characterized by very low blood pressure and risk for hypoperfusion to critical organs and mortality. We completed this Phase 2 global clinical study and, in April 2022, announced positive topline results. Istaroxime rapidly and significantly increased SBP while also improving cardiac function and preserving renal function. In May 2022, we presented the study results at the European Society of Cardiology Heart Failure Meeting in Madrid, Spain and, in September 2022, the results were published in the European Journal of Heart Failure. We believe that istaroxime has the potential to fulfill an unmet need in early and potentially more severe cardiogenic shock. We further believe that the data from our recently completed Phase 2 global clinical study in early cardiogenic shock not only supports that program's continued development but also supports the continued development of our AHF program as well.

Our heart failure cardiovascular portfolio also includes sarco endoplasmic reticulum Ca2+ -ATPase 2a, or SERCA2a, activators. This research program is evaluating these preclinical product candidates, including oral and intravenous SERCA2a activator heart failure compounds. These candidates would potentially be developed for both acute decompensated and chronic out-patient heart failure. In addition, our cardiovascular drug product candidates include rostafuroxin, a novel product candidate for the treatment of hypertension in patients with a specific genetic profile. We are pursuing potential licensing arrangements and/or other strategic partnerships and do not intend to advance this product candidate without securing such an arrangement or partnership.

Previously, we were developing our KL4 surfactant platform, including AEROSURF (lucinactant for inhalation), to address a range of serious respiratory conditions in children and adults. In order to focus our resources on the development of our istaroxime pipeline, we suspended internal AEROSURF clinical activities in November 2020, and, in January 2022 we began to reduce all other costs related to the KL4 surfactant platform that were not already being performed by our licensee, Lee's Pharmaceutical (HK) Ltd., or Lee's (HK), and its affiliate, Zhaoke Pharmaceutical (Hefei) Co. Ltd., or Zhaoke, under the terms of our License, Development and Commercialization Agreement between us and Lee's (HK) dated as of June 12, 2017, as amended, or the Original License Agreement.

On August 17, 2022, we entered into an Amended and Restated License, Development and Commercialization Agreement, or the A&R License Agreement, with Lee's (HK) and Zhaoke effective as of August 9, 2022. We refer to Zhaoke and Lee's (HK) together as the "Licensee." The A&R License Agreement amends, restates, and supersedes the Original License Agreement.

Under the A&R License Agreement, we granted to Licensee an exclusive license, with a right to sublicense, to develop, register, make, use, sell, offer for sale, import, distribute, and otherwise commercialize our KL4 surfactant products, including SURFAXIN®, the lyophilized dosage form of SURFAXIN, and aerosolized KL4 surfactant, in each case for the prevention, mitigation, and/or treatment of any respiratory disease, disorder, or condition in humans worldwide, except for Andorra, Greece, and Italy (including the Republic of San Marino and Vatican City), Portugal, and Spain, or the Licensed Territory, which countries are currently exclusively licensed to Laboratorios Del Dr. Esteve, S.A., or Esteve.

Under the Original License Agreement, Lee's (HK) previously made an upfront payment to us of $1.0 million. Pursuant to the terms of the A&R License Agreement, we may also receive up to $78.9 million in potential clinical, regulatory, and commercial milestone payments. We are also entitled to receive a low double-digit percentage of Licensee's non-royalty sublicense income.

Further, under the A&R License Agreement, Licensee is solely and exclusively responsible for all costs and activities related to the development, manufacturing, regulatory approval, and commercialization of licensed products in the Licensed Territory, including all royalties payable in respect of third-party intellectual property rights sublicensed by us to Licensee and all intellectual property prosecution, maintenance and defense activities and costs.

Our ability to advance our development programs is dependent upon our ability to secure additional capital in both the near and long-term, through public or private securities offerings; convertible debt financings; and/or potential strategic opportunities, including licensing agreements, drug product development, and marketing collaboration arrangements, pharmaceutical research cooperation arrangements, and/or other similar transactions in geographic markets, including the U.S., and/or through potential grants and other funding commitments from U.S. government agencies, in each case, if available. We have engaged with potential counterparties in various markets and will continue to pursue non-dilutive sources of capital as well as potential private and public securities offerings. There can be no assurance, however, that we will be able to identify and enter into public or private securities offerings on acceptable terms and in amounts sufficient to meet our needs or qualify for non-dilutive funding opportunities under any grant programs sponsored by U.S. government agencies, private foundations, and/or leading academic institutions, or identify and enter into any strategic transactions that will provide the additional capital that we will require. If none of these alternatives is available, or if available and we are unable to raise sufficient capital through such transactions, we potentially could be forced to limit or cease our development activities, which would have a material adverse effect on our business, financial condition, and results of operations.

Business and Program Updates

The reader is referred to, and encouraged to read in its entirety, "Item 1. Business" in our Annual Report on Form 10-K for the year ended December 31, 2022 that we filed with the SEC on March 31, 2023, or our 2022 Annual Report, which contains a discussion of our business and business plans, as well as information concerning our proprietary technologies and our current and planned development programs.

Istaroxime (Early Cardiogenic Shock)

We are evaluating istaroxime for the treatment of early cardiogenic shock, a severe presentation of heart failure characterized by very low blood pressure and risk for hypoperfusion to critical organs which is associated with high mortality and morbidity and is not well treated with current therapies.

In September 2020, we initiated a Phase 2 clinical study of istaroxime for the acute treatment of cardiogenic shock in more severe heart failure patients than previously studied to evaluate the potential to improve blood pressure (primary measure) and cardiac function (secondary measure). The study also evaluated the safety and side effect profile of istaroxime in this patient population. In April 2022, we announced positive topline results with istaroxime in rapidly and significantly raising SBP. In May 2022, we presented data from our positive Phase 2 study of istaroxime in early cardiogenic shock in a late-breaker presentation at the European Society of Cardiology Heart Failure Meeting in Madrid, Spain and, in September 2022, the results were published in the European Journal of Heart Failure. There is a significant unmet medical need in the area of early cardiogenic shock and severe heart failure. Istaroxime demonstrated a meaningful increase in blood pressure while simultaneously increasing cardiac output and preserving renal function in clinical trials of this condition.

In order to continue our development of istaroxime for the acute treatment of cardiogenic shock, subject to adequate resources, we are planning to extend enrollment in this clinical trial by up to 30 patients at an estimated cost of up to $3.5 million. We believe that this extension will advance the characterization of the physiology associated with longer dosing as well as additional dose optimization. We also believe that this extension will further characterize the effects associated with SERCA2a activation and will support our clinical and regulatory strategy for istaroxime. We currently do not have sufficient capital to fully execute the extension of this clinical trial.

Using cardiogenic shock patient U.S. hospital claims and worldwide prevalence data, we estimate the worldwide total market value of cardiogenic shock to be $1.25 billion. This estimate is calculated by multiplying the patient numbers from the largest markets, by the assumed various regional prices of drug treatment in the acute care market. The addressable market for istaroxime will be a subset of the total market value of $1.25 billion.

Istaroxime (AHF)

In 2019, we announced topline results of a successful Phase 2b clinical trial of istaroxime in which the primary endpoint of cardiac function, E/e' ratio (echocardiographic assessment reflecting changes in pulmonary capillary wedge pressure, or PCWP, or left ventricular filing pressure) as well as other important parameters were significantly improved. Istaroxime has been granted Fast Track designation by the FDA for the treatment of AHF. In April 2020, at the American College of Cardiology 2020 meeting, a new subset analysis from a Phase 2b study of istaroxime in patients hospitalized with AHF was presented. This post-hoc analysis characterized the responses to istaroxime between Caucasian and Asian patients. The analysis demonstrated that the dose of 0.5 µg/kg/min produced a similar response on E/e' and stroke volume index in the two regions studied.

Istaroxime represents a novel approach to the treatment of AHF. It has a dual mechanism of action to improve cardiovascular physiology. Current therapy for heart failure in the hospital typically includes intravenous diuretics and, if the blood pressure is low, supportive therapy with inotropes. Inotropes are often associated with adverse effects such as hypotension, arrhythmias and, in some cases, increased mortality. These drugs are used only if needed to support blood pressure and cardiac function. We believe that istaroxime, if approved, may have the potential to address unmet medical needs of these patients by improving cardiac function and management of fluid accumulation that contributes to heart failure symptoms with a potentially differentiated safety profile from current AHF therapies, including a potential reduction in complications and improvement of other clinical outcomes.

There is substantial potential synergy between our clinical trial program in early cardiogenic shock and our development program in acute decompensated heart failure. Both programs are focused on treating heart failure patients with acute congestion and low blood pressure requiring hospitalization. We believe that this category of heart failure patients (whether they are in shock or not) could particularly benefit from the unique profile and potential ability of istaroxime to improve cardiac function and increase blood pressure while maintaining or improving renal function. Our strategy is to advance istaroxime in cardiogenic shock as the lead indication and utilize this data and experience, along with the positive Phase 2a and 2b AHF studies, to potentially enter Phase 3 for acute decompensated heart failure in the normal to low SBP population. We currently do not have sufficient capital to execute our clinical trial in AHF and are seeking partnership opportunities to advance the program.

Rostafuroxin

Rostafuroxin is a novel investigational drug product candidate being developed for the treatment of hypertension in patients with a specific genetic profile, which is found in approximately 20% to 25% of the adult hypertensive population. Rostafuroxin has been studied in three Phase 2 clinical trials assessing reduction in blood pressure in a hypertensive population selected in accordance with the specified genetic profile. After positive Phase 2a results, a Phase 2b study was initiated. In this most recent Phase 2b clinical trial, rostafuroxin demonstrated efficacy in Caucasian patients in treatment of naïve hypertension. During the second quarter of 2021, we concluded a process to explore the industry's interest in investing in our drug product candidate. We currently have not been able to secure a licensing transaction or other strategic opportunity. As a result, we recorded an impairment of the related intangible asset during the year ended December 31, 2021. Based on feedback received from potential licensing partners, we have determined that there is a need for an additional Phase 2 clinical trial to demonstrate efficacy in patients with treatment resistant hypertension. We are continuing to pursue licensing arrangements, other strategic partnerships, and/or grant funding for rostafuroxin. We do not intend to conduct the additional Phase 2 clinical trial without securing such an arrangement, partnership, or grant funding.

SERCA2a Activators – Preclinical Oral, Chronic and AHF Product Candidates

We are conducting early exploratory research to assess potential product candidates, including oral and intravenous SERCA2a activator heart failure compounds, and believe that we can add value to our cardiovascular portfolio by advancing these SERCA2a activator candidates through preclinical studies. These preclinical programs build upon our expertise in the SERCA2a mechanism, that led to the development of istaroxime, the first-in-class dual mechanism agent that acts by: (i) partially inhibiting the Na+/K+ pump resulting in an inotropic effect and (ii) stimulating the SERCA2a pump activity on sarcoplasmic reticulum strengthening contraction but importantly improving relaxation and diastolic function.

Istaroxime is the first example of a dual acting agent with SERCA2a activation. We also have two families of follow-on compounds in early development. The first are those endowed with the same dual-acting mechanism of action as istaroxime, which may include potential oral bioavailability for chronic use, and the second family are those with only SERCA2a stimulatory activity. We believe that these programs represent a heart failure platform that has already provided new, novel intellectual property and additional potential opportunities that may extend into the out-patient, chronic heart failure market. Additionally, the European Patent Office granted patent coverage for the dual mechanism SERCA2a Activator class of drug candidates in April 2023. The patent is expected to provide patent protection until July 2038 for the family of compounds with a dual mechanism of action.

To further advance these product candidates, we are actively exploring potential licensing transactions, research partnership arrangements, or other strategic opportunities.

Going Concern

Our management has concluded that substantial doubt exists about our ability to continue as a going concern for one year from the date of this prospectus. We do not expect that the net proceeds from this offering will be sufficient to allow us to continue as a going concern for one year from the date of this prospectus. We believe that, based on the net proceeds of approximately $9.3 million from this offering, together with our existing cash and cash equivalents, we will meet our capital needs through the first quarter of 2024 and support our continued development of istaroxime for the acute treatment of both early and more severe cardiogenic shock and for working capital and general corporate purposes.

Risk Factor Summary

Our ability to execute our business strategy is subject to numerous risks, as more fully described in the section titled "*Risk Factors*" immediately following this Prospectus Summary. These risks include, among others:

Risks Related to Our Financial Condition

- Our current cash position, losses, negative cash flows from operations, and accumulated deficit raise substantial doubt about our ability to continue as a going concern absent obtaining adequate new debt or equity financings;
- We have incurred significant operating losses since inception, we expect to incur operating losses in the future, and we may not be able to achieve or sustain profitability; and
- If we fail to maintain proper and effective internal control over financial reporting, our ability to produce accurate and timely financial statements could be impaired, investors may lose confidence in our financial reporting and the trading price of our common stock may decline.

Risks Related to our Development Activities and Regulatory Approval of our Product Candidates

- We are substantially dependent on the success of our lead product candidate, istaroxime. To the extent that our clinical development of istaroxime is not successful, our business, financial condition, and results of operations may be materially adversely affected and the price of our common stock may decline;
- Although we have multiple product candidates or potential indications of those candidates in our clinical pipeline, we may expend our limited resources to pursue a particular product candidate or indication and fail to capitalize on other product candidates or indications that may be more profitable or for which there is a greater likelihood of success; and
- The successful commercialization of our product candidates, if approved, will depend in part on the extent to which hospitals and hospital systems, governmental authorities and health insurers establish coverage, adequate reimbursement levels and favorable pricing policies. Failure to obtain or maintain coverage and adequate reimbursement for our product candidates, if approved, could limit our ability to market those product candidates and decrease our ability to generate revenue.

Risks Related to Our Reliance on Third Parties

- We rely on third parties, primarily outside of the U.S., to conduct many of our preclinical studies and clinical trials. Any failure by a third party to conduct the clinical trials according to good clinical practices and other requirements and in a timely and quality manner may delay or prevent our ability to seek or obtain regulatory approval for or commercialize our product candidates; and
- We plan to rely on third parties, some of which are located outside the U.S., to manufacture our drug product candidates, which exposes us to risks that may affect our ability to maintain supplies of our clinical materials, and subject us to uncertainty associated with the international political climate, and could potentially delay or cease our research and development activities, as well as eventual regulatory approval and commercialization of our drug product candidates.

Risks Related to our Business and Operations

- Our operating results may fluctuate significantly, which makes our future operating results difficult to predict and could cause our operating results to fall below expectations or any guidance we may provide;
- We may seek to enter into licensing transactions, collaboration arrangements, and other similar transactions and strategic opportunities, and may not be successful in doing so, and even if we are, we may not realize the benefits of such relationships; and
- We could be adversely affected by any interruption, including from breaches in cybersecurity, in our ability to conduct business at our current location.

Risks Related to Government Regulation

- Our activities are subject to various and complex laws and regulations, and we are susceptible to a changing regulatory environment;
- We face risks related to our collection and use of data, including personal information, which could result in investigations, inquiries, litigation, fines, legislative and regulatory action and negative press about our privacy and data protection practices;
- Healthcare reform measures in the U.S., as well as the general tightening of drug reimbursement pathways and levels of reimbursement globally, are expected to add additional pressure to achieve financial expectations for our product candidates, if approved; and
- Our international operations subject us to additional regulatory oversight in foreign jurisdictions, as well as economic, social, and political uncertainties, which could cause a material adverse effect on our business, financial position, and operating results.

Risks Related to Intellectual Property Matters

- If we cannot protect our intellectual property, others could use our technology in competitive products. Even if we obtain patents to protect our product candidates, those patents may not be sufficiently broad, or they may expire and others could then compete with us; and
- Litigation or other proceedings or third-party claims of intellectual property infringement could require us to spend significant time and money and could prevent us from selling our product candidates or affect our stock price.

Risks Related to the Ownership of our Securities

- Our common stock is listed on the Nasdaq Capital Market, or Nasdaq. We can provide no assurance that we will be able to comply with the continued listing requirements over time and that our common stock will continue to be listed on Nasdaq;
- We effected a reverse stock split on February 24, 2023 which may adversely impact the market price of our common stock;
- The market price of our common stock may be highly volatile, and investors may not be able to resell their shares at or above the price at which they purchased them; and
- A small group of our investors, including Lee's Pharmaceutical Holdings Limited and Panacea Venture Management Company Ltd., may be able to exercise significant influence over our business strategy and operations.

Risks Related to this Offering

- Purchasers of common stock in this offering will experience immediate and substantial dilution in the net tangible book value of their investment. You may experience further dilution upon exercise of options;
- A substantial number of shares of common stock may be sold in the market following this offering, which may depress the market price for our common stock;

- We have broad discretion to determine how to use the funds raised in this offering, and may use them in ways that may not enhance our operating results or the price of our common stock;
- There is no public market for the common warrants being offered in this offering;
- Holders of common warrants purchased in this offering will have no rights as a common stockholder until such holder exercises its common warrants and acquires our common stock, except as set forth in such common warrants; and
- The common warrants are speculative in nature.

Corporate Information

We were incorporated in Delaware on November 6, 1992. Our principal executive offices are located at 2600 Kelly Road, Suite 100, Warrington, Pennsylvania 18976, and our telephone number is (215) 488-9300. Our website address is *www.windtreetx.com.* The information on, or that can be accessed through, our website is not part of this prospectus and is not incorporated by reference herein and you should not consider it part of this prospectus. We have included our website address as an inactive textual reference only.

Implications of Being a Smaller Reporting Company

We are a smaller reporting company as defined in the Securities Exchange Act of 1934, as amended, or the Exchange Act. We may take advantage of certain of the scaled disclosures available to smaller reporting companies and will be able to take advantage of these scaled disclosures for so long as (i) the market value of our voting and non-voting common stock held by non-affiliates is less than $250 million measured on the last business day of our second fiscal quarter or (ii) our annual revenue is less than $100 million during the most recently completed fiscal year and the market value of our voting and non-voting common stock held by non-affiliates is less than $700 million measured on the last business day of our second fiscal quarter. Specifically, as a smaller reporting company, we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Reports on Form 10-K and have reduced disclosure obligations regarding executive compensation, and, as long as we are a smaller reporting company with less than $100 million in annual revenue, we are not required to obtain an attestation report on internal control over financial reporting from our independent registered public accounting firm.

Recent Developments — Preliminary First Quarter Results

Based on information currently available, we estimate that as of March 31, 2023, cash and cash equivalents were approximately $4.2 million and net cash used before financing activities for the first quarter of 2023 was $2.9 million.

Our estimate of our cash and cash equivalents as of March 31, 2023 and net cash used before financing activities for the first quarter of 2023 are preliminary and actual results may differ from these estimates due to the completion of our closing procedures with respect to the three months ended March 31, 2023, final adjustments and other developments that may arise between now and the time the financial results for the three months ended March 31, 2023 are finalized. As such, these estimates should not be viewed as a substitute for our unaudited financial statements for the three months ended March 31, 2023 prepared in accordance with U.S. generally accepted accounting principles. Our expected results could change materially and are not necessarily indicative of the results to be achieved for three months ended March 31, 2023 or any future period. As a result of the foregoing considerations and the other limitations described herein, investors are cautioned not to place undue reliance on this preliminary financial information. We do not undertake any obligation to publicly update or revise these estimates, except as required by law.

The Offering

The following summary contains basic information about this offering. The summary is not intended to be complete. You should read the full text and more specific details contained elsewhere in this prospectus.

Common stock to be offered	3,686,006 shares of common stock or 4,238,906 shares if the underwriters exercise their option to purchase additional shares in full.
Common warrants	We are also offering common warrants to purchase 3,686,006 shares of common stock. The exercise price of each common warrant will be $2.93 per share. Each common warrant will be immediately exercisable upon issuance for a five-year period after the date of issuance. This prospectus also relates to the offering of the common stock issuable upon exercise of such common warrants. See "*Description of the Securities We are Offering*" on page 74 of this prospectus. You should also read the form of common warrant, which is filed as an exhibit to the registration statement that includes this prospectus.
Common stock to be outstanding after this offering	4,595,019 shares, or 5,147,919 shares if the underwriters exercise their option to purchase additional shares in full.
Option to purchase additional shares of common stock and common warrants	We have granted the underwriters an option for a period of up to 45 days from the date of this prospectus to purchase up to 552,900 additional shares of our common stock and/or common warrants to purchase up to 552,900 shares of our common stock, in any combination thereof, from us at the public offering price per share and per common warrant, less underwriting discounts and commissions, in each case solely to cover over-allotments, if any.
Use of proceeds	We intend to use the net proceeds from this offering for the clinical development of istaroxime in cardiogenic shock and for working capital and general corporate purposes. See "*Use of Proceeds*" on page 54 of this prospectus.
Lock-up restrictions	We, and each of our directors and officers, are subject to certain lock-up restrictions as identified in the section titled "*Underwriting*."
Risk factors	You should read the section entitled "*Risk Factors*" beginning on page 10 and the documents incorporated by reference in this prospectus for a discussion of factors to consider carefully before deciding to invest in our securities.
Nasdaq Capital Market symbol	Our shares of common stock are traded on The Nasdaq Capital Market under the symbol "WINT". There is no established public trading market for the common warrants, and we do not expect a market to develop. We do not intend to apply for listing of the common warrants on any securities exchange or other nationally recognized trading system. Without an active trading market, the liquidity of the common warrants will be limited.
Transfer Agent and Registrar	Continental Stock Transfer and Trust Company

The number of shares of our common stock to be outstanding after this offering is based on 909,013 shares of common stock outstanding as of March 31, 2023, assumes no exercise of any common warrants offered hereby, and excludes:

- 449,345 shares of our common stock issuable upon the exercise of outstanding warrants as of March 31, 2023, with a weighted-average exercise price of $179.56 per share;
- 70,972 shares of our common stock issuable upon the exercise of outstanding stock options as of March 31, 2023, with a weighted-average exercise price of $376.68 per share;
- 6,524 shares of our common stock issuable upon the exercise of outstanding restricted stock units as of March 31, 2023, with a weighted-average grant date fair value of $49.31 per share; and
- 44,232 shares of our common stock reserved for future issuance under our 2020 Equity Incentive Plan, as amended, or 2020 Plan, plus any future increases in the number of shares of common stock reserved for issuance.

Except otherwise indicated, the information in this prospectus assumes no exercise of the outstanding options or warrants described above or sold in this offering, and no exercise by the underwriters of their option to purchase additional shares of our common stock and/or common warrants.

RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the risks described below, and those discussed under the section entitled "Risk Factors" contained in our 2022 Annual Report and our subsequent Quarterly Reports, together with other information in this prospectus, the information and documents incorporated by reference herein, and in any free writing prospectus that we have authorized for use in connection with this offering. The occurrence of any of the events or developments described below could materially and adversely affect our business, financial condition, results of operations and prospects. In such an event, the market price of our common stock could decline and you may lose all or part of your investment.

Risks Related to Our Financial Condition

Our current cash position, losses, negative cash flows from operations, and accumulated deficit raise substantial doubt about our ability to continue as a going concern absent obtaining adequate new debt or equity financings.

The auditor's opinion on our audited financial statements for the year ended December 31, 2022 includes an explanatory paragraph stating that we have incurred recurring losses from operations that raise substantial doubt about our ability to continue as a going concern. Management has also concluded that substantial doubt exists about our ability to continue as a going concern. As of December 31, 2022, we had cash and cash equivalents of $6.2 million and current liabilities of $2.5 million. As of the date of this prospectus, we believe that, prior to this offering, we have sufficient resources available to support our development activities and fund our business operations and satisfy our obligations into the second quarter of 2023. However, we do not have sufficient cash and cash equivalents as of the date of this prospectus to support our operations for at least 12 months. We believe, that based on the net proceeds of approximately $9.3 million that we will receive from this offering, together with our existing cash and cash equivalents, we will meet our capital needs through the first quarter of 2024 and support our continued development of istaroxime for the acute treatment of both early and more severe cardiogenic shock and for working capital and general corporate purposes.

To alleviate the conditions that raise substantial doubt about our ability to continue as a going concern, management plans to secure additional capital, potentially through a combination of public or private securities offerings; convertible debt financings; and/or strategic transactions, including potential licensing arrangements, alliances and drug product collaborations focused on specified geographic markets; however, none of these alternatives are committed at this time. There can be no assurance that we will be successful in obtaining sufficient funding on terms acceptable to us to fund continuing operations, if at all, or identify and enter into any strategic transactions that will provide the capital that we will require. If none of these alternatives is available, or if available, we are unable to raise sufficient capital through such transactions, we will not have sufficient cash resources and liquidity to fund our business operations for at least the next 12 months following the date of this prospectus. In addition, we may be unable to pay our vendors and other service partners on time, or at all. If any of our key vendors and service providers were to cease working with us or subject the delivery of products or services to timing or payment preconditions, our development activities may be adversely affected, which could have a material adverse effect on our business and operations. The failure to obtain sufficient capital on acceptable terms when needed may require us to delay, limit, or eliminate the development of business opportunities and our ability to achieve our business objectives and our competitiveness, and our business, financial condition, and results of operations will be materially adversely affected. In addition, market instability, including as a result of geopolitical instability, may reduce our ability to access capital, which could negatively affect our liquidity and ability to continue as a going concern. In addition, the perception that we may not be able to continue as a going concern may cause others to choose not to deal with us due to concerns about our ability to meet our contractual obligations.

Our forecast of the period of time through which our financial resources will be adequate to support our operating requirements is a forward-looking statement and involves risks and uncertainties, and actual results could vary as a result of a number of factors, including the factors discussed elsewhere in this "*Risk Factors*" section. We have based this estimate on a number of assumptions that may prove to be wrong and changing circumstances beyond our control may cause us to consume capital more rapidly than we currently anticipate. Our inability to obtain additional funding when we need it could seriously harm our business.

We have incurred significant operating losses since inception, we expect to incur operating losses in the future, and we may not be able to achieve or sustain profitability.

We have incurred operating losses since our incorporation on November 6, 1992. For the years ended December 31, 2022 and 2021, we had operating losses of $41.3 million and $77.3 million, respectively. As of December 31, 2022, we had an accumulated deficit of $824.5 million. To date, we have financed our operations primarily through private placements and public offerings of our common and preferred stock and borrowings from investors and financial institutions. As of December 31, 2022, we had cash and cash equivalents of $6.2 million and believe that we have sufficient resources available to support our development activities and fund our business operations into the second quarter of 2023.

We expect to continue to incur significant research and clinical development, regulatory and other expenses as we (i) develop product candidates; (ii) seek regulatory clearances or approvals for our planned or future product candidates; (iii) conduct clinical trials on our planned or future product candidates; and (iv) manufacture, market and sell any product candidates for which we may obtain regulatory approval. As a result, we expect to continue to incur operating losses for the foreseeable future and may never achieve profitability. Even if we do achieve profitability, we may not be able to sustain or increase profitability on an ongoing basis. If we do not achieve or sustain profitability, it will be more difficult for us to finance our business and accomplish our strategic objectives, either of which would have a material adverse effect on our business, financial condition and results of operations and may cause the market price of our common stock to decline.

We will require substantial additional financing to achieve our goals, and a failure to obtain this necessary capital when needed on acceptable terms, or at all, could force us to delay, limit, reduce or terminate our product development programs, or other operations.

The development of biopharmaceutical product candidates is capital-intensive. We expect our expenses to increase in connection with our ongoing activities, particularly as we conduct our planned clinical trials under our key clinical development programs, continue research and development and potentially initiate clinical trials under our other development programs and seek regulatory approval for any product candidates we may develop. In addition, as our product candidates progress through development and toward commercialization, we may need to make milestone payments to licensors and other third parties from whom we have in-licensed or acquired our product candidates. Furthermore, if and to the extent we seek to acquire or in-license additional product candidates in the future, we may be required to make significant upfront payments, milestone payments, and/or licensing payments. If we obtain regulatory approval for any of our product candidates, we also expect to incur significant commercialization expenses related to product manufacturing, marketing, sales and distribution. Because the outcome of any clinical trial or preclinical study is highly uncertain, we cannot reasonably estimate the actual amounts necessary to successfully complete the development and commercialization of our product candidates. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. Moreover, a small group of investors that hold a significant portion of our issued and outstanding common stock may be in a position to influence the terms of a funding transaction, potentially making it more difficult to reach agreement on terms that are acceptable to investors participating in the financing, in a timely manner, if at all. If we are unable to raise sufficient capital to fund our activities when needed and on acceptable terms, we could be forced to delay, reduce or eliminate our research and development programs or, if our product candidates are approved, any future commercialization efforts.

We have based estimates included in our operating plan on assumptions that may prove to be wrong, and we could use our capital resources sooner than we currently expect. Our operating plans and other demands on our cash resources may change as a result of many factors currently unknown to us, and we may need to seek additional funds sooner than planned, through public or private equity or debt financings or other capital sources, including potentially collaborations, licenses and other similar arrangements. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. Attempting to secure additional financing may divert our management from our day-to-day activities, which may adversely affect our ability to develop our product candidates.

Our future capital requirements will depend on many factors, including:

- the type, number, scope, progress, expansions, results, costs and timing of our clinical trials and preclinical studies of our product candidates, which we are pursuing or may choose to pursue in the future;
- the costs and timing of manufacturing for our product candidates, including commercial manufacturing if any product candidate is approved;
- the costs, timing and outcome of regulatory review of our product candidates;
- the costs of obtaining, maintaining and enforcing our patents and other intellectual property rights;
- the timing and amount of the milestone or other payments we must make to the licensors and other third parties from whom we have in-licensed or acquired our product candidates;
- the costs and timing of establishing or securing sales and marketing capabilities if any product candidate is approved;
- the costs, terms and timing of establishing and maintaining collaborations, licenses and other similar arrangements;
- costs associated with any product candidates or technologies that we may in-license or acquire; and
- our ability to achieve sufficient market acceptance, coverage and adequate reimbursement from payors and adequate market share and revenue for any approved products.

Conducting clinical trials and preclinical studies is a time consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain regulatory approval and achieve product sales. In addition, our product candidates, if approved, may not achieve commercial success.

Accordingly, we will need to continue to rely on additional financing to achieve our business objectives. Adequate additional financing may not be available to us at any time on acceptable terms, or at all.

Raising additional capital may cause dilution to our stockholders, restrict our operations or require us to relinquish rights to our technologies or product candidates.

Until we can generate substantial product revenues to support our operations, we expect to finance our cash needs through equity offerings, debt financings or other capital sources, including potentially collaborations, licenses and other strategic transactions. To the extent that we raise additional capital through the sale of equity or convertible debt securities, our stockholders' ownership interests will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect their rights as common stockholders. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends.

If we raise funds through future collaborations, licenses and other similar arrangements, we may have to relinquish valuable rights to our future revenue streams, research programs or product candidates or grant licenses on terms that may not be favorable to us and/or that may reduce the value of our common stock.

Unstable market and economic conditions may have serious adverse consequences on our business, financial condition, and stock price.

Global financial markets have recently, and may continue to, experience extreme volatility and disruptions, declines in consumer confidence, declines in economic growth, increases in unemployment rates, and uncertainty about economic stability as a result of geopolitical unrest, liquidity constraints, failures and instability in U.S. and international financial banking systems, inflation, and other factors beyond control. There can be no assurance that further deterioration in credit and financial markets and confidence in economic conditions will not occur. Our general business strategy and ability to raise capital may be adversely affected by any such economic downturn, volatile business environment, or continued unpredictable and unstable market conditions. If the current equity and credit markets deteriorate, it may make any necessary debt or equity financing more difficult, more costly, and more dilutive. Failure to secure any necessary financing in a timely manner and on favorable terms could have a material adverse effect on our growth strategy, financial performance, and stock price and could require us to delay or abandon clinical development plans. In addition, there is a risk that one or more of our current service providers, manufacturers, and other partners may not survive these difficult economic times, which could directly affect our ability to attain our operating goals on schedule and on budget.

In addition, the stock markets have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies, including in connection with the ongoing coronavirus pandemic, which has resulted in decreased stock prices for many companies notwithstanding the lack of a fundamental change in their underlying business models or prospects. These fluctuations have often been unrelated or disproportionate to the operating performance of those companies. For additional information regarding the impact of the coronavirus pandemic, please see "*Risk Factors—The coronavirus pandemic has negatively impacted, and may continue to negatively impact our ability to develop our product candidates.*"

Further, the impacts of political unrest, including as a result geopolitical tension, such as a deterioration in the relationship between the U.S. and China or continued conflict between Russia and Ukraine, including any additional sanctions, export controls or other restrictive actions that may be imposed by the U.S. and/or other countries against governmental or other entities in, for example, China or Russia, also could lead to disruption, instability, and volatility in the global markets, which may have an adverse impact on our business or ability to access the capital markets. Broad market and industry factors, including potentially worsening economic conditions, inflationary pressures, and other adverse effects, political, regulatory, and other market conditions, may negatively affect the market price of shares of our common stock, regardless of our actual operating performance.

Adverse developments affecting the financial services industry, including events or concerns involving liquidity, defaults or non-performance by financial institutions or transactional counterparties, could adversely affect our business, financial condition or results of operations.

Events involving limited liquidity, defaults, non-performance or other adverse developments that affect financial institutions, transactional counterparties or other companies in the financial services industry or the financial services industry generally, or concerns or rumors about any events of these kinds or other similar risks, have in the past and may in the future lead to market-wide liquidity problems. Most recently, on March 10, 2023, Silicon Valley Bank was closed by the California Department of Financial Protection and Innovation, which appointed the Federal Deposit Insurance Corporation as receiver. Similarly, on March 12, 2023, Signature Bank and Silvergate Capital Corp. were each swept into receivership. Although we assess our banking and customer relationships as we believe necessary or appropriate, our access to funding sources and other credit arrangements in amounts adequate to finance or capitalize our current and projected future business operations could be significantly impaired by factors that affect us, the financial services industry or economy in general. These factors could include, among others, events such as liquidity constraints or failures, the ability to perform obligations under various types of financial, credit or liquidity agreements or arrangements, disruptions or instability in the financial services industry or financial markets, or concerns or negative expectations about the prospects for companies in the financial services industry.

In addition, investor concerns regarding the U.S. or international financial systems could result in less favorable commercial financing terms, including higher interest rates or costs and tighter financial and operating covenants, or systemic limitations on access to credit and liquidity sources, thereby making it more difficult for us to acquire financing on acceptable terms or at all. Any decline in available funding or access to our cash and liquidity resources could, among other risks, adversely impact our ability to meet our operating expenses, financial obligations or fulfill our other obligations, result in breaches of our contractual obligations or result in violations of federal or state wage and hour laws. Any of these impacts, or any other impacts resulting from the factors described above or other related or similar factors not described above, could have material adverse impacts on our liquidity and our business, financial condition or results of operations.

Due to the significant resources required to develop our product candidates, we must prioritize development of certain product candidates and/or certain disease indications. We may be delayed in advancing a product candidate or potential indication if our plan does not include sufficient funding to execute a clinical program. If we expend our limited resources on candidates or indications that do not yield a successful product and fail to capitalize on other product candidates or indications that may be more profitable or for which there is a greater likelihood of success, such failure could have a material adverse effect on our business, financial condition, results of operations, and prospects.

We are currently focused on developing product candidates to address unmet medical needs in acute cardiovascular diseases. We seek to allocate our limited capital among our programs in an efficient manner and to advance our cardiovascular product candidate. However, due to the significant resources required to advance the development of our product candidates, we also must focus on specific indications and disease pathways and decide which product candidates and indications to pursue and the amount of resources to allocate to each such product candidate.

Our ability to advance a product candidate depends on our ability to secure the additional capital required to execute each phase of product development. In developing our plan, we were aware of the size and projected costs of our planned late stage development of istaroxime to improve cardiac function and clinical outcomes in patients with AHF. We have allocated our limited resources initially toward cardiogenic shock as we believe this may be a less resource intensive and faster development program. Such decisions concerning the allocation of research and development funds towards, or away from, particular product candidates or therapeutic areas may not lead to the development of any viable commercial product and may divert resources away from better opportunities. Similarly, any decision to delay, terminate or engage with third parties in respect of certain programs may subsequently also prove to be suboptimal and could cause us to miss valuable opportunities. In that event, our business, financial condition and results of operations could be materially adversely affected. As a result, we may fail to capitalize on viable commercial products or profitable market opportunities, be required to forego or delay pursuit of opportunities with other product candidates or other diseases and disease pathways that may later prove to have greater commercial potential than those we choose to pursue, or relinquish valuable rights to such product candidates through collaboration, licensing or other royalty arrangements in cases in which it would have been advantageous for us to invest additional resources to retain development and commercialization rights.

We have a significant amount of intangible assets, including goodwill, recorded on our consolidated balance sheets which may lead to potentially significant impairment charges.

As a result of the acquisition of CVie Therapeutics Ltd, or CVie Therapeutics, in December 2018, we have recorded significant intangible assets and goodwill on our consolidated balance sheets, which could become impaired and lead to material charges in the future. The identifiable intangible assets resulting from the CVie Therapeutics acquisition relate to in-process research and development, or IPR&D, of istaroxime and rostafuroxin, which, as of December 31, 2022, were $22.3 million and $2.9 million, respectively, recorded in aggregate on our consolidated balance sheets as intangible assets of $25.3 million. As of December 31, 2022, goodwill recorded on our consolidated balance sheets was $3.1 million.

Throughout the year, we consider whether any events or changes in the business environment have occurred which indicate that intangible assets or goodwill may be impaired. If an impairment exists, we would be required to take an impairment charge with respect to the impaired asset. Events giving rise to impairment are difficult to predict, including the uncertainties associated with the development of product candidates and the success of business development activities, and are an inherent risk in the pharmaceutical industry.

As part of our annual quantitative impairment assessment of indefinite-lived IPR&D intangible assets, we reassessed certain assumptions related to our rostafuroxin drug candidate due to the current macroeconomic conditions which have made it harder to secure the funding needed to conduct the additional phase 2 clinical trial and have therefore delayed our intended development of rostafuroxin. As a result, we concluded that the fair value of the IPR&D related to our rostafuroxin drug candidate was less than its carrying value and recorded a loss on impairment of intangible assets of $6.8 million during the fourth quarter of 2022. We also reassessed the assumptions related to the fair value of the IPR&D related to our istaroxime drug candidate. As a result, the estimated fair value decreased from December 1, 2021 to December 1, 2022, but still exceeded the carrying value of that asset. As a result, no impairment charge was recognized related to the IPR&D of our istaroxime drug candidate. We are continuing to pursue licensing arrangements and/or other strategic partnerships for rostafuroxin. However, if we are unable to secure such an arrangement or partnership, or if we secure an arrangement for an amount less than anticipated, we may have to record additional impairments related to rostafuroxin in the future, which may materially adversely affect our results of operations and financial condition.

We have experienced a declining trend in the closing share price of our common stock on a split-adjusted basis, since April 2022. During each of the second and third quarters of 2022, the continued declining trend in the closing share price of our common stock, on a split-adjusted basis, suggested that the fair value of our reporting unit was more likely than not less than its carrying value. As a result, in each quarter since that time we performed the required interim goodwill impairment test consistent with the methodology that we use when performing our annual goodwill impairment assessment, including the use of the quoted market price and related market capitalization of our common stock, adjusted for an estimated control premium based on transactions completed by comparable companies. Based on the annual goodwill quantitative test performed as of December 1, 2022, we determined that the fair value of our reporting unit was more likely than not less than its carrying value. As a result, we recorded a loss on impairment of goodwill of $0.5 million in the fourth quarter of 2022. When combined with the loss on impairment of goodwill recorded during the second and third quarters, we recorded a loss on impairment of intangible assets totaling $12.6 million within operating expenses in our consolidated statements of operations during the year ended December 31, 2022.

The closing share price of our common stock, on a split-adjusted basis, has continued to decline subsequent to the end of 2022. If our share price continues to decline, we may be at risk for future impairment to goodwill in the near term.

If we fail to maintain proper and effective internal control over financial reporting, our ability to produce accurate and timely financial statements could be impaired, investors may lose confidence in our financial reporting and the trading price of our common stock may decline.

Pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, as amended, we are required to furnish a report by our management on our internal control over financial reporting. We cannot assure you that there will not be material weaknesses or significant deficiencies in our internal control over financial reporting in the future. Any failure to maintain internal control over financial reporting could severely inhibit our ability to accurately report our financial condition, results of operations or cash flows. If our financial statements are not accurate, investors may not have a complete understanding of our operations. If we do not file our financial statements on a timely basis as required by the Securities and Exchange Commission, or the SEC, we could face severe consequences. If we are unable to conclude that our internal control over financial reporting is effective, investors may lose confidence in the accuracy and completeness of our financial reports, the market price of our common stock could decline, and we could be subject to sanctions or investigations by the Nasdaq Stock Market LLC, or Nasdaq, the SEC or other regulatory authorities. Moreover, responding to such investigations, are likely to consume a significant amount of our management resources and cause us to incur significant legal and accounting expenses. Failure to remedy any material weakness in our internal control over financial reporting, or to maintain effective control systems, could also restrict our future access to the capital markets. This could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements.

Risks Related to our Development Activities and Regulatory Approval of our Product Candidates

We are substantially dependent on the success of our lead product candidate, istaroxime. To the extent that our clinical development of istaroxime is not successful, our business, financial condition, and results of operations may be materially adversely affected and the price of our common stock may decline.

We currently have no product candidates approved for sale, and we may never be able to develop marketable products. We are focusing a significant portion of our activities and resources on our lead product candidate, istaroxime, and we believe our prospects are highly dependent on, and a significant portion of the value of our company relates to, our ability to successfully obtain regulatory approval for istaroxime. We currently do not have sufficient capital to fully execute clinical trials with respect to istaroxime. Furthermore, the clinical development and regulatory approval of istaroxime is subject to many risks, including the risks discussed in other risk factors, and istaroxime may not receive marketing approval from any regulatory agency. If we are unable to continue to advance istaroxime through clinical development, or if the results or timing of regulatory filings, the regulatory process, regulatory developments, clinical trials or preclinical studies, or other activities, actions or decisions related to istaroxime do not meet our or others' expectations, the market price of our common stock could decline significantly. Should the results of our clinical development program be insufficient to support regulatory approval, we may be forced to rely on our other product candidates, which will require additional time and resources to potentially obtain regulatory approval. There can be no assurance that we will be able to successfully develop istaroxime.

Clinical development involves a lengthy and expensive process with an uncertain outcome, and results of preclinical studies and early clinical trials are not necessarily predictive of future results. In addition, our assumptions about why certain of our product candidates are worthy of future development and potential approval are based on data primarily collected by other companies. Our product candidates may not have favorable results in later clinical trials, if any, or receive regulatory approval on a timely basis, if at all.

Clinical drug development is expensive and can take many years to complete, and its outcome is inherently uncertain. We cannot guarantee that any clinical trials will be conducted as planned or completed on schedule, if at all, and failure can occur at any time during the preclinical study or clinical trial process as a result of inadequate study design, inadequate performance of a drug, inadequate adherence by patients or investigators to clinical trial protocols, or other factors. For example, conducting a toxicology study as part of a preclinical program, to be included in a required regulatory submission, could result in unanticipated findings that could potentially negatively impact the clinical program. Despite promising preclinical or clinical results, any product candidate can unexpectedly fail at any stage of preclinical or clinical development. The historical failure rate for product candidates in our industry is high.

Product candidates in later stages of clinical trials may fail to achieve the desired safety and efficacy outcomes despite having progressed through earlier clinical trials. As a result, data we obtain from our phase 2 clinical trials may not accurately predict phase 3 trial results, whether due to differences in sample size, study arms, duration, endpoints, or other factors. If any of our product candidates should fail to perform as designed in their respective phase 3 clinical programs, such failures could adversely affect the results of our clinical development program despite promising results in earlier trials. If clinical trials for any of our product candidates fail to demonstrate safety or efficacy to the satisfaction of the FDA or the equivalent regulatory authorities in other countries, the FDA or the equivalent regulatory authorities in other countries will not approve that drug and we would not be able to commercialize it, which could have a material adverse effect on our business, financial condition, results of operations, and prospects. Moreover, if we are required to cease development activities on any of our recently acquired product candidates due to adverse clinical results or otherwise, it could result in impairment of related intangible assets and goodwill on our consolidated balance sheets.

Even if later stage clinical trials are successful, regulatory authorities may question the trial design or sufficiency for approval of the endpoints we select for our clinical trials or add new requirements, such as the completion of additional studies, as conditions for obtaining approval or obtaining an indication. For the foregoing reasons, we cannot be certain that our planned clinical trials and preclinical studies will be successful. Any safety concerns observed in any one of our clinical trials in our targeted indications could limit the prospects for regulatory approval of our product candidates in those and other indications, which could have a material adverse effect on our business, financial condition and results of operations, and result in significant additional costs and expenses, require additional time and have an adverse effect on our business, including our financial condition and results of operations.

Delays in clinical trials are common and have many causes, and any delay could result in increased costs to us and jeopardize or delay our ability to continue development activities, including our ability to obtain trial results, regulatory approval and commence product sales or allow for competition to emerge.

We may experience delays in clinical trials of our product candidates, or the time required to complete clinical trials for our product candidates may be longer than anticipated. Our planned clinical trials may not begin on time, have an effective design, enroll a sufficient number of patients, or be completed on schedule, if at all. Our clinical trials can be delayed for a variety of reasons, including, but not limited to:

- our inability to raise funding necessary to initiate or continue a trial;

- delays in obtaining regulatory approval to commence a trial or reaching a consensus with regulatory authorities on trial design or product standards;
- delays in reaching an agreement with the FDA or the equivalent foreign regulatory authorities in other countries on final trial design or the scope of the development program;
- inability to develop studies that are acceptable in all markets of interest;
- inability to come to an agreement on clinical trial design or execution factors with potential development partners;
- imposition of a clinical hold following an inspection of our clinical trial operations or trial sites by the FDA or the equivalent regulatory authorities in other countries;
- failures or delays in reaching agreement on acceptable terms with prospective contract research organizations, or CROs, and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- delays associated with severe acute respiratory syndrome coronavirus 2, the causative agent in a novel strain of coronavirus, which have and may continue to impact our healthcare systems and our trial sites ability to conduct trials to varied degrees and times. Coronavirus creates risk of interrupting availability of necessary clinical supplies, local regulatory reviews, hospital ethics committee reviews, professional staff, site monitors and other necessary travel;
- delays in obtaining contracts with clinical sites and required IRB approval at each site;
- IRBs refusing to approve, suspending or terminating the trial at an investigational site, precluding enrollment of additional subjects, or withdrawing their approval of the trial;
- competition with other studies for study patients;
- changes to clinical trial protocol;
- delays in recruiting suitable patients to participate in a trial;
- subjects choosing an alternative treatment for the indication for which we are developing our product candidates, or participating in competing clinical trials;
- delays in having subjects complete participation in a trial or return for post-treatment follow-up;
- clinical sites deviating from trial protocol or dropping out of a trial to the detriment of enrollment;
- subjects experiencing severe or unexpected adverse events;
- occurrence of serious adverse events in trials of the same class of agents conducted by other companies;
- selection of clinical endpoints that require prolonged periods of clinical observation or analysis of the resulting data;
- third-party clinical investigators losing the licenses or permits necessary to perform our clinical trials, not performing our clinical trials on our anticipated schedule or consistent with the clinical trial protocol, GCPs, or other regulatory requirements;
- third-party contractors not performing data collection or analysis in a timely or accurate manner;
- third-party contractors lacking adequate certification to provide services in all regions where we conduct our business activities;

- third-party contractors becoming debarred or suspended or otherwise penalized by the FDA or other government or regulatory authorities for violations of regulatory requirements, in which case we may need to find a substitute contractor, and we may not be able to use some or all of the data produced by such contractors in support of our marketing applications;

- manufacturing timing and/or obtaining sufficient quantities of product candidate or obtaining sufficient quantities of combination therapies for use in clinical trials or changes in the manufacturing process or inability to meet analytical standards for product release or use that may be necessary or desired;

- time required to add new clinical sites; or

- delays by our contract manufacturers to produce and deliver a sufficient supply of clinical trial materials or being ordered by the FDA or comparable foreign regulatory authorities to temporarily or permanently shut down due to violations of current good manufacturing practices, or cGMP, regulations or other applicable requirements, or infections or cross-contaminations of product candidates in the manufacturing process.

In addition, we may not reach agreement with the FDA, or a foreign regulator on the extent of our phase 3 programs, the design of any one or more of the clinical trials necessary for approval, or we may be unable to reach agreement on a single design that would permit us to conduct a common pivotal phase 3 clinical development program in all markets of interest. For example, we may not be able to design a study that is acceptable to both the FDA and the European Medicines Agency, or EMA, regulators, which would cause us to limit the scope of our geographical activities or greatly increase our investment. Even if we complete the clinical trial within our anticipated time, if our results are inconclusive or non-compelling or otherwise insufficient to support a strategic or financing transaction, we potentially could be forced to limit or cease our development activities, which would have a material adverse effect on our business.

We have conducted, and may in the future conduct, clinical trials for our product candidates at clinical sites located in the U.S. and outside of the U.S. If the FDA and other foreign equivalents raise concerns about certain of the clinical sites based on location and regulatory environment, they may not accept data from such trials, in which case our development plans will be delayed, which could materially harm our business.

We have conducted and are expecting in the future to conduct one or more of our clinical trials for our product candidates at clinical sites located in the U.S. and outside of the U.S., including the EU, China, Russia, Israel and South America. Although the FDA may accept data from clinical trials conducted outside the U.S., acceptance of this data may be subject to certain conditions imposed by the FDA. For example, the FDA requires the clinical trial to have been conducted in accordance with GCPs, and the FDA must be able to validate the data from the clinical trial through an onsite inspection if it deems such inspection necessary. Where data from foreign clinical trials are intended to serve as the sole basis for marketing approval in the U.S., the FDA will not approve the application on the basis of foreign data alone unless those data are considered applicable to the U.S. patient population and U.S. medical practice, the clinical trials were performed by clinical investigators of recognized competence, and the data is considered valid without the need for an onsite inspection by the FDA or, if the FDA considers such an inspection to be necessary, the FDA is able to validate the data through an onsite inspection or other appropriate means. There can be no assurance the FDA will accept data from clinical trials conducted outside of the U.S. If the FDA does not accept data from our clinical trials of our product candidates, it would likely result in the need for additional clinical trials, which would be costly and time consuming and delay or permanently halt our development of our product candidates.

For example, we have previously conducted clinical trials in Russia. The February 2022 invasion of Ukraine by Russia and the resulting imposition of economic and other sanctions by the U.S., EU, and many other nations on Russia, individuals in Russia, Russian businesses, and the Russian central bank, has impacted the way we executed certain trial procedures as we completed the first part of our trial in early cardiogenic shock. This geopolitical disruption could also disrupt or delay our ability to conduct clinical trial activities in Russia in the future. Although the length and impact of any military action are highly unpredictable, making them unavailable for follow-up could result in increased costs and could delay our anticipated timeline for the completion of our future clinical trials.

The coronavirus pandemic has negatively impacted, and may continue to negatively impact our ability to develop our product candidates.

The impact of the ongoing coronavirus pandemic has resulted in, and will likely continue to result in, significant disruptions to the global economy, as well as businesses and capital markets around the world. Efforts to contain the spread of coronavirus have intensified at times to manage surges in the infection rate and deaths, and many countries have at times implemented severe travel restrictions, social distancing, and delays or cancellations of elective surgeries at different times. Notwithstanding the introduction of effective vaccines, coronavirus is expected to continue affecting our ability and the ability of our employees, contractors, suppliers, and other partners in the U.S. and abroad to conduct normal business activities from time to time, including due to shutdowns that may be requested or mandated by governmental authorities.

The continued spread of coronavirus globally has previously adversely impacted trial conduct and operations and may do so again in the future. We have, in the past, initiated several clinical trials for istaroxime in the European Union, or the EU, and other worldwide locations impacted by the coronavirus outbreak. Our clinical trials have suffered delays and interruptions and our previous decision to cease enrollment in the AEROSURF clinical trial was partially due to such delays and escalating expenses. Our efforts to conduct trials could be materially delayed in the future by governmental restrictions and enrollment difficulties as hospitals reduce and divert staffing, divert resources to patients suffering from the infectious disease and limit hospital access for nonpatients.

Similarly, there is a risk that clinical supplies of our product candidates may be significantly delayed or may become unavailable as a result of coronavirus and the resulting impact on our suppliers' labor forces and operations, including as a result of governmental restrictions on business operations and the movement of people and goods in an effort to curtail the spread of the virus. There can be no assurance that we would be able to timely implement any mitigation plans. Disruptions in our supply chain, whether as a result of restricted travel, quarantine requirements or otherwise, could negatively impact clinical supplies of our product candidates, which could materially adversely impact our clinical trial and development timelines.

The continued spread of coronavirus, including potential new variants, has also led to periodic disruption and volatility in the global capital markets, which could increase our cost of capital and adversely affect our ability to access the capital markets in the future. It is possible that the continued spread of coronavirus could cause an economic slowdown or recession or cause other unpredictable events, each of which could adversely affect our business, results of operations or financial condition.

The extent to which coronavirus impacts our financial results going forward will depend on future developments, which are highly uncertain and cannot be predicted, including new information which may emerge concerning the severity of the coronavirus outbreak, the rise of variants, which may be more contagious and potentially more lethal, and the actions recommended to contain the outbreak or treat its impact, among others. Moreover, the coronavirus outbreak has had indeterminable adverse effects on general commercial activity and the world economy, and our business and results of operations could be adversely affected to the extent that coronavirus or any other pandemic harms the global economy generally.

Use of our product candidates could be associated with side effects, adverse events or other properties or safety risks, which could delay or preclude approval, cause us to suspend or discontinue clinical trials, abandon a product candidate, limit the commercial profile of an approved label or result in other significant negative consequences that could severely harm our business, prospects, operating results and financial condition.

As is the case with pharmaceuticals generally, there may be adverse events in patients treated with our product candidates. Results of our clinical trials could reveal a high and unacceptable severity and prevalence of side effects or unexpected characteristics. Undesirable side effects caused by our product candidates could cause us or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or comparable foreign regulatory authorities. Adverse events could affect patient recruitment or the ability of enrolled patients to complete the trial or result in potential product liability claims. Any of these occurrences may harm our business, financial condition and prospects significantly.

Moreover, if our product candidates are associated with undesirable side effects in clinical trials or have characteristics that are unexpected, we may elect to abandon their development or limit their development to more narrow uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective, which may limit the commercial expectations for the product candidate if approved. We may also be required to modify our study plans based on findings in our clinical trials. Many compounds that initially show promise in early-stage testing have later been found to cause side effects that prevented further development of the compound. In addition, regulatory authorities may draw different conclusions or require additional testing to confirm these determinations.

It is possible that as we test our product candidates in larger, longer and more extensive clinical trials, or as the use of these product candidates becomes more widespread if they receive regulatory approval, illnesses, injuries, discomforts and other adverse events that were observed in earlier trials, as well as conditions that did not occur or went undetected in previous trials, will be reported by subjects. If such side effects become known later in development or upon approval, if any, such findings may harm our business, financial condition and prospects significantly.

In addition, if one or more of our product candidates receives marketing approval, and we or others later identify undesirable side effects caused by such products, a number of potentially significant negative consequences could result, including:

- regulatory authorities may withdraw, suspend or limit approvals of such product;

- we may be required to recall a product or change the way such product is administered to patients;
- regulatory authorities may require additional warnings on the label, such as a “black box” warning or a contraindication;
- we may be required to implement a Risk Evaluation and Mitigation Strategy, or REMS, or create a medication guide outlining the risks of such side effects for distribution to patients;
- we may be required to change the way a product is distributed or administered, conduct additional clinical trials or change the labeling of a product or be required to conduct additional post-marketing studies or surveillance;
- we could be sued and held liable for harm caused to patients;
- sales of the product may decrease significantly, or the product could become less competitive; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of the particular product candidate, if approved, and could significantly harm our business, results of operations and prospects.

Our product candidates are subject to extensive regulation and compliance, which is costly and time consuming, and such regulation may cause unanticipated delays or prevent the receipt of the required approvals to commercialize our product candidates.

The clinical development, manufacturing, labeling, storage, record-keeping, advertising, promotion, import, export, marketing and distribution of investigational new drugs and approved new drugs are subject to extensive regulation by the FDA in the U.S. and by comparable foreign regulatory authorities in foreign markets. In the U.S., the process of obtaining regulatory approval is expensive, often takes many years following the commencement of clinical trials and can vary substantially based upon the type, complexity and novelty of the product candidates involved, as well as the target indications and patient population. Approval policies or regulations may change, and the FDA has substantial discretion in the drug approval process, including the ability to delay, limit or deny approval of a product candidate for many reasons. Despite the time and expense invested in clinical development of product candidates, regulatory approval is never guaranteed. We are not permitted to market any of our product candidates in the U.S. until we receive approval of a New Drug Application, or NDA, from the FDA.

Prior to obtaining approval to commercialize a product candidate, if approved, in the U.S. or abroad, we must demonstrate with substantial evidence from adequate and well-controlled clinical trials, and to the satisfaction of the FDA or comparable foreign regulatory authorities, that such product candidates are safe and effective for their intended uses.

Even if we believe the nonclinical or clinical data for our product candidates are promising, such data may not be sufficient to support approval by the FDA and comparable foreign regulatory authorities. The FDA or comparable foreign regulatory authorities, as the case may be, may also require us to conduct additional preclinical studies or clinical trials for our product candidates either prior to or post-approval, or may object to elements of our clinical development program.

The FDA or comparable foreign regulatory authorities can delay, limit or deny approval of a product candidate for many reasons, including:

- such authorities may disagree with the design or implementation of our clinical trials;
- negative or ambiguous results from our clinical trials or results may not meet the level of statistical significance required by the FDA or comparable foreign regulatory agencies for approval;
- such authorities may disagree with our interpretation of data from preclinical studies or clinical trials;
- such authorities may not agree that the data collected from clinical trials of our product candidates are acceptable or sufficient to support approval;
- serious and unexpected adverse events may be experienced by participants in our clinical trials or by individuals using drugs similar to our product candidates;

- the population studied in the clinical trial may not be sufficiently broad or representative to assure safety in the full population for which we seek approval;
- such authorities may not accept clinical data from trials which are conducted at clinical facilities or in countries where the standard of care or patient characteristics are potentially different from that of the U.S.;
- we may be unable to demonstrate that a product candidate's clinical and other benefits outweigh its safety risks or the safety data base may not be large enough;
- such authorities may not accept the submission of an NDA or other submission to obtain regulatory approval in the U.S. or elsewhere, and such authorities may impose requirements for additional preclinical studies or clinical trials;
- such authorities may disagree regarding the formulation, labeling and/or the specifications of our product candidates;
- approval may be granted only for indications that are significantly more limited than what we apply for and/or with other significant restrictions on distribution and use;
- such authorities may find deficiencies in the manufacturing processes or facilities of our third-party manufacturers with which we contract for clinical and, if approved, commercial supplies; or the approval policies;
- regulations of such authorities may significantly change in a manner rendering our or any of our potential future collaborators' clinical data insufficient for approval; or
- such authorities may not accept a submission due to, among other reasons, the content or formatting of the submission.

We may conduct clinical development in the U.S., Canada, the EU, Eastern Europe, Latin America, and Asia Pacific regions and sell our products, if approved, in the U.S. and potentially in other major markets. To accomplish this objective, we must obtain and maintain regulatory approvals and comply with regulatory requirements in each jurisdiction. To avoid the significant expense and lengthy time required to complete multiple regional clinical development programs, we expect to meet with relevant regulatory authorities. While we would prefer to design a single, global clinical development program that would satisfy the regulators in all of our target markets, there can be no assurance that our efforts will be successful. If we are unable to reach agreement with the various regulatory authorities, we may not be able to pursue regulatory approval of our product candidates in all of our selected markets.

With respect to foreign markets, approval procedures vary among countries and, in addition to the foregoing risks, may involve additional product testing, administrative review periods and agreements with pricing authorities. In addition, events raising questions about the safety of certain marketed pharmaceuticals may result in increased cautiousness by the FDA and comparable foreign regulatory authorities in reviewing new drugs based on safety, efficacy or other regulatory considerations and may result in significant delays in obtaining regulatory approvals. Any delay in obtaining, or inability to obtain, applicable regulatory approvals would prevent us or any of our potential future collaborators from commercializing our product candidates. In addition, delays associated with coronavirus may impact local regulatory reviews occurring in a timely manner and result in delays for trial and site initiations.

Of the large number of drugs in development, only a small percentage successfully complete the FDA or foreign regulatory approval processes and are commercialized. The lengthy approval process as well as the unpredictability of future clinical trial results may result in our failing to obtain regulatory approval to market our product candidates, which would significantly harm our business, financial condition, results of operations and prospects.

Although we have multiple product candidates or potential indications of those candidates in our clinical pipeline, we may expend our limited resources to pursue a particular product candidate or indication and fail to capitalize on other product candidates or indications that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we may focus on specific product candidates, indications and development programs at any time. As a result, we may forgo or delay pursuit of opportunities with other product candidates that could have had greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through future collaborations, license agreements and other similar arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate.

Additionally, we may pursue additional in-licenses or acquisitions of development-stage assets or programs, which entails additional risk to us. Identifying, selecting and acquiring promising product candidates requires substantial technical, financial and human resources expertise. Efforts to do so may not result in the actual acquisition or license of a particular product candidate, potentially resulting in a diversion of our management's time and the expenditure of our resources with no resulting benefit. If we are unable to identify programs that ultimately result in approved products, we may spend material amounts of our capital, management and other resources evaluating, acquiring and developing products that ultimately do not provide a return on our investment.

Even though some of our product candidates have Fast Track designation, the FDA may not approve them at all or any sooner than other product candidates that do not have Fast Track designation.

We have received Fast Track designation from the FDA for istaroxime for the treatment of AHF. Fast Track designation does not ensure that we will receive marketing approval or that approval will be granted within any particular timeframe. We may not experience a faster development, regulatory review or approval process with Fast Track designation compared to conventional FDA procedures. Additionally, the FDA may withdraw Fast Track designation, for reasons such as it comes to believe a drug candidate no longer adequately addresses an unmet medical need. Fast Track designation alone does not guarantee qualification for the FDA's priority review procedures. If we seek Fast Track designation for other product candidates, we may not receive such a designation from the FDA.

Although we may pursue expedited regulatory programs for a product candidate or an indication, it may not qualify for expedited development or, if it does qualify for expedited development, it may not actually lead to a faster development or regulatory review or approval process.

Although we have received Fast Track designation for certain of our product candidates, we believe there may be an opportunity to expedite the development of other product candidates or indications through one or more of the FDA's expedited programs, such as Fast Track, Breakthrough Therapy or priority review, we cannot be assured that any of our product candidates or indications will qualify for such programs.

For example, a product candidate may be eligible for designation as a Breakthrough Therapy if the drug is intended, alone or in combination with one or more other drugs, to treat a serious or life-threatening condition and preliminary clinical evidence indicates that the product candidate may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints. Although Breakthrough Therapy designation or access to any other expedited program may expedite the development or approval process, it does not change the standards for approval. If we apply for Breakthrough Therapy designation or any other expedited program for our product candidates, the FDA may determine that our proposed target indication or other aspects of our clinical development plans do not qualify for such expedited program. For example, we believe that istaroxime may fulfill an unmet medical need in early and more severe cardiogenic shock based on the profile observed in prior phase 2 clinical studies in AHF and early cardiogenic shock, in which increases in SBP as well as improvements in cardiac function were observed suggesting that istaroxime could potentially contribute to the clinical improvement of select patients in cardiogenic shock due to heart failure. However, the FDA may not agree with our assessment, and we may not be able to obtain Breakthrough Therapy designation.

Even if we are successful in obtaining a Breakthrough Therapy designation or access to any other expedited program, we may not experience faster development timelines or achieve faster review or approval compared to conventional FDA procedures. Access to an expedited program may also be withdrawn by the FDA if it believes that the designation is no longer supported by data from our clinical development program. Additionally, qualification for any expedited program does not ensure that we will ultimately obtain regulatory approval for such product candidate.

We may not be able to obtain or maintain Orphan Drug exclusivity for our product candidates.

Regulatory authorities in some jurisdictions, including the U.S. and Europe, may designate drugs for relatively small patient populations as Orphan Drugs. In the U.S., Orphan Drug designation entitles a party to financial incentives such as tax advantages and user-fee waivers. In addition, if a product candidate that has Orphan Drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to Orphan Drug exclusivity, which means that the FDA may not approve any other applications, including an NDA, to market the same drug for the same indication for seven years, except in limited circumstances, including if the FDA concludes that the later drug is clinically superior to the approved drug. A drug is clinically superior if it is safer, more effective, or makes a major contribution to patient care. The FDA has granted Orphan Drug designation for our (i) KL4 surfactant (lucinactant) for the treatment of RDS in premature infants, (ii) our KL4 surfactant for the prevention and treatment of BPD in premature infants, (iii) our KL4 surfactant for the treatment of ARDS in adults, and (iv) our KL4 surfactant for the treatment of cystic fibrosis.

If we obtain Orphan Drug exclusivity, we may lose such exclusivity if the FDA or the European Commission, or EC, determines that the request for designation was materially defective or if we are unable to assure sufficient quantity of the drug to meet the needs of patients with the rare disease or condition. Moreover, Orphan Drug exclusivity may not effectively protect our product candidates from competition because different drugs can be approved for the same condition. Even after an Orphan Drug is approved, the FDA or comparable foreign regulatory authority can subsequently approve the same drug for the same condition if such regulatory authority concludes that the later drug is clinically superior if it is shown to be safer, more effective or makes a major contribution to patient care. Orphan drug designation neither shortens the development time or regulatory review time of a product candidate nor gives the product candidate any advantage in the regulatory review or approval process.

Interim, topline and preliminary data from our clinical trials that we announce or publish from time to time may change as more patient data become available and are subject to audit and verification procedures that could result in material changes in the final data.

From time to time, we may publicly disclose preliminary or topline or data from our clinical studies, which is based on a preliminary analysis of then-available data, and the results and related findings and conclusions are subject to change following a more comprehensive review of the data related to the particular study or trial. We also make assumptions, estimations, calculations and conclusions as part of our analyses of data, and we may not have received or had the opportunity to fully and carefully evaluate all data. As a result, the topline results that we report may differ from future results of the same studies, or different conclusions or considerations may qualify such results once additional data have been received and fully evaluated. Topline data also remain subject to audit and verification procedures that may result in the final data being materially different from the preliminary data we previously published. As a result, topline data should be viewed with caution until the final data are available. From time to time, we may also disclose interim data from our clinical studies. Interim data from clinical trials that we may complete are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data become available. Adverse differences between preliminary or interim data and final data could significantly harm our business prospects.

Even if we receive regulatory approval for any product candidates, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense. Additionally, our product candidates, if approved, could be subject to labeling and other restrictions on marketing or withdrawal from the market, and we may be subject to penalties if we fail to comply with regulatory requirements or if we experience unanticipated problems with our product candidates, when and if any of them are approved.

Following potential approval of any our product candidates, the FDA may impose significant restrictions on a product's indicated uses or other aspects of the directions for use or marketing or impose ongoing requirements for potentially costly and time-consuming post-approval studies, post-market surveillance or clinical trials to monitor the safety and efficacy of the product. The FDA may also require a REMS as a condition of approval of our product candidates, which could include requirements for a medication guide, physician communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. In addition, if the FDA or a comparable foreign regulatory authority approves our product candidates, the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion, import, export and recordkeeping for our products will be subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with cGMPs and GCP requirements for any clinical trials that we conduct post-approval. Later discovery of previously unknown problems with our products, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in, among other things:

- restrictions on the marketing or manufacturing of our products, withdrawal of the product from the market or voluntary or mandatory product recalls;
- restrictions on product distribution or use, or requirements to conduct post-marketing studies or clinical trials;
- fines, restitutions, disgorgement of profits or revenues, warning letters, untitled letters, Form 483s, or holds on clinical trials;
- refusal by the FDA to approve pending applications or supplements to approved applications filed by us or suspension or revocation of approvals;
- product seizure or detention, or refusal to permit the import or export of our products; and
- injunctions or the imposition of civil or criminal penalties.

The occurrence of any event or penalty described above may inhibit our ability to commercialize our product candidates, if approved, and generate revenue and could require us to expend significant time and resources in response and could generate negative publicity.

In addition, if any of our product candidates is approved, our product labeling, advertising and promotion will be subject to regulatory requirements and continuing regulatory review. The FDA strictly regulates the promotional claims that may be made about drug products. In particular, a product may not be promoted for uses that are not approved by the FDA as reflected in the product's approved labeling. If we receive marketing approval for a product candidate, physicians may nevertheless prescribe it to their patients in a manner that is inconsistent with the approved label. If we are found to have promoted such off-label uses, we may become subject to significant liability.

The FDA's and other regulatory authorities' policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and we may not achieve or sustain profitability.

If we fail to obtain and maintain regulatory approval in foreign jurisdictions, our market opportunities will be limited.

In order to market our product candidates in the EU or other foreign jurisdictions, we must obtain and maintain separate regulatory approvals and comply with numerous and varying regulatory requirements. The approval procedure varies from country to country and can involve additional testing. The time required to obtain approval abroad may be longer than the time required to obtain FDA clearance or approval. Foreign regulatory approval processes include many of the risks associated with obtaining FDA clearance or approval and we may not obtain foreign regulatory approvals on a timely basis, if at all. FDA clearance or approval does not ensure approval by regulatory authorities in other countries, and approval by one foreign regulatory authority does not ensure approval by regulatory authorities in other foreign countries. However, the failure to obtain clearance or approval in one jurisdiction may have a negative impact on our ability to obtain clearance or approval elsewhere. If we do not obtain or maintain necessary approvals to commercialize our product candidates in markets outside the U.S., it would negatively affect our overall market penetration.

If the FDA or other applicable regulatory authorities approve generic products with claims that compete with our product candidates, it could reduce our sales of our product candidates if approved.

In the U.S., after an NDA is approved, the product covered thereby becomes a "listed drug" which can, in turn, be cited by potential competitors in support of approval of an abbreviated NDA, or ANDA. The Federal Food, Drug, and Cosmetic Act, or the FDC Act, FDA regulations and other applicable regulations and policies provide incentives to manufacturers to create modified, non-infringing versions of a drug to facilitate the approval of an ANDA or other application for generic substitutes. These manufacturers might only be required to conduct a relatively inexpensive study to show that their product has the same active ingredients, dosage form, strength, route of administration, and conditions of use, or product labeling, as our product candidates and that the generic product is absorbed in the body at the same rate and to the same extent as, or is bioequivalent to, our product candidates. These generic equivalents would be significantly less costly than ours to bring to market and companies that produce generic equivalents are generally able to offer their products at lower prices. Thus, after the introduction of a generic competitor, a significant percentage of the sales of any branded product are typically lost to the generic product. Accordingly, competition from generic equivalents to our product candidates would substantially limit our ability to generate revenues and therefore to obtain a return on the investments we have made in our product candidates.

Even if we receive regulatory approval for any of our product candidates, we may not be able to successfully commercialize the product and the revenue that we generate from its sales, if any, may be limited.

If approved for marketing, the commercial success of our product candidates will depend upon the acceptance of each product by the medical community, including physicians, patients and health care payors. The degree of market acceptance for any of our product candidates, if approved, will depend on a number of factors, including:

- demonstration of clinical safety and efficacy;
- efficacy of our product candidates compared to competing products;
- relative convenience, dosing burden and ease of administration;
- the prevalence and severity of any adverse effects;

- the willingness of physicians to prescribe our product candidates, if approved, and the target patient population to try new therapies;
- our ability to obtain and maintain sufficient third-party coverage or reimbursement from government health care programs, including Medicare and Medicaid, global government payors, private health insurers and other third-party payors or to receive the necessary pricing approvals from government bodies regulating the pricing and usage of therapeutics;
- the willingness of patients to pay out-of-pocket in the absence of third-party coverage or reimbursement or government pricing approvals;
- government health care payor imposed mandatory pricing discounting and reductions;
- delays in achieving hospital formulary acceptance or limitations of use that are more restrictive than the approved label;
- the introduction of any new products that may in the future become available targeting indications for which our product candidates may be approved;
- new procedures or therapies that may reduce the incidences of any of the indications in which our product candidates, if approved, may show utility;
- pricing and cost-effectiveness;
- the inclusion or omission of our product candidates, if approved, in applicable therapeutic guidelines;
- the effectiveness of our own or any future collaborators' sales and marketing strategies; and
- limitations or warnings contained in approved labeling from regulatory authorities.

If any of our product candidates are approved, but do not achieve an adequate level of acceptance by physicians, health care payors, and patients, we may not generate sufficient revenue and we may not be able to achieve or sustain profitability. Our efforts to educate the medical community and third-party payors on the benefits of our product candidates may require significant resources and may never be successful.

In addition, even if we obtain regulatory approvals, the timing or scope of any approvals may prohibit or reduce our ability to commercialize our product candidates successfully. For example, if the approval process takes too long, we may miss market opportunities and give other companies the ability to develop competing products or establish market dominance. Any regulatory approval we ultimately obtain may be limited or subject to restrictions or post-approval commitments that render our product candidates not commercially viable. For example, regulatory authorities may approve any of our product candidates for fewer or more limited indications than we request, may grant approval contingent on the performance of costly post-marketing clinical trials, or may approve any of our product candidates with a label that does not include the labeling claims necessary or desirable for the successful commercialization for that indication. Further, the FDA or comparable foreign regulatory authorities may place conditions on approvals or require risk management plans or a REMS to assure the safe use of the drug. Any of these limitations on approval or marketing could restrict the commercial promotion, distribution, prescription or dispensing of our product candidates, if approved. Moreover, product approvals may be withdrawn for non-compliance with regulatory standards or if problems occur following the initial marketing of the product. Any of the foregoing scenarios could materially harm the commercial success of our product candidates, if approved.

The FDA and other regulatory agencies actively enforce the laws and regulations prohibiting the promotion of off- label uses. If we are found or alleged to have improperly promoted any of our products, if approved, for off-label uses, we may become subject to significant liability.

The FDA and other regulatory agencies strictly regulate the promotional claims that may be made about prescription products, as our product candidates would be, if approved. In general, a product may not be promoted for uses that are not approved by the FDA or in ways that may not be consistent with the product's approved labeling. If we are found to have promoted such off-label uses, we may become subject to significant liability. The federal government has levied large civil and criminal fines against companies for alleged improper promotion and has enjoined several companies from engaging in off-label promotion. The FDA and other regulatory agencies have also requested that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed. If we cannot successfully manage the promotion of our product candidates, if approved, we could become subject to significant liability, which would materially adversely affect our business and financial condition.

We currently have no sales and marketing organization. If we are unable to establish satisfactory sales and marketing capabilities or secure a sales and marketing partner, we may not successfully commercialize any of our product candidates.

We may not be able to enter into collaboration agreements on terms acceptable to us or at all. In addition, even if we enter into such relationships, we may have limited or no control over the sales, marketing and distribution activities of these third parties. Our future revenues may depend heavily on the success of the efforts of these third parties. If we elect to establish a sales and marketing infrastructure, we may not realize a positive return on this investment. In addition, we will have to compete with established and well-funded pharmaceutical and biotechnology companies to recruit, hire, train and retain sales and marketing personnel. Factors that may inhibit our efforts to commercialize our product candidates, if approved, without strategic partners or licensees include:

- the inability of sales personnel to obtain access to or educate and appropriately persuade adequate numbers of physicians to prescribe any of our product candidates, if approved;
- inability to obtain a competitive share of voice and frequency of meeting with physicians against multiple, larger competitors;
- unforeseen costs and expenses associated with creating an independent sales and marketing organization; and
- inability to control or influence partner sales and marketing personnel or their prioritization of promotion of our product candidates, if approved.

The successful commercialization of our product candidates, if approved, will depend in part on the extent to which hospitals and hospital systems, governmental authorities and health insurers establish coverage, adequate reimbursement levels and favorable pricing policies. Failure to obtain or maintain coverage and adequate reimbursement for our product candidates, if approved, could limit our ability to market those product candidates and decrease our ability to generate revenue.

The availability of coverage and the adequacy of reimbursement by governmental healthcare programs such as Medicare and Medicaid, private health insurers and other third-party payors are essential for most patients to be able to afford prescription medications such as our product candidates, if approved. Our ability to achieve coverage and acceptable levels of reimbursement for our product candidates by third-party payors will have an effect on our ability to successfully commercialize our product candidates, if approved. Even if we obtain coverage for a given product candidate, if approved, by a third-party payor, the resulting reimbursement payment rates may not be adequate or may require co-payments that patients find unacceptably high. We cannot be sure that coverage and reimbursement in the U.S., the EU or elsewhere will be available for any product candidate that we may develop and for which we receive approval, and any reimbursement that may become available may be decreased or eliminated in the future.

Third-party payors increasingly are challenging prices charged for pharmaceutical products and services, and many third-party payors may refuse to provide coverage and reimbursement for particular drugs when an equivalent generic drug or a less expensive therapy is available. It is possible that a third-party payor may consider our product candidates, if approved, as substitutable and only offer to reimburse patients for the less expensive product. Even if we are successful in demonstrating improved efficacy or improved convenience of administration with our product candidates, if approved, pricing of existing drugs may limit the amount we will be able to charge for our product candidates, if approved. These payors may deny or revoke the reimbursement status of a given product or establish prices for new or existing marketed products at levels that are too low to enable us to realize an appropriate return on our investment in product development. If reimbursement is not available or is available only at limited levels, we may not be able to successfully commercialize our product candidates, if approved and may not be able to obtain a satisfactory financial return on products that we may develop.

Obtaining and maintaining reimbursement status is time consuming, costly and uncertain. The Medicare and Medicaid programs increasingly are used as models for how private payors and other governmental payors develop their coverage and reimbursement policies for drugs. However, no uniform policy for coverage and reimbursement for products exists among third-party payors in the U.S. Therefore, coverage and reimbursement for products can differ significantly from payor to payor. As a result, the coverage determination process is often a time consuming and costly process that will require us to provide scientific and clinical support for the use of our product candidates, if approved, to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance. Furthermore, rules and regulations regarding reimbursement change frequently, in some cases at short notice, and we believe that changes in these rules and regulations are likely.

Outside the U.S., international operations are generally subject to extensive governmental price controls and other market regulations, and we believe the increasing emphasis on cost-containment initiatives in Europe and other countries has and will continue to put pressure on the pricing and usage of our product candidates, if approved. In many countries, the prices of medical products are subject to varying price control mechanisms as part of national health systems. Additional foreign price controls, discounts or other changes in pricing regulation could restrict the amount that we are able to charge for our product candidates, if approved. Accordingly, in markets outside the U.S., the reimbursement for product candidates for which we receive approval may be reduced and experience continual mandatory price reductions compared with the U.S. and may be insufficient to generate commercially reasonable revenue and profits.

Moreover, increasing efforts by governmental and third-party payors in the U.S. and abroad to cap or reduce healthcare costs may cause such organizations to limit both coverage and the level of reimbursement for newly approved products and, as a result, they may not cover or provide adequate payment for our product candidates, if approved. We expect to experience pricing pressures in connection with the sale of any of our product, candidates, if approved, due to the trend toward managed healthcare, the increasing influence of health maintenance organizations and additional legislative changes. The downward pressure on healthcare costs in general, particularly prescription drugs and surgical procedures and other treatments, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products.

Risks Related to Our Reliance on Third Parties

We rely on third parties, primarily outside of the U.S., to conduct many of our preclinical studies and clinical trials. Any failure by a third party to conduct the clinical trials according to GCPs and other requirements and in a timely and quality manner may delay or prevent our ability to seek or obtain regulatory approval for or commercialize our product candidates.

We are dependent on third parties to conduct our clinical trials and preclinical studies for our development programs. Specifically, we have used and relied on, and intend to continue to use and rely on, medical institutions, clinical investigators, CROs and consultants to conduct our clinical trials in accordance with our clinical protocols and regulatory requirements. These CROs, investigators and other third parties play a significant role in the conduct and timing of these trials and subsequent collection and analysis of data. While we have agreements governing the activities of our third-party contractors, we have limited influence over their actual performance. Nevertheless, we are responsible for ensuring that each of our clinical trials is conducted in accordance with the applicable protocol and legal, regulatory and scientific standards, and our reliance on the CROs and other third parties does not relieve us of our regulatory responsibilities. We and any third-party that we rely upon are required to comply with GCP requirements, which are regulations and guidelines enforced by the FDA and comparable foreign regulatory authorities for all of our product candidates in clinical development. Regulatory authorities enforce these GCPs through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any third-party that we rely on or trial sites fail to comply with applicable GCPs or to provide adequate data with respect to such trials, the clinical data generated in our clinical trials may be deemed unreliable, and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. In addition, our clinical trials must be conducted with product produced under cGMP and/or Quality System Regulation, or QSR requirements. Our failure or our vendors' failure to comply with these regulations may require us to delay or to repeat clinical trials, which would delay the regulatory approval process.

There is no guarantee that any such CROs, investigators or other third parties will devote adequate time and resources to such trials or perform as contractually required. If any of these third parties fail to meet expected deadlines, adhere to our clinical protocols or meet regulatory requirements, or otherwise performs in a substandard manner, our clinical trials may be extended, delayed or terminated. In addition, many of the third parties with whom we contract may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical trials or other drug development activities that could harm our competitive position. In addition, principal investigators for our clinical trials may serve as scientific advisors or consultants to us from time to time and may receive cash or equity compensation in connection with such services. If these relationships and any related compensation result in perceived or actual conflicts of interest, or the FDA concludes that the financial relationship may have affected the interpretation of the study, the integrity of the data generated at the applicable clinical trial site may be questioned and the utility of the clinical trial itself may be jeopardized, which could result in the delay or rejection by the FDA of any NDA we submit. Any such delay or rejection could prevent us from commercializing our product candidates, if approved.

If any of our relationships with these third parties terminate, we may not be able to enter into arrangements with alternative third parties or do so on commercially reasonable terms. Switching or adding additional CROs, investigators and other third parties involves additional costs and requires management time and focus. In addition, there is a natural transition period when a new CRO commences work. As a result, delays occur, which can materially impact our ability to meet our desired clinical development timelines. Though we carefully manage our relationships with our CROs, investigators and other third parties, there can be no assurance that we will not encounter challenges or delays in the future or that these delays or challenges will not have a material adverse impact on our business, financial condition and prospects. Our agreement with Universita Degli Studi di Milano-Bicocca, the institution that has performed many preclinical studies with istaroxime and our preclinical families of compounds, expired on July 31, 2022. If additional preclinical work is required for any reason, we will need to re-engage with Bicocca University or find another vendor to provide those services.

We currently do not have a back-up facility for our CMO for our drug product candidates, or our suppliers of API. If the parties we depend on for supplying our APIs and manufacturing our drug product candidates do not supply these products in a timely and quality manner, it may delay or impair our ability to execute our development plans for our current and potential pipeline products. Such delays could adversely impact our operations and financial condition.

In most cases, we are dependent upon a single supplier to provide all of our requirements for each of our APIs. We rely on a single CMO, located in China, to manufacture each of our drug product candidates that meets appropriate content, quality and stability standards for use in preclinical programs and clinical trials. In most cases, we submit purchase orders to our CMO and API suppliers as needed and do not have contractual commitments to manufacture for us in the future. If we do not maintain these manufacturing and service relationships that are important to us and are not able to identify replacement suppliers, vendors and laboratories, our ability to obtain regulatory approval for our product candidates could be impaired or delayed and our costs could substantially increase.

We may be unable to identify additional manufacturers with whom we might establish appropriate arrangements on acceptable terms, if at all, because the number of potential CMOs is limited. Even if we are able to find replacement manufacturers, suppliers, vendors and service providers when needed, we may not be able to enter into agreements with them on terms and conditions favorable to us or there could be a substantial delay before such manufacturer, vendor or supplier, or a related new facility is properly qualified and registered with the FDA or other foreign regulatory authorities. A new manufacturer currently not qualified with the FDA would have to be educated in, or develop substantially equivalent processes for, production of our approved products after receipt of FDA approval. To qualify and receive regulatory approval for a new manufacturer could take as long as two years. The process of changing a supplier could have an adverse impact on our current clinical development programs if supplies of drug substances or materials on hand are insufficient to satisfy demand. Such delays could have a material adverse effect on our development activities and our business.

Our product candidates are temperature sensitive and may have other attributes that lead to limited shelf life. These attributes may pose risks to supply, inventory and waste management and increased cost of goods.

Our product candidates may prove to have a stability profile that leads to a lower than desired shelf life. This poses risk in supply requirements, wasted stock, and higher cost of goods.

Our product candidates are temperature sensitive, and we may learn that any or all of our product candidates are less stable than desired. It is also possible that we may find that transportation conditions negatively impact product quality. This may require changes to the formulation or manufacturing process for one or more of our product candidates and result in delays or interruptions to clinical or commercial supply. In addition, the cost associated with such transportation services and the limited pool of vendors may also add additional risks of supply disruptions.

We have established a number of analytical testing strategies, and may have to establish several more, to assess the quality of our product candidates. We may identify gaps in our analyses that might prevent release of product or could require product withdrawal or recall. For example, new or existing impurities that have an impact on product safety, efficacy, or stability may be discovered. This may lead to an inability to release or use our product candidates until the manufacturing or testing process is rectified or specifications are changed. This could potentially result in delays to our key program.

We plan to rely on third parties, some of which are located outside the U.S., to manufacture our drug product candidates, which exposes us to risks that may affect our ability to maintain supplies of our clinical materials, and subject us to uncertainty associated with the international political climate, and could potentially delay or cease our research and development activities, as well as eventual regulatory approval and commercialization of our drug product candidates.

Our manufacturing strategy involves manufacturing our drug product candidates using a CMO. We do not own or operate manufacturing facilities and have no plans to build our own clinical or commercial scale manufacturing capabilities. We rely, and expect to continue to rely, on third parties for the manufacture of our drug product candidates and related raw materials for clinical and preclinical development, as well as for commercial manufacture if any of our product candidates receive marketing approval. The facilities used by third-party manufacturers to manufacture our product candidates must be approved by the FDA pursuant to inspections that will be conducted after we submit an NDA to the FDA. We do not control the manufacturing process of, and are completely dependent on, third-party manufacturers for compliance with cGMP requirements for manufacture of drug products and other government regulations and corresponding international standards. If these third-party manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or others, including requirements related to the manufacturing of high potency compounds, they will not be able to secure and/or maintain regulatory approval for their manufacturing facilities.

Istaroxime and rostafuroxin are currently manufactured by an affiliate of Lee's (HK) in Hefei, China. We expect that Lee's (HK) will manufacture KL4 surfactant drug product candidate at an affiliate of Lee's (HK) in Hefei, China. The APIs for istaroxime and rostafuroxin are manufactured in China. If the FDA is unable to inspect the manufacturing site in China or if it is able to inspect the site but finds it deficient in any way, to secure marketing approval for our product candidates in the U.S., and potentially other markets, we may be required to designate a different manufacturer for each of our drug product candidates. A technology transfer of a manufacturing process from one CMO to another can be time consuming and expensive and there can be no assurance that such a transfer will be successful or that a new manufacturer will be able to manufacture our drug product candidates successfully. Moreover, a technology transfer from one country to another may be subject to changing international legal and regulatory requirements in a potential difficult political climate. In addition, we have limited control over the ability of third-party manufacturers to maintain adequate quality control, quality assurance and qualified personnel and the third-party manufacturers may fail to manufacture our product candidate according to our schedule or at all. If the FDA or a comparable foreign regulatory authority does not approve these facilities for the manufacture of our product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our product candidates, if approved. Our failure, or the failure of our third-party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including clinical holds, fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, seizures or recalls of product candidates or products, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our product candidates. In addition, any performance failure on the part of our existing or future manufacturers could delay clinical development or marketing approval, and any related remedial measures may be costly or time consuming to implement. We do not currently have arrangements in place for redundant supply or a second source for all required raw materials used in the manufacture of our product candidates. If our current third-party manufacturer cannot perform as agreed, we may be required to replace such manufacturers and we may be unable to replace them on a timely basis or at all.

A third party's failure to execute on our manufacturing requirements, technology transfers of our manufacturing and our planned future reliance on CMOs exposes us, among other things, to the following risks:

- an inability to initiate or continue clinical trials of istaroxime or any future product candidates under development;
- subjecting third-party manufacturing facilities to additional inspections by regulatory authorities;
- we may implement a plan to execute a technology transfer of our manufacturing process to a CMO and, after investing significant time and resources, learn that the CMO we chose is unable to successfully complete the technology transfer and thereafter manufacture our product candidates in accordance with our plan;
- CMOs might be unable to manufacture our product candidates in the volume and to our specifications to meet our clinical and commercial needs, or we may have difficulty scheduling the production of drug product in a timely manner to meet our timing requirements;
- if we desire to make our drug product candidates available outside the U.S. for clinical or commercial purposes, our CMOs would become subject to, and may not be able to comply with, corresponding manufacturing and quality system regulations or standards of the various foreign regulators having jurisdiction over our activities abroad. Such failures (such as in-country quality testing) could result in not only a loss of approved supply to that country, but a total loss of a lot (or lots) of materials globally and could restrict our ability to execute our business strategies;
- we may have difficulty implementing changes or necessary modifications to our manufacturing processes that may be required by the FDA or foreign regulator or our CMO, if, for example, such changes would burden our CMO or otherwise disrupt operations, or our CMO could impose significant financial terms to implement any such change that could adversely affect our business. We may fail to adequately develop new manufacturing processes. Failure to achieve such required changes or modifications could delay or prevent our gaining regulatory approval for our product candidates or prevent us from continuing to market our approved products, which would have a material adverse effect on our business, financial condition and operations;
- we may fail to adequately scale manufacturing to achieve our objectives for cost of goods and profit margins;
- we may be subject to disputes arising with respect to the ownership of rights to any technology developed with third parties; and
- we may be subject to the misappropriation of our proprietary information, including our trade secrets and know-how.

Each of the foregoing risks and others could delay our development programs and, if approved, commercial manufacturing plans, limit our ability to maintain continuity of supply for our approved products, delay or impair the approval, if any, of our product candidates by the FDA, or result in higher costs or deprive us of potential product revenues.

In addition, our product candidates and any products that we may develop may compete with other product candidates and products for access to manufacturing facilities. There are a limited number of manufacturers that operate under cGMP regulations and that might be capable of manufacturing for us.

Our current and anticipated future dependence upon others for the manufacture of our product candidates or products, if approved, may adversely affect our future profit margin and our ability to commercialize any products that receive marketing approval on a timely and competitive basis.

Our ability to manufacture our product candidates depends upon receiving adequate supplies and related services, which may be difficult or uneconomical to procure.

Supply chain or manufacturing interruptions could negatively impact our operations and financial performance. We do not have fully redundant systems and equipment to respond promptly in the event of a significant loss at a CMO's manufacturing operations. Under certain conditions, we may be unable to produce our drug product candidates at the required volumes or to appropriate standards, if at all. The supply of any of our manufacturing materials may be interrupted because of supply shortages, poor vendor performance or other events outside our control, which may require us, among other things, to identify alternate vendors, which could involve a lengthy process, and result in increased expenses.

We are dependent on Lee's (HK) and Zhaoke for the successful development and commercialization of our KL4 surfactant products. If Lee's (HK) and Zhaoke do not devote sufficient resources to the development of those product candidates, are unsuccessful in their efforts, or chooses to terminate their agreement with us, the potential licensing revenue will not materialize.

On August 17, 2022, we entered into the A&R License Agreement with Lee's (HK) and Zhaoke effective as of August 9, 2022. The A&R License Agreement amends restates and supersedes the Original License Agreement.

Under the A&R License Agreement, Lee's is solely and exclusively responsible for all costs and activities related to the development, manufacturing, regulatory approval and commercialization of KL4 surfactant products, including SURFAXIN®, the lyophilized dosage form of SURFAXIN, and aerosolized KL4 surfactant. Lee's (HK) and Zhaoke may determine however, that it is commercially reasonable to de-prioritize or discontinue the development of the KL4 surfactant products. These decisions may occur for many reasons, including internal business reasons, results from clinical trials or because of unfavorable regulatory feedback.

Further, on review of the safety and efficacy data, the FDA may impose requirements on the programs that render them commercially nonviable. In addition, under the A&R License Agreement, Lee's (HK) and Zhaoke have certain decision-making rights in determining the development and commercialization plans and activities for the programs. We may disagree with Lee's (HK) and Zhaoke about the development strategy they employ, but we will have limited rights to impose our development strategy on Lee's (HK) and Zhaoke. Similarly, they may decide to seek marketing approval for, and limit commercialization of, the KL4 surfactant products to narrower indications than we would pursue. More broadly, if Lee's (HK) and Zhaoke elect to discontinue the development of the KL4 surfactant products, we may be unable to advance the product candidate ourselves.

Risks Related to our Business and Operations

Our operating results may fluctuate significantly, which makes our future operating results difficult to predict and could cause our operating results to fall below expectations or any guidance we may provide.

Our quarterly and annual operating results may fluctuate significantly, which makes it difficult for us to predict our future operating results.

These fluctuations may occur due to a variety of factors, many of which are outside of our control, including, but not limited to:

- the timing and cost of, and level of investment in, research, development, including manufacturing development regulatory approval and commercialization activities relating to our product candidates, which may change from period to period;

- the timing and success or failure of preclinical studies or clinical trials for our product candidates or competing product candidates, or any other change in the competitive landscape of our industry, including consolidation among our competitors or partners;

- the level of investment funding we are able to achieve and apply to our development operations;
- the cost of manufacturing our product candidates, which may vary depending on the quantity of production and the terms of our agreements with third-party manufacturers;
- the potential for our identifiable intangible assets to become impaired, and the timing of such impairments, if any;
- the timing and amount of the milestone or other payments we must make to the licensors and other third parties from whom we have in-licensed our acquired our product candidates;
- expenditures that we may incur to acquire, develop or commercialize additional product candidates and technologies;
- our allocation of resources and ability to raise additional capital;
- future changes in requirements to achieve regulatory approval;
- future accounting pronouncements or changes in our accounting policies.
- the capital markets stability and openness to investing;
- delays associated with coronavirus which will impact the ability of our healthcare systems and trial sites to conduct trials to varied degrees and times;
- coverage and reimbursement policies with respect to our product candidates, if approved, and potential future drugs that compete with our products; and
- the level of demand for any approved products, which may vary significantly.

The cumulative effects of these factors could result in large fluctuations and unpredictability in our quarterly and annual operating results. As a result, comparing our operating results on a period-to-period basis may not be meaningful. Investors should not rely on our past results as an indication of our future performance.

This variability and unpredictability could also result in our failing to meet the expectations of industry or financial analysts or investors for any period. If our revenue or operating results fall below the expectations of analysts or investors or below any forecasts we may provide to the market, or if the forecasts we provide to the market are below the expectations of analysts or investors, the price of our common stock could decline substantially. Such a stock price decline could occur even when we have met any previously publicly stated revenue or earnings guidance we may provide.

We are continually evaluating our business strategy and may modify this strategy to respond to developments in our business and other factors, and any such modification, if not successful, could have a material adverse effect on our business, financial condition, and results of operations.

We plan to continually evaluate our business strategy and will modify our plans as necessary to achieve our objectives. As part of our shift in priorities, we entered into the A&R License Agreement in 2022 (See "*Item 1. Business*" in our 2022 Annual Report for additional information on the A&R License Agreement) to support the development of our KL4 surfactant platform and were able to eliminate the remaining costs associated with the KL4 surfactant platform. If for any reason, our licensee does not proceed with development of the KL4 surfactant platform, such action could have a material adverse effect on our potential to realize licensing revenue.

Similarly, our strategy currently contemplates that we will seek to out-license rostafuroxin and invest the proceeds in our other core programs. If we are not successful in our efforts, we may be forced to accept a significant write down of our rostafuroxin asset on our balance sheet and reassess our strategy. This action also could have a material adverse effect on our business, financial condition and results of operations.

The execution of a clinical program is complex and involves the cooperation of many individuals and entities, including third parties that we may not be able to control, and require the coordination of a number of components, any one of which could experience delays or unforeseen events or circumstances that may require the development of alternative strategies. If we encounter such events or circumstances, if we believe that certain changes would be in our best interest, we will consider adjusting our strategy and planning. If we conclude that an alternative approach may improve our ability to achieve our objectives, we will consider adopting such other approach. Similarly, if a third party were to share observations or make recommendations concerning the focus, sequence or approach of any or all of our research and development programs, we may consider taking such recommendations into account in our planning process and future activities.

There can be no assurance, whether or not we alter our strategy or plans, that we will be successful, or that we will secure regulatory approval for our product candidates and execute any product launches effectively and on time, if at all, in all markets that we may identify. Our ability to discover and/or develop new product candidates depends in part on our internal research capabilities and whether we have the resources required to conduct a development program or to acquire new product candidates. Our limited resources may not be sufficient to discover and develop or to acquire new product candidates. To support our efforts to develop our product candidates and, if approved, commercialize our products in the world markets, including the U.S., we continue to evaluate potential licensing transactions, collaboration arrangements and other strategic transactions. However, there can be no assurance that our efforts will be successful or that, even if we identify and enter into any strategic transactions, that such transactions will be successfully implemented, if at all, within our expected time frames.

We plan to continue evaluating our business strategy and may modify our strategy again in the future. To respond to changing circumstances, we may expand or alter our research and development activities from time to time and allocate resources to work on development of different product candidates or may pace, delay or halt the development of potential product development programs. As a result of changes in our strategy, we may also change or refocus our existing drug development and manufacturing activities or our plans for commercialization of our product candidates, if approved. These decisions could require changes in our facilities and personnel and restructuring various financial arrangements. There can be no assurances that any product development or other changes that we implement will be successful or that, after implementation of any such changes, that we will not refocus our efforts on new or different objectives.

Our industry is highly competitive, and we have less capital and resources than many of our competitors, which may give them an advantage in developing and marketing products similar to ours or make our product candidates obsolete.

Our industry is highly competitive and subject to rapid technological innovation and evolving industry standards. We compete with numerous existing companies in many ways. We need to successfully introduce new products to achieve our strategic business objectives. If we cannot successfully introduce new products, adapt to changing technologies or anticipate changes in our current and potential customers' requirements, our product candidates may become obsolete and our business could suffer.

Many of our competitors' companies have substantially greater research and development, manufacturing, marketing, financial, and technology personnel and managerial resources than we have. In addition, many of these competitors, either alone or with their collaborative partners, have significantly greater experience than we do in developing products, preclinical testing and human clinical trials management, obtaining FDA approval and other regulatory approvals, and manufacturing and marketing products. Accordingly, our competitors may succeed in receiving FDA or foreign regulatory approval or commercializing products and obtaining patent protection before us. Our competitors may successfully secure regulatory exclusivities in various markets, which could have the effect of barring us or limiting our ability to market our product candidates, if approved, in such markets. In addition, developments by our competitors may render our drug product candidates obsolete or noncompetitive.

We also face, and will continue to face, competition from colleges, universities, governmental agencies and other public and private research organizations. These competitive forces frequently and aggressively seek patent protection and licensing arrangements to collect royalties for technologies that they develop. Some of these technologies may compete directly with the technologies that we are developing. These institutions will also compete with us in recruiting highly qualified scientific personnel.

The political and healthcare policy and reimbursement environment is becoming more challenging for pharmaceutical companies and manufacturers and may adversely affect our business.

Political, economic and regulatory influences globally are subjecting the healthcare industry to potential fundamental challenges that could substantially affect our business and results of operations. Government and private sector initiatives to limit the growth of healthcare costs, including price regulation, competitive pricing, coverage and payment policies, comparative effectiveness of therapies, technology assessments and managed-care arrangements, are continuing to arise in many countries where we potentially may seek to do business, including the U.S. There is increasing pressure on pricing, reimbursement and demands for value-based data to gain access to patients and healthcare funds globally. This may increase the costs of development, risks of commercialization and overall value of the opportunity. The Inflation Reduction Act of 2022 contains substantial drug pricing reforms, including the establishment of a drug price negotiation program within the U.S. Department of Health and Human Services that would require manufacturers to charge a negotiated "maximum fair price" for certain selected drugs or pay an excise tax for noncompliance, the establishment of rebate payment requirements on manufacturers of certain drugs payable under Medicare Parts B and D to penalize price increases that outpace inflation, and requires manufacturers to provide discounts on Part D drugs. Substantial penalties can be assessed for noncompliance with the drug pricing provisions in the Inflation Reduction Act of 2022. The Inflation Reduction Act of 2022 could have the effect of reducing the prices we can charge and reimbursement we receive for our product candidates, if approved, thereby reducing our profitability, and could have a material adverse effect on our financial condition,

results of operations and growth prospects. The effect of Inflation Reduction Act of 2022 on our business and the pharmaceutical industry in general is not yet known. We also cannot predict the likelihood, nature or extent of additional government regulation that may arise from future legislation, administrative, judicial, or executive action, either in the U.S. or abroad. In addition, we rely on our CMO located in China to manufacture drug product and APIs for us, such that the supply lines for our drug product, and APIs may be affected by trade and political considerations.

Given the increasing uncertainty in the healthcare and pharmaceutical industries as well as increased regulatory scrutiny on foreign investment, capital investment in our industry and our ability to attract capital investment is becoming more challenging. This trend, if continued, may restrict or impair our ability to gain necessary funding for continued development and, if approved, commercialization of our product candidates.

We depend upon key employees and consultants in a competitive market for skilled personnel. If we or our strategic partners or collaborators are unable to attract and retain key personnel, it could adversely affect our ability to develop and market our product candidates.

We have assembled a team of qualified personnel to advance the development programs for our product candidates. We have competed and will continue to compete for qualified individuals with numerous biopharmaceutical companies, universities and other research institutions. Competition for such individuals is significant and attracting and retaining qualified personnel will be critical to our success, and any failure to do so successfully may have a material adverse effect on us.

We are highly dependent upon the members of our executive management team and certain employees and consultants who are subject matter experts. Many of these individuals have been involved with us for many years, have played integral roles in our progress and we believe that they continue to provide value to us. We have over the last few years lost long-term members of our executive team and certain professional, scientific and management personnel, due to retirement, shifts in our focus and other causes. The loss of such personnel potentially exposes us to a lack of ready recall and knowledge of past corporate events, risks previously identified and related learnings. As such, the loss of any of our remaining key personnel may further increase the associated risk and may have a material adverse effect on aspects of our business and clinical development and regulatory programs. The loss of services from any of our executives could significantly adversely affect our ability to develop and market our product candidates and obtain necessary regulatory approvals. Further, we do not maintain key man life insurance.

Our future success also will depend on the continued service of our key professional, scientific and management personnel and our ability to recruit and retain additional personnel. While we attempt to provide competitive compensation packages to attract and retain key personnel at all levels in our organization, many of our competitors have greater resources and more experience than we do, making it difficult for us to compete successfully for key personnel. We may experience intense competition for qualified personnel and the existence of non-competition agreements between prospective employees and their former employers may prevent us from hiring those individuals or subject us to lawsuits brought by their former employers.

If our business development activities are unsuccessful, our business could suffer, and our financial performance could be adversely affected.

As part of our long-term growth strategy, we engage in business development activities intended to identify strategic opportunities, including potential strategic alliances, joint development opportunities, acquisitions, technology licensing arrangements and other similar opportunities. Such opportunities may result in substantial investments in our business. Our success in developing product candidates or expanding into new markets from such activities will depend on a number of factors, including our ability to find suitable opportunities for investment, alliance or acquisition; whether we are able to complete an investment, alliance or acquisition on terms that are satisfactory to us; the strength of our underlying technology, product candidates and our ability to execute our business strategies; any intellectual property and litigation related to these product candidates or technology; and our ability to successfully integrate the investment, alliance or acquisition into our existing operations, including to fund our share of any IPR&D projects. If we are unsuccessful in our business development activities, we may be unable to secure needed capital and expertise to support our development programs and our financial condition could be adversely affected.

We may seek to enter into licensing transactions, collaboration arrangements, and other similar transactions and strategic opportunities, and may not be successful in doing so, and even if we are, we may not realize the benefits of such relationships.

We may seek to enter into licensing transactions, collaboration arrangements, and other similar transactions and strategic opportunities for the development or commercialization of our product candidates, or to secure the capital required to develop or commercialize a product candidate or address manufacturing constraints. We may not be successful in our efforts to establish such collaborations for our product candidates because our research and development pipeline may be insufficient, our product candidates may be deemed to be at too early of a stage of development for collaborative effort or third parties may not view our product candidates as having the requisite potential to demonstrate safety and efficacy or significant commercial opportunity. In addition, we face significant competition in seeking appropriate strategic partners, and the negotiation process can be time consuming and complex. Further, any future collaboration agreements may restrict us from entering into additional agreements with potential collaborators. We cannot be certain that, following a strategic transaction or licensing agreement, we will achieve an economic benefit that justifies such a transaction.

Even if we are successful in our efforts to establish such collaborations, the terms that we agree upon may not be favorable to us, and we may not be able to maintain such collaborations if, for example, development or approval of a product candidate is delayed, the safety of a product candidate is questioned or sales of an approved product candidate are unsatisfactory.

In addition, any potential future collaborations may be terminable by our strategic partners, and we may not be able to adequately protect our rights under these agreements. Furthermore, strategic partners may negotiate for certain rights to control decisions regarding the development and commercialization of our product candidates, if approved, and may not conduct those activities in the same manner as we do. Any termination of collaborations we enter into in the future, or any delay in entering into collaborations related to our product candidates, could delay the development and commercialization of our product candidates and reduce their competitiveness if they reach the market, which could have a material adverse effect on our business, financial condition and results of operations.

We could be adversely affected by any interruption, including from breaches in cybersecurity, in our ability to conduct business at our current location.

We are increasingly dependent on sophisticated information technology for our infrastructure. Our information systems require an ongoing commitment of significant resources to maintain, protect and enhance existing systems. Despite our implementation of security measures, our information systems, like those of other companies, are vulnerable to damages from computer viruses, natural disasters, unauthorized access, cyber-attack, including ransomware, and other similar disruptions. Any system failure, accident or security breach could result in disruptions to our operations. For example, third parties may attempt to hack into systems and may obtain our proprietary information or other sensitive information, which could cause significant damage to our reputation, lead to claims against the Company and ultimately harm our business.

We do not have redundant facilities. We perform substantially all of our research and development and back office activity in a small number of locations, including our headquarters in Warrington, Pennsylvania, and a research laboratory at Chang Gung University in Taiwan under a separate collaboration agreement. We also depend upon third-party manufacturers and laboratories to manufacture our drug product candidates, APIs and perform important API and drug product release testing and stability work.

Our facilities, equipment and inventory would be costly to replace and could require substantial lead time to repair or replace. Our facilities and those of our third-party manufacturers and laboratories may be harmed or rendered inoperable by natural or man-made disasters, including, but not limited to, tornadoes, flooding, fire and power outages, which may render it difficult or impossible for us to perform our research, development and commercialization activities for some period of time. The inability to perform those activities, combined with the time it may take to rebuild our inventory of finished product, may result in the loss of customers or harm to our reputation. Although we have insurance for damage to our property and the disruption of our business, this insurance may not be sufficient to cover all of our potential losses and this insurance may not continue to be available to us on acceptable terms, or at all.

The failure to prevail in litigation or the costs of litigation, including securities class actions, product liability claims and patent infringement claims, could harm our financial performance and business operations.

We are potentially susceptible to litigation. For example, as a public company, we may be subject to claims asserting violations of securities laws. Even if such actions are found to be without merit, the potential impact of such actions, which generally seek unquantifiable damages and attorneys' fees and expenses, is uncertain. There can be no assurance that an adverse result in any future proceeding would not have a potentially material adverse effect on our business, results of operations and financial condition.

Our business activities, including development, manufacture and, if our product candidates are approved, marketing of our drug products also exposes us to liability risks. Using our drug product candidates, including in clinical trials, may expose us to product liability claims. Even if approved, our products may be subject to claims resulting from unintended effects that result in injury or death. Product liability claims alleging inadequate disclosure and warnings in our package inserts also may arise.

We presently carry comprehensive general liability, property damage, product liability, workers' compensation, health benefits and other insurance coverage in amounts that we believe to be adequate for the protection of our assets and operations and customary for companies in our industry of comparable size and level of activity. However, our insurance policies contain various deductibles, limitations and exclusions from coverage, and in any event might not fully cover any potential claims. There can be no assurance that the insurance coverage we maintain is sufficient or will be available in adequate amounts or at a reasonable cost. A successful claim brought against us in excess of available insurance or not covered by indemnification agreements, or any claim that results in significant adverse publicity against us, could have an adverse effect on our business and our reputation.

Product liability claims may be brought by individuals or by groups seeking to represent a class. The outcome of litigation, particularly class action lawsuits, is difficult to assess or quantify. Plaintiffs in these types of lawsuits often seek recovery of very large or indeterminate amounts, and the magnitude of the potential loss relating to such lawsuits may remain unknown for substantial periods of time.

We face a potential risk of product liability as a result of the clinical testing of our product candidates and will face an even greater risk if we commercialize any of our product candidates, if approved, or any other future product. For example, we may be sued if any product we develop, including any of our product candidates, or any materials that we use in our product candidates allegedly causes injury or is found to be otherwise unsuitable during product testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, negligence, strict liability and a breach of warranties. In the U.S., claims could also be asserted under state consumer protection acts. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our product candidates, if approved. Even successful defense would require significant financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for any of our product candidates, if approved, or any future products that we may develop;
- injury to our reputation;
- withdrawal of clinical trial participants;
- costs to defend the related litigation;
- a diversion of management's time, attention and our resources;
- substantial monetary awards to trial participants or patients;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- the inability to commercialize some or all of our product candidates, if approved; and
- a decline in the value of our stock.

There can be no assurance that the insurance coverage we maintain is sufficient or will be available in adequate amounts or at a reasonable cost. A successful claim brought against us in excess of available insurance or not covered by indemnification agreements, or any claim that results in significant adverse publicity against us, could have an adverse effect on our business and our reputation.

We may be required to obtain additional product liability insurance coverage. However, such insurance is expensive and may not be available when we need it. In the future, we may not be able to obtain adequate insurance, with acceptable limits and retentions, at an acceptable cost. Any product, general liability or product liability claim, even if such claim is within the limits of our insurance coverage or meritless and/or unsuccessful, could adversely affect the availability or cost of insurance generally and our cash available for other purposes, such as research and development. In addition, such claims could result in:

- uninsured expenses related to defense or payment of substantial monetary awards to claimants;
- a decrease in demand for our drug product candidates, if approved;
- damage to our reputation; and
- an inability to complete clinical trial programs or to commercialize our drug product candidates, if approved.

Risks Related to Government Regulation

Our activities are subject to various and complex laws and regulations, and we are susceptible to a changing regulatory environment. Violations or allegations of violations of these laws may result in large civil and criminal penalties, debarment from participating in government programs, diversion of management time, attention and resources and may otherwise have a material adverse effect on our business, financial condition and results of operations.

Our product candidates and our operations are regulated by numerous government agencies, both inside and outside the U.S. Our drug product candidates must undergo lengthy and rigorous testing and other extensive, costly and time-consuming procedures mandated by the FDA and foreign regulatory authorities. Our facilities and those of our third-party providers must pass inspection and/or be approved or licensed prior to production and remain subject to inspection at any time thereafter. Failure to comply with the requirements of the FDA or other regulatory authorities could result in warning or untitled letters, Form 483s, product recalls or seizures, monetary sanctions, injunctions to halt the manufacture and distribution of our product candidates, if approved, civil or criminal sanctions, refusal of a government to grant approvals or licenses, restrictions on operations or withdrawal of existing approvals and licenses. Any of these actions could damage our reputation and have a material adverse effect on our sales.

If our product candidates are approved for commercial sale, we will be required to comply with not only the requirements of applicable regulators, but also will become subject to various laws regulating the sales, marketing, and distribution of healthcare-related products. The sales and marketing of products and relationships that pharmaceutical companies have with healthcare providers are under increasing scrutiny by federal, state and foreign government agencies. The FDA and other federal regulators have increased their enforcement activities with respect to the Anti-Kickback Statute, False Claims Act, off-label promotion of products, and other healthcare related laws, antitrust and other competition laws. Foreign governments have also increased their scrutiny of pharmaceutical companies' sales and marketing activities and relationships with healthcare providers.

Of particular importance, federal and state anti-kickback laws make it illegal for a prescription drug manufacturer to solicit, offer, receive, or pay any remuneration in exchange for, or to induce, the referral of business, including the purchase or prescription of a particular drug. These laws can be complicated, are subject to frequent change and may be violated unknowingly. In addition, a number of states require that companies implement compliance programs or comply with industry ethics codes, adopt spending limits, and report to state governments any gifts, compensation, and other remuneration provided to physicians. Sanctions under these laws may include civil monetary penalties, exclusion of a manufacturer's products from reimbursement under government programs (including Medicare and Medicaid), criminal fines, and imprisonment. Companies that have chosen to settle these alleged violations have typically paid multi-million-dollar fines to the government and agreed to abide by corporate integrity agreements, which often include significant and costly burdens.

There has been a recent trend of increased federal and state regulation of payments and transfers of value provided to healthcare professionals and entities. For example, the Physician Payment Sunshine Act imposes annual reporting requirements on certain manufacturers of drugs, biologics and medical supplies with respect to payments and other transfers of value provided by them, directly or indirectly, to physicians and teaching hospitals, as well as with respect to certain ownership and investment interests held by physicians and their family members. A manufacturer's failure to submit timely, accurately and completely the required information regarding all payments, transfers of value or ownership or investment interests may result in civil monetary penalties. Certain states also mandate implementation of commercial compliance programs, impose restrictions on manufacturers' marketing practices, and require the tracking and reporting of gifts, compensation and other remuneration to healthcare professionals and entities under certain circumstances.

We are continually evaluating our compliance programs, including policies, training and various forms of monitoring, designed to address the requirements outlined above. However, no compliance program can mitigate risk in its entirety. Violations or allegations of violations of these laws may result in large civil and criminal penalties, debarment from participating in government programs, diversion of management time, attention and resources and may otherwise have a material adverse effect on our business, financial condition and results of operations.

Failure in our information technology systems could disrupt our operations and cause the loss of confidential information and business opportunities.

In the ordinary course of our business, we and our third-party contractors maintain sensitive data on our and their respective networks, including our intellectual property and proprietary or confidential business information relating to our business and that of our clinical trial participants and business partners and electronically stored work product, including clinical data, analyses, research, communications and other materials necessary to gain regulatory approval of our product candidates. The secure maintenance of this sensitive information is critical to our business and reputation. Despite the implementation of security measures, our internal computer systems and those of our third-party contractors are vulnerable to damage from cyber-attacks, computer viruses, unauthorized access, unintended loss, human error, natural disasters, terrorism, war and telecommunication and electrical failures. For information stored with our third-party contractors, we rely upon, and the integrity and confidentiality of such information is dependent upon, the risk mitigation and data preservation efforts such third-party contractors have in place. Our and our third-party contractors' respective network and storage applications and policies may not be sufficient to protect our sensitive business information and may be subject to loss, unauthorized access by hackers or breached due to operator error, malfeasance or other system disruptions. It is often difficult to anticipate or immediately detect such incidents and the damage caused by such incidents. Such incidents could compromise our intellectual property, expose sensitive business information, result in loss of data necessary to secure regulatory approval of our product candidates, cause interruptions in our operations, result in a material disruption of our operations, or require substantial expenditures of resources to remedy.

We face risks related to our collection and use of data, including personal information, which could result in investigations, inquiries, litigation, fines, legislative and regulatory action and negative press about our privacy and data protection practices.

Our business processes personal data, including some data related to health. When conducting clinical trials, we face risks associated with collecting trial participants' data, especially health data, in a manner consistent with applicable laws and regulations. We also face risks inherent in handling large volumes of data and in protecting the security of such data. We could be subject to attacks on our systems by outside parties or fraudulent or inappropriate behavior by our service providers or employees. Third parties may also gain access to users' accounts using stolen or inferred credentials, computer malware, viruses, spamming, phishing attacks or other means, and may use such access to obtain users' personal data or prevent use of their accounts. Data breaches could subject us to individual or consumer class action litigation and governmental investigations and proceedings by federal, state and local regulatory entities in the U.S. and by international regulatory entities, resulting in exposure to material civil and/or criminal liability. Further, our general liability insurance and corporate risk program may not cover all potential claims to which we are exposed and may not be adequate to indemnify us for all liability that may be imposed.

Our business requires that we and our third-party service providers collect and store sensitive data, including legally protected health information, personally identifiable information about patients, credit card information, and our proprietary business and financial information. As a covered entity, we must comply with the HIPAA privacy and security regulations, which may increase our operational costs. Furthermore, the privacy and security regulations provide for significant fines and other penalties for wrongful use or disclosure of protected health information, or PHI, including potential civil and criminal fines and penalties. We face a number of risks relative to our protection of, and our service providers' protection of, this critical information, including loss of access, fraudulent modifications, inappropriate disclosure and inappropriate access, as well as risks associated with our ability to identify and audit such events. The secure processing, storage, maintenance and transmission of this critical information is vital to our operations and business strategy, and we devote significant resources to protecting such information. Although we take measures to protect sensitive information from unauthorized access or disclosure, our information technology and infrastructure may be vulnerable to attacks by hackers or viruses or otherwise breached due to employee error, malfeasance or other activities. If such event would occur and cause interruptions in our operations, our networks would be compromised and the information we store on those networks could be accessed by unauthorized parties, publicly disclosed, modified without our knowledge, lost or stolen.

Additionally, we share PHI with third-party contractors who are contractually obligated to safeguard and maintain the confidentiality of PHI. Unauthorized persons may be able to gain access to PHI stored in such third-party contractors' computer networks. Any wrongful use or disclosure of PHI by us or our third-party contractors, including disclosure due to data theft or unauthorized access to our or our third-party contractors' computer networks, could subject us to fines or penalties that could adversely affect our business and results of operations. Although the HIPAA statute and regulations do not expressly provide for a private right of damages, we also could incur damages under state laws to private parties for the wrongful use or disclosure of confidential health information or other private personal information by us or our third-party contractors. Unauthorized access, loss, modification or dissemination could disrupt our operations, including our ability to process tests, provide test results, bill payers or patients, process claims, provide customer assistance services, conduct research and development activities, collect, process and prepare company financial information, provide information about our solution and other patient and physician education and outreach efforts through our website, manage the administrative aspects of our business and damage our reputation, any of which could adversely affect our business. In addition, the interpretation and application of consumer, health-related and data protection laws in the U.S. are often uncertain, contradictory and in flux. It is possible that these laws may be interpreted and applied in a manner that is inconsistent with our practices. Complying with these various laws could cause us to incur substantial costs or require us to change our business practices, systems and compliance procedures in a manner adverse to our business.

As our operations and business grow, we may become subject to or affected by new or additional data protection laws and regulations and face increased scrutiny or attention from regulatory authorities, including various domestic and international privacy and security regulations. The legislative and regulatory landscape for privacy and data protection continues to evolve. In the U.S., certain states may adopt privacy and security laws and regulations that may be more stringent than applicable federal law.

A number of US states have proposed new privacy laws. Such proposed legislation, if enacted, may add additional complexity, variation in requirements, restrictions and potential legal risk, require additional investment of resources in compliance programs, impact strategies and the availability of previously useful data and could result in increased compliance costs and/or changes in business practices and policies. The existence of comprehensive privacy laws in different states in the country would make our compliance obligations more complex and costly and may increase the likelihood that we may be subject to enforcement actions or otherwise incur liability for noncompliance.

Our international operations are subject to international laws and regulations, regulatory guidance, and industry standards relating to data protection, privacy, and information security. This includes the EU General Data Protection Regulation, or GDPR, as well as other national data protection legislation in force in relevant EU member states (including the GDPR in such form as incorporated into the law of England and Wales, Scotland and Northern Ireland by virtue of the European Union (Withdrawal) Act 2018 and any regulations thereunder and the UK Data Protection Act 2018, or UK GDPR.

The GDPR and UK GDPR are wide-ranging in scope and impose numerous additional requirements on companies that process personal data, including imposing special requirements in respect of the processing of health and other sensitive data, requiring that consent of individuals to whom the personal data relates is obtained in certain circumstances, requiring additional disclosures to individuals regarding data processing activities, requiring that safeguards are implemented to protect the security and confidentiality of personal data, creating mandatory data breach notification requirements in certain circumstances, requiring data protection impact assessments for high risk processing and requiring that certain measures (including contractual requirements) are put in place when engaging third-party processors. The GDPR and the UK GDPR also provide individuals with various rights in respect of their personal data, including rights of access, erasure, portability, rectification, restriction and objection.

The GDPR and UK GDPR impose strict rules on the transfer of personal data to countries outside the European Economic Area, including the U.S. The UK and Switzerland have adopted similar restrictions. Although the UK is regarded as a third country under the EU's GDPR, the EC has now issued a decision recognizing the UK as providing adequate protection under the EU GDPR and, therefore, transfers of personal data originating in the EU to the UK remain unrestricted. Like the EU GDPR, the UK GDPR restricts personal data transfers outside the UK to countries not regarded by the UK as providing adequate protection. The UK government has confirmed that personal data transfers from the UK to the EEA remain free flowing.

To enable the transfer of personal data outside of the EEA or the UK, adequate safeguards must be implemented in compliance with European and UK data protection laws. On June 4, 2021, the EC issued new forms of standard contractual clauses for data transfers from controllers or processors in the EU/EEA (or otherwise subject to the GDPR) to controllers or processors established outside the EU/EEA (and not subject to the GDPR). The new standard contractual clauses replace the standard contractual clauses that were adopted previously under the EU Data Protection Directive. The UK is not subject to the EC's new standard contractual clauses but has published a draft version of a UK-specific transfer mechanism, which, once finalized, will enable transfers from the UK. We will be required to implement these new safeguards when conducting restricted data transfers under the EU and UK GDPR and doing so will require significant effort and cost.

The GDPR and UK GDPR may increase our responsibility and liability in relation to personal data that we process where such processing is subject to the GDPR and UK GDPR. Implementing legislation in applicable EU member states and the UK, including by seeking to establish appropriate lawful bases for the various processing activities we carry out as a controller or joint controller, reviewing security procedures and those of our vendors and collaborators, and entering into data processing agreements with relevant vendors and collaborators, we cannot be certain that our efforts to achieve and remain in compliance have been, and/or will continue to be, fully successful. Given the breadth and depth of changes in data protection obligations, preparing for and complying with the GDPR and UK GDPR and similar laws' requirements are rigorous and time intensive and require significant resources and a review of our technologies, systems and practices, as well as those of any third-party collaborators, service providers, contractors or consultants that process or transfer personal data.

Other countries around the world in which we conduct business have also enacted strict privacy and data protection laws. Further, in addition to general privacy and data protection requirements, many jurisdictions around the world have adopted legislation that regulates how businesses operate online and enforces information security, including measures relating to privacy, data security and data breaches. Many of these laws require businesses to notify data breaches to the regulators and/or to data subjects. These laws are not consistent, and compliance in the event of a widespread data breach is costly and burdensome.

In many jurisdictions, enforcement actions and consequences for non-compliance with protection, privacy and information security laws and regulations are rising. In the EU and the UK, data protection authorities may impose large penalties for violations of the data protection laws, including potential fines of up to €20 million (£17.5 million in the UK) or 4% of annual global revenue, whichever is greater. The authorities have shown a willingness to impose significant fines and issue orders preventing the processing of personal data on non-compliant businesses. Data subjects also have a private right of action, as do consumer associations, to lodge complaints with supervisory authorities, seek judicial remedies, and obtain compensation for damages resulting from violations of applicable data protection laws.

The risk of our being found in violation of these laws is increased by the fact that the interpretation and enforcement of them is not entirely clear. Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business. The shifting compliance environment and the need to build and maintain robust and expandable systems to comply with multiple jurisdictions with different compliance and/or reporting requirements increases the possibility that a healthcare company may run afoul of one or more of the requirements.

Compliance with data protection laws and regulations could require us to take on more onerous obligations in our contracts, restrict our ability to collect, use and disclose data, or in some cases, impact our ability to operate in certain jurisdictions. It could also require us to change our business practices and put in place additional compliance mechanisms, may interrupt or delay our development, regulatory and commercialization activities and increase our cost of doing business. Failure by us or our collaborators and third-party providers to comply with data protection laws and regulations could result in government enforcement actions (which could include civil or criminal penalties and orders preventing us from processing personal data), private litigation and result in significant fines and penalties against us. Claims that we have violated individuals' privacy rights, failed to comply with data protection laws or breached our contractual obligations, even if we are not found liable, could be expensive and time-consuming to defend, could result in adverse publicity and could have a material adverse effect on our business, financial condition, results of operations and prospects.

Healthcare reform measures in the U.S., as well as the general tightening of drug reimbursement pathways and levels of reimbursement globally, are expected to add additional pressure to achieve financial expectations for our product candidates, if approved.

The U.S. and many foreign jurisdictions have enacted or proposed legislative and regulatory changes affecting the healthcare system that may affect our ability to profitably sell our product candidates, if approved. The U.S. government, state legislatures and foreign governments also have shown significant interest in implementing cost-containment programs to limit the growth of government-paid healthcare costs, including price controls, restrictions on reimbursement and requirements for substitution of generic products for branded prescription drugs.

The Affordable Care Act was intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against fraud and abuse, add transparency requirements for the healthcare and health insurance industries, impose new taxes and fees on the health industry and impose additional health policy reforms.

Further changes to and under the Affordable Care Act remain possible. It is unknown what form any such changes or any law proposed to replace the Affordable Care Act would take, and how or whether it may affect our business in the future. We expect that changes to the Affordable Care Act, the Medicare and Medicaid programs, changes allowing the federal government to directly negotiate drug prices and changes stemming from other healthcare reform measures, especially with regard to healthcare access, financing or other legislation in individual states, could have a material adverse effect on the healthcare industry.

Any reduction in reimbursement from Medicare, Medicaid, or other government programs may result in a similar reduction in payments from private payers. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain and maintain profitability of our product and product candidates, if approved. The Inflation Reduction Act of 2022 contains substantial drug pricing reforms, including the establishment of a drug price negotiation program within the U.S. Department of Health and Human Services that would require manufacturers to charge a negotiated "maximum fair price" for certain selected drugs or pay an excise tax for noncompliance, the establishment of rebate payment requirements on manufacturers of certain drugs payable under Medicare Parts B and D to penalize price increases that outpace inflation, and requires manufacturers to provide discounts on Part D drugs. Substantial penalties can be assessed for noncompliance with the drug pricing provisions in the Inflation Reduction Act of 2022. The Inflation Reduction Act of 2022 could have the effect of reducing the prices we can charge and reimbursement we receive for our product candidates, if approved, thereby reducing our profitability, and could have a material adverse effect on our financial condition, results of operations and growth prospects. The effect of Inflation Reduction Act of 2022 on our business and the pharmaceutical industry in general is not yet known.

Our international operations subject us to additional regulatory oversight in foreign jurisdictions, as well as economic, social, and political uncertainties, which could cause a material adverse effect on our business, financial position, and operating results.

We are subject to certain risks associated with having assets, both physical and intangible, and operations located in Taiwan. Our activity in Taiwan is subject to regulatory agencies, such as the Taiwan Food and Drug Administration. Our operations in foreign jurisdictions are conducted by our subsidiary, CVie Therapeutics, Taiwan, which also owns a substantial portion of our intellectual property. Our international operations may be adversely affected by general economic conditions and economic and fiscal policy, including changes in exchange rates and controls, interest rates and taxation policies, and increased government regulation, which could have a material adverse effect on our business, financial position, and operating results. In addition, the impacts of political unrest, including as a result geopolitical tension, such as a deterioration in the relationship between the U.S. and China, including any potential resulting sanctions, export controls, or other restrictive actions that may be imposed by the U.S. and/or other countries against governmental or other entities in, for example, China or Taiwan, also could have an adverse impact on our international operations.

If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to limit commercialization of our product candidates, if approved.

We face an inherent risk of product liability as a result of the clinical trials of our product candidates and will face an even greater risk if we commercialize our product candidates if we receive approval. For example, we may be sued if our product candidates allegedly cause injury or are found to be otherwise unsuitable during product testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product candidate, negligence, strict liability and a breach of warranties. Claims may be brought against us by clinical trial participants, patients or others using, administering or selling products that may be approved in the future. Claims could also be asserted under state consumer protection acts.

If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit or cease the commercialization of our product candidates, if approved. Even a successful defense would require significant financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for our product candidates, if approved;
- injury to our reputation and significant negative media attention;
- withdrawal of clinical trial participants;
- costs to defend the related litigation;
- a diversion of management's time, attention and our resources;
- substantial monetary awards to trial participants or patients;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- significant negative financial impact;
- the inability to commercialize our product candidates, if approved; and
- a decline in our stock price.

We currently hold product liability insurance coverage at a level we believe to be consistent with our activities. We may need to increase our insurance coverage as we expand our clinical trials or if we commence commercialization of our product candidates, if approved. Insurance coverage is increasingly expensive.

Our inability to obtain and retain sufficient product liability insurance at an acceptable cost to protect against potential product liability claims could prevent or inhibit the commercialization of our product candidates, if approved. Although we maintain such insurance, any claim that may be brought against us could result in a court judgment or settlement in an amount that is not covered, in whole or in part, by our insurance or that is in excess of the limits of our insurance coverage. Our insurance policies will also have various exclusions, and we may be subject to a product liability claim for which we have no coverage. We may have to pay any amounts awarded by a court or negotiated in a settlement that exceed our coverage limitations or that are not covered by our insurance, and we may not have, or be able to obtain, sufficient capital to pay such amounts.

Our employees and independent contractors, including principal investigators, CROs, consultants and vendors, may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

We are exposed to the risk that our employees and independent contractors, including principal investigators, CROs, consultants and vendors may engage in misconduct or other illegal activity. Misconduct by these parties could include intentional, reckless and/or negligent conduct or disclosure of unauthorized activities to us that violate: (i) the laws and regulations of the FDA and other similar regulatory requirements, including those laws that require the reporting of true, complete and accurate information to such authorities, (ii) manufacturing standards, including cGMP requirements, (iii) federal and state data privacy, security, fraud and abuse and other healthcare laws and regulations in the U.S. and abroad or (iv) laws that require the true, complete and accurate reporting of financial information or data. Activities subject to these laws also involve the improper use or misrepresentation of information obtained in the course of clinical trials, the creation of fraudulent data in our preclinical studies or clinical trials, or illegal misappropriation of drug product, which could result in regulatory sanctions and cause serious harm to our reputation. It is not always possible to identify and deter misconduct by employees and other third parties, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations. In addition, we are subject to the risk that a person or government could allege such fraud or other misconduct, even if none occurred. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business and financial results, including, without limitation, the imposition of significant civil, criminal and administrative penalties, damages, monetary fines, disgorgements, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, individual imprisonment, contractual damages, reputational harm, diminished profits and future earnings, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, and curtailment of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

We are subject to anti-bribery, anti-corruption, and anti-money laundering laws, including the U.S. Foreign Corrupt Practices Act, in which violations of these laws could result in substantial penalties and prosecution.

We are exposed to trade and economic sanctions and other restrictions imposed by the U.S. and other governments and organizations. The U.S. Departments of Justice, Commerce, State and Treasury and other federal agencies and authorities have a broad range of civil and criminal penalties they may seek to impose against corporations and individuals for violations of economic sanctions laws, export control laws, the U.S. Foreign Corrupt Practices Act, or the FCPA, and other federal statutes and regulations, including those established by the Office of Foreign Assets Control. The Department of Justice, or DOJ, also has increased its focus on the enforcement of the FCPA, particularly as it relates to the conduct of pharmaceutical companies.

In addition, the U.K. Bribery Act of 2010, or the Bribery Act, prohibits both domestic and international bribery, as well as bribery across both private and public sectors. An organization that “fails to prevent bribery” by anyone associated with the organization can be charged under the Bribery Act unless the organization can establish the defense of having implemented “adequate procedures” to prevent bribery. Under these laws and regulations, as well as other anti-corruption laws, anti-money laundering laws, export control laws, customs laws, sanctions laws and other laws governing our operations, various government agencies may require export licenses, may seek to impose modifications to business practices, including cessation of business activities in sanctioned countries or with sanctioned persons or entities and modifications to compliance programs, which may increase compliance costs, and may subject us to fines, penalties and other sanctions. A violation of these laws or regulations would negatively affect our business, financial condition and results of operations.

We and any of our third-party manufacturers or suppliers may use potent chemical agents and hazardous materials, and any claims relating to improper handling, storage or disposal of these materials could be time consuming or costly.

We and any of our third-party manufacturers or suppliers will use biological materials, potent chemical agents and may use hazardous materials, including chemicals and biological agents and compounds that could be dangerous to human health and safety of the environment. Our operations and the operations of our third-party manufacturers and suppliers also produce hazardous waste products. Federal, state and local laws and regulations govern the use, generation, manufacture, storage, handling and disposal of these materials and wastes. Compliance with applicable environmental laws and regulations may be expensive, and current or future environmental laws and regulations may impair our product development efforts. In addition, we cannot eliminate the risk of accidental injury or contamination from these materials or wastes. We carry a limited amount of specific biological or hazardous waste insurance coverage, and our property, casualty and general liability insurance policies offer limited coverage for damages and fines arising from biological or hazardous waste exposure or contamination. In the event of contamination or injury, we could be held liable for damages or be penalized with fines in an amount exceeding our resources, and our clinical trials or regulatory approvals could be suspended.

Although we maintain workers’ compensation insurance for certain costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials or other work-related injuries, this insurance may not provide adequate coverage against potential liabilities.

We maintain a limited amount of insurance for toxic tort claims that may be asserted against us in connection with our storage or disposal of biologic, hazardous or radioactive materials.

In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations, which have tended to become more stringent over time. These current or future laws and regulations may impair our research, development or production efforts. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions or liabilities, which could materially adversely affect our business, financial condition, results of operations and prospects.

Risks Related to Intellectual Property Matters

If we cannot protect our intellectual property, others could use our technology in competitive products. Even if we obtain patents to protect our product candidates, those patents may not be sufficiently broad, or they may expire and others could then compete with us.

The patent position of biotechnology companies is highly uncertain and involves complex legal and factual questions for which important legal principles are unresolved. To date, the U.S. Patent and Trademark Office, or USPTO, has not adopted a consistent policy regarding the breadth of claims that is accorded in biotechnology patents or the degree of protection that these types of patents afford. As a result, there are risks that we may not secure proprietary rights to products or processes that appear to be patentable.

The parties who licensed technologies to us and we have filed various U.S. and foreign patent applications with respect to the products and technologies under our development, and the USPTO and foreign patent offices have issued patents with respect to our products and technologies. These patent applications include international applications filed under the Patent Cooperation Treaty. Our pending patent applications, as well as those we may file in the future or those we may license from third parties, may not result in the USPTO or foreign patent office issuing patents. In addition, if patent rights covering our products are not sufficiently broad, they may not provide us with sufficient proprietary protection or competitive advantages against competitors with similar products and technologies. For example, the core composition of matter patents covering istaroxime have expired. As such, istaroxime relies on data and market exclusivity, as well as method-of-use patents, which may offer a lesser scope of protection than the original core patents. Furthermore, even if the USPTO or foreign patent offices were to issue patents to us or our licensors, others may challenge the patents or circumvent the patents, or the patent office or the courts may invalidate the patents. Thus, any patents we own or license from third parties may not provide us any protection against competitors.

The patents that we own or in-license have a limited life. Patents related to our cardiovascular drug products issued in the U.S., Europe and elsewhere have expired or will expire on various dates between 2028 and 2039. Further, we cannot guarantee that all patent applications related to our cardiovascular drug products that are still pending in U.S., Europe and elsewhere will be granted as patents.

Intellectual property rights of third parties could limit our ability to develop and market our product candidates.

Our success also depends upon our ability to operate our business without infringing the patents or violating the proprietary rights of others. Patent applications in most jurisdictions are not published until 18 months after filing. In certain cases, the USPTO keeps U.S. patent applications confidential for the entire time the applications are pending. As a result, we cannot determine in advance what inventions third parties may claim in their pending patent applications. We may need to defend or enforce our patent and license rights or to determine the scope and validity of the proprietary rights of others through legal proceedings, which would be costly, unpredictable and time consuming. Even in proceedings where the outcome is favorable to us, they would likely divert substantial resources, including management time, from our other activities. Moreover, any adverse determination could subject us to significant liability or require us to seek licenses that third parties might not grant to us or might only grant at rates that diminish or deplete the profitability of our products. An adverse determination could also require us to alter our products or processes or cease altogether any product sales or related research and development activities.

We may need to license intellectual property from third parties, and such licenses may not be available or may not be available on commercially reasonable terms.

We may need to obtain licenses from third parties to advance our research or allow commercialization of our product candidates, and we cannot provide any assurances that third-party patents do not exist which might be enforced against our product candidates in the absence of such a license. The licensing and acquisition of third-party intellectual property rights is a competitive practice and companies that may be more established, or have greater resources than we do, may also be pursuing strategies to license or acquire third-party intellectual property rights that we may consider necessary or attractive in order to commercialize our product candidates. We may fail to obtain any of these licenses on commercially reasonable terms, if at all. Even if we are able to obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. In that event, we may be required to expend significant time and resources to develop or license replacement technology. If we are unable to do so, we may be unable to develop or commercialize the affected product candidates, which could materially harm our business and the third parties owning such intellectual property rights could seek either an injunction prohibiting our sales, or, with respect to our sales, an obligation on our part to pay royalties and/or other forms of compensation. Licensing of intellectual property is of critical importance to our business and involves complex legal, business and scientific issues. If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may not be able to successfully develop and commercialize the affected product candidates, which would have a material adverse effect on our business.

We rely on agreements containing obligations regarding intellectual property, confidentiality and noncompetition provisions that could be breached and may be difficult to enforce.

Although we take what we believe to be reasonable steps to protect our intellectual property, including the use of agreements relating to the non-disclosure of our confidential and proprietary information and trade secrets to third parties, as well as agreements that provide for disclosure and assignment to us of all rights to the ideas, developments, improvements, discoveries and inventions of our employees, consultants, advisors and research collaborators while we employ them, such agreements can be difficult and costly to enforce. We generally seek to enter into these types of agreements with consultants, advisors and research collaborators; however, to the extent that such parties apply or independently develop intellectual property in connection with any of our projects, disputes may arise concerning allocation of the related proprietary rights. Such disputes often involve significant expense and yield unpredictable results.

Moreover, although all employees enter into agreements with us that include non-compete covenants, and our senior executive officers have agreements that include broader non-competition covenants and provide for severance payments that are contingent upon the applicable employee's refraining from competition with us, such non-compete provisions can be difficult and costly to monitor and enforce, such that, if any should resign, we may not be successful in enforcing our noncompetition agreements with them.

Despite the protective measures we employ, we still face the risk that:

- agreements may be breached;
- agreements may not provide adequate remedies for the applicable type of breach;
- our trade secrets or proprietary know-how may otherwise become known;
- our competitors may independently develop similar technology; or
- our competitors may independently discover our proprietary information and trade secrets.

Patents covering our product candidates could be found invalid or unenforceable if challenged in court or before administrative bodies in the U.S. or abroad.

Although an issued patent is presumed valid and enforceable, its issuance is not conclusive as to its validity or its enforceability and it may not provide us with adequate proprietary protection or competitive advantages against competitors with similar product candidates. Competitors could attempt to replicate the competitive advantages we derive from our development efforts, willfully infringe our intellectual property rights, design around the relevant patents, or develop and obtain patent protection for more effective technologies, designs or methods. We may be unable to prevent the unauthorized disclosure or use of our technical knowledge or trade secrets by consultants, suppliers, vendors, former employees and current employees. The laws of some non-U.S. countries do not protect our proprietary rights to the same extent as the laws of the U.S., and we may encounter significant problems in protecting our proprietary rights in these countries.

In addition, proceedings to enforce or defend our patents, or patents to which we have ownership rights through licensing agreements, could put those patents at risk of being invalidated, held unenforceable or interpreted narrowly. Such proceedings could also provoke third parties to assert claims against us, including that some or all of the claims in one or more of those patents are invalid or otherwise unenforceable. If any of the patents covering our product candidates are invalidated or found unenforceable, or if a court found that valid, enforceable patents held by third parties covered one or more of our product candidates, our competitive position could be harmed or we could be required to incur significant expenses to enforce or defend our rights.

Third parties may assert ownership or commercial rights to inventions we develop.

Third parties may in the future make claims challenging the inventorship or ownership of our intellectual property. In addition, we may face claims by third parties that our agreements with employees, contractors or consultants obligating them to assign intellectual property to us are ineffective or in conflict with prior or competing contractual obligations of assignment, which could result in ownership disputes regarding intellectual property we have developed or will develop and interfere with our ability to capture the commercial value of such intellectual property. Litigation may be necessary to resolve an ownership dispute, and if we are not successful, we may be precluded from using certain intellectual property or may lose our exclusive rights in such intellectual property. Either outcome could harm our business and competitive position.

Litigation or other proceedings or third-party claims of intellectual property infringement could require us to spend significant time and money and could prevent us from selling our product candidates or affect our stock price.

Our commercial success will depend in part on not infringing the patents or violating other proprietary rights of others. Significant litigation regarding patent rights occurs in our industry. Our competitors may have applied for or obtained, or may in the future apply for and obtain, patents that will prevent, limit or otherwise interfere with our ability to make, use and sell our product candidates. We do not always conduct independent reviews of patents issued to third parties. In addition, patent applications in the U.S. and elsewhere can be pending for many years before issuance, or unintentionally abandoned patents or applications can be revived, so there may be applications of others now pending or recently revived patents of which we are unaware. Patent applications in the U.S., the EU and elsewhere are published approximately 18 months after the earliest filing for which priority is claimed, with such earliest filing date being commonly referred to as the priority date. These applications may later result in issued patents, or the revival of previously abandoned patents, that will prevent, limit or otherwise interfere with our ability to develop and market our product candidates. Third parties may assert claims that we are employing their proprietary technology without authorization, including claims from competitors or from nonpracticing entities that have no relevant product revenue and against whom our own patent portfolio may have no deterrent effect.

As we attempt to commercialize our product candidates in their current or updated forms, launch new product candidates and enter new markets, we expect competitors may claim that one or more of our product candidates infringe their intellectual property rights as a strategy to impede our commercialization and entry into new markets. The large number of patents, the rapid rate of new patent applications and issuances, the complexities of the technologies involved, and the uncertainty of litigation may increase the risk of business resources and management's attention being diverted to patent litigation. We may in the future receive letters or other threats or claims from third parties inviting us to take licenses under, or alleging that we infringe, their patents.

Moreover, we may become party to adversarial proceedings regarding our or third-party patent portfolios. Such proceedings could include supplemental examination or contested post-grant proceedings such as review, reexamination, inter parties review, interference or derivation proceedings before the USPTO and challenges in U.S. District Courts. Patents may be subjected to opposition, post-grant review or comparable proceedings lodged in various foreign, both national and regional, patent offices. The legal threshold for initiating litigation or contested proceedings may be low, so that even lawsuits or proceedings with a low probability of success might be initiated. Litigation and contested proceedings can also be expensive and time-consuming, and our adversaries in these proceedings may have the ability to dedicate substantially greater resources to prosecuting these legal actions than we can. We may also occasionally use these proceedings to challenge the patent rights of others. We cannot be certain that any particular challenge will be successful in limiting or eliminating the challenged patent rights of the third party.

Any lawsuits resulting from such allegations could subject us to significant liability for damages and/ or invalidate our proprietary rights. Any potential intellectual property litigation also could force us to do one or more of the following:

- stop making, selling or using product candidates or technologies that allegedly infringe the asserted intellectual property;
- lose the opportunity to license our technology to others or to collect royalty payments;
- incur significant legal expenses, including, in some cases, the attorney's fees and costs of litigation to the party whose intellectual property rights we may be found to be infringing;
- pay substantial damages (possibly treble damages) or royalties to the party whose intellectual property rights on which we may be found to be infringing;
- redesign product candidates that contain the allegedly infringing intellectual property; and
- attempt to obtain a license to the relevant intellectual property from third parties, which may not be available on reasonable terms or at all.

Any litigation or claim against us, even those without merit, may cause us to incur substantial costs, and could place a significant strain on our financial resources, divert the attention of management from our business and harm our reputation. If we are found to infringe the intellectual property rights of third parties, we could be required to pay substantial damages (which may be increased up to three times of awarded damages) and/or substantial royalties and could be prevented from selling our product candidates unless we obtain a license or are able to redesign our product candidates to avoid infringement. Any such license may not be available on reasonable terms, if at all, and there can be no assurance that we would be able to redesign our product candidates in a technically feasible way that would not infringe the intellectual property rights of others. We could encounter delays while we attempt to develop alternative methods or product candidates. If we fail to obtain any required licenses or make any necessary changes to our product candidates or technologies, we may be unable to commercialize one or more of our product candidates.

Even if we were ultimately to prevail, any of these events could require us to divert substantial financial and management resources that we would otherwise be able to devote to our business. Intellectual property litigation, regardless of its outcome, may cause negative publicity, or prohibit us from manufacturing, importing, marketing or otherwise commercializing our product candidates, services and technology. In addition, if the breadth or strength of protection provided by the patents and patent applications we own or in-license is threatened, it could dissuade companies from collaborating with us to license, develop or commercialize current or future product candidates. In addition, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. There could also be public announcements of the results of hearings, motions or other interim proceedings or developments, and if securities analysts or investors view these announcements in a negative light, the price of our common stock could be adversely affected.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position could be harmed.

We also rely upon copyright and trade secret protection, as well as non-disclosure agreements and invention assignment agreements with our employees, consultants and third parties, to protect our confidential and proprietary information.

In addition to contractual measures, we try to protect the confidential nature of our proprietary information using commonly accepted physical and technological security measures. Such measures may not provide adequate protection for our proprietary information. Our security measures may not prevent an employee or consultant from misappropriating our trade secrets and providing them to a competitor, and recourse we take against such misconduct may not provide an adequate remedy to protect our interests fully. Unauthorized parties may also attempt to copy or reverse engineer certain aspects of our product candidates that we consider proprietary. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret can be difficult, expensive and time-consuming, and the outcome of any such claim is unpredictable. Trade secret violations are often a matter of state law, and the criteria for protection of trade secrets can vary among different jurisdictions. In addition, trade secrets may be independently developed or reverse engineered by others in a manner that could prevent legal recourse by us. If any of our confidential or proprietary information, such as our trade secrets, were to be disclosed or misappropriated, or if any such information were independently developed by a competitor, our business and competitive position could be harmed.

We may be unable to enforce our intellectual property rights throughout the world.

Filing, prosecuting and defending patents covering our product candidates in all countries throughout the world would be prohibitively expensive, and the laws of some foreign countries do not protect intellectual property rights to the same extent as the laws of the U.S. Many companies have encountered significant problems in protecting and defending intellectual property rights in certain foreign jurisdictions. This could make it difficult for us to stop infringement of our foreign patents, if obtained, or the misappropriation of our other intellectual property rights. For example, some foreign countries have compulsory licensing laws under which a patent owner must grant licenses to third parties. In addition, some countries limit the enforceability of patents against third parties, including government agencies or government contractors. In these countries, patents may provide limited or no benefit. Patent protection must ultimately be sought on a country-by-country basis, which is an expensive and time-consuming process with uncertain outcomes. Accordingly, we may choose not to seek patent protection in certain countries, and we will not have the benefit of patent protection in such countries. Additionally, in the event that our trademarks are successfully challenged, we could be forced to rebrand our product candidates, which could result in loss of brand recognition and could require us to devote resources to advertising and marketing new brands. Our competitors may infringe on our trademarks, and we may not have adequate resources to enforce our trademarks.

Proceedings to enforce our patent or trademark rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business. Accordingly, our efforts to protect our intellectual property rights in such countries may be inadequate.

Third parties may assert that our employees or consultants have wrongfully used or disclosed confidential information or misappropriated trade secrets.

In the future, we may employ individuals who previously worked with other companies, including our competitors. Although we try to ensure that our employees and consultants do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed intellectual property or personal data, including trade secrets or other proprietary information, of a former employer or other third party. Litigation may be necessary to defend against these claims. If we fail in defending any such claims or settling those claims, in addition to paying monetary damages or a settlement payment, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

Changes in U.S. patent laws may limit our ability to obtain, defend and/or enforce our patents.

In 2011, the U.S. enacted and later implemented wide ranging patent reform legislation. The U.S. Supreme Court has ruled on several patent cases since that time, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on actions by the U.S. Congress, the U.S. federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that could weaken our ability to obtain new patents or to enforce patents that we have licensed or that we might obtain in the future. Similarly, changes in patent law and regulations in other countries or jurisdictions, changes in the governmental bodies that enforce them or changes in how the relevant governmental authority enforces patent laws or regulations may weaken our ability to obtain new patents or to enforce patents that we have licensed or that we may obtain in the future.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

The USPTO and other patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. In addition, periodic maintenance and annuity fees on any issued patent are due to be paid to the USPTO and other patent agencies over the lifetime of the patent. While an inadvertent failure to make payment of such fees or to comply with such provisions can in many cases be cured by additional payment of a late fee or by other means in accordance with the applicable rules, there are situations in which non-compliance with such provisions will result in the abandonment or lapse of the patent or patent application, and the partial or complete loss of patent rights in the relevant jurisdiction. Non-compliance events that could result in abandonment or lapse of a patent or patent application include failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents within prescribed time limits. If we or our licensors fail to maintain the patents and patent applications covering our product or if we or our licensors otherwise allow our patents or patent applications to be abandoned or lapse, it can create opportunities for competitors to enter the market, which would hurt our competitive position and could impair our ability to successfully commercialize our product candidates.

We may be unable to obtain a patent term extension in the U.S. under the Hatch-Waxman Act and in foreign countries under similar legislation.

In the U.S., a patent that covers a drug product approved by the FDA may be eligible for a term extension designed to restore the period of the patent term that is lost during the premarket regulatory review process conducted by the FDA. Depending upon the timing, duration and conditions of FDA marketing approval of our product candidates, it is possible, though unlikely, that one or more of our U.S. patents may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Act, which permits a patent term extension of up to five years for a patent covering an approved product as compensation for effective patent term lost during product development and the FDA regulatory review process. A patent term extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, and only claims covering such approved drug product, a method for using it or a method for manufacturing it may be extended, and only one patent may be extended. In the EU, it is possible, though unlikely, that our product candidates may be eligible for term extensions based on similar legislation. However, in either jurisdiction, if we were eligible to apply for patent term extension, we may not receive an extension if we fail to apply within applicable deadlines, fail to apply prior to expiration of relevant patents or otherwise fail to satisfy applicable requirements. Even if we are granted such an extension, the duration of such extension may be less than our request. If we are unable to obtain a patent term extension, or if the term of any such extension is less than our request, the period during which we can enforce our patent rights for that product will be in effect shortened and our competitors may obtain approval to market competing products sooner. The resulting reduction of years of revenue from applicable product candidates could be substantial.

Intellectual property rights do not necessarily address all potential threats.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations and may not adequately protect our business or permit us to maintain our competitive advantage. For example:

- others may be able to make products that are similar to our product candidates or utilize similar technology but that are not covered by the claims of our patents or that incorporate certain technology in our product candidates that is in the public domain;
- we, or our future licensors or collaborators, might not have been the first to make the inventions covered by the applicable issued patent or pending patent application that we own now or may own or license in the future;
- we, or our future licensors or collaborators, might not have been the first to file patent applications covering certain of our or their inventions;
- we may not be able to successfully commercialize our product candidates before our relevant patents we may have, or to which we have ownership rights through licensing agreements, expire;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our intellectual property rights;
- it is possible that our current or future pending patent applications will not lead to issued patents;
- issued patents that we hold rights to may be held invalid or unenforceable, including as a result of legal challenges by our competitors or other third parties;
- our competitors or other third parties might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we may not develop additional proprietary technologies that are patentable;
- the patents of others may harm our business; and
- we may choose not to file a patent in order to maintain certain trade secrets or know-how, and a third party may subsequently file a patent covering such intellectual property.

Any of the foregoing could have a material adverse effect on our business, financial condition and results of operations.

Risks Related to the Ownership of our Securities

Our common stock is listed on the Nasdaq Capital Market, or Nasdaq. We can provide no assurance that we will be able to comply with the continued listing requirements over time and that our common stock will continue to be listed on Nasdaq.

In May 2020, we successfully listed our common stock on the Nasdaq Capital Market. However, we can give no assurance that we will be able to satisfy the continued listing requirements of Nasdaq in the future, including but not limited to the corporate governance requirements and the minimum closing bid price requirement or the minimum equity requirement.

On June 3, 2022, we received a deficiency letter from the Nasdaq Listing Qualifications Department, or the Staff, of Nasdaq notifying us that, for 30 consecutive business days, the closing bid price for our common stock was below the minimum $1.00 per share required for continued listing on the Nasdaq Capital Market pursuant to Nasdaq Listing Rule 5550(a)(2), or Rule 5550(a)(2). The Nasdaq deficiency letter had no immediate effect on the listing of our common stock, and our common stock continued to trade on the Nasdaq Capital Market under the symbol “WINT”. We were initially given 180 calendar days, or until November 30, 2022, to regain compliance with Rule 5550(a)(2), which was extended by an additional 180 calendar days, or May 29, 2023.

On February 24, 2023, we effected a reverse stock split of our issued and outstanding shares of common stock, par value $0.001 per share, at a ratio of 1 post-split share for every 50 pre-split shares. On March 10, 2023, we received written confirmation from Nasdaq notifying us that we had regained compliance with Nasdaq Listing Rule 5550(a)(2).

There can be no assurance that we will be able to maintain compliance with the continued listing requirements for Nasdaq. If we fail to maintain compliance with any such continued listing requirement, there can also be no assurance that we will be able to regain compliance with any such continued listing requirement in the future or that our common stock will not be delisted from Nasdaq Stock Market in the future. If we fail to maintain compliance, Nasdaq may take steps to delist our common stock. If such delisting should occur, it would likely have a negative effect on the price of our common stock and would impair an investor’s ability to sell or purchase our common stock when desired. In the event of a delisting, we can provide no assurance that any action taken by us to restore compliance with listing requirements would allow our common stock to become listed again, stabilize the market price or improve the liquidity of our common stock, prevent our common stock from dropping below the Nasdaq minimum bid price requirement, or prevent future non-compliance with Nasdaq’s listing requirements.

We effected a reverse stock split on February 24, 2023 which may adversely impact the market price of our common stock.

We effected a reverse stock split of our outstanding common stock at a ratio of 1-for-50 shares, which was effected at 12:01 a.m. Eastern Time on February 24, 2023. The effect of the reverse stock split upon the market price of our common stock cannot be predicted with certainty and there is no assurance that our common stock will trade at a price consistent with such a reverse stock split. Accordingly, it is possible that the market price of our common stock following the reverse stock split will decline, possibly more than would occur in the absence of a reverse stock split.

The effective increase in the number of shares of our common stock available for issuance as a result of our reverse stock split could result in further dilution to our existing stockholders and have antitakeover implications.

The reverse stock split alone had no effect on our authorized capital stock, and the total number of authorized shares remains the same as before the reverse stock split. The reverse stock split of our issued and outstanding shares increased the number of shares of our common stock (or securities convertible or exchangeable for our common stock) available for issuance by decreasing the number of shares of our common stock issued and outstanding. The additional available shares are available for issuance from time to time at the discretion of our Board of Directors when opportunities arise, without further stockholder action or the related delays and expenses, except as may be required for a particular transaction by law, the rules of any exchange on which our securities may then be listed, or other agreements or restrictions. Any issuance of additional shares of our common stock would increase the number of outstanding shares of our common stock and (unless such issuance was pro-rata among existing stockholders) the percentage ownership of existing stockholders would be diluted accordingly. In addition, any such issuance of additional shares of our common stock could have the effect of diluting the earnings per share and book value per share of outstanding shares of our common stock.

Additionally, the effective increase in the number of shares available for issuance could, under certain circumstances, have anti-takeover implications. For example, the additional shares of common stock that have become available for issuance could be used by us to oppose a hostile takeover attempt or to delay or prevent changes in control or our management. Although our reverse stock split is prompted by other considerations and not by the threat of any hostile takeover attempt, stockholders should be aware that our reverse stock split could facilitate future efforts by us to deter or prevent changes in control, including transactions in which our stockholders might otherwise receive a premium for their shares over then-current market prices.

The market price of our common stock may be highly volatile, and investors may not be able to resell their shares at or above the price at which they purchased them.

The market price of our common stock, like that of many other development stage pharmaceutical or biotechnology companies, has been and is likely to be volatile. In addition to general economic, political and market conditions, the price and trading volume of our stock could fluctuate widely in response to many factors, including:

- our ability to execute our planned clinical trials on a timely basis consistent with timelines established;
- results of our clinical trials and preclinical studies, and the results of trials of our competitors or those of other companies in our market sector;
- regulatory approval of our product candidates, or limitations to specific label indications or patient populations for its use, or changes or delays in the regulatory review process;
- regulatory developments in the U.S. and foreign countries;
- changes in the structure of healthcare payment systems, especially in light of current reforms to the U.S. healthcare system;
- the scope of protection we are able to establish and maintain for intellectual property rights covering our product candidates, along with any product modifications and improvements;
- the success or failure of our efforts to acquire, license or develop additional product candidates;
- innovations or new products developed by us or our competitors;

- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures or capital commitments;
- manufacturing, supply or distribution delays or shortages;
- any changes to our relationship with any manufacturers, suppliers, licensors, future collaborators or other strategic partners;
- our expectations regarding the potential market size and the size of the patient populations for our product candidates;
- the implementation of our business model and strategic plans for our business and technology;
- achievement of expected product sales and profitability;
- variations in our financial results or those of companies that are perceived to be similar to us;
- market conditions in the biopharmaceutical sector and issuance of securities analysts' reports or recommendations;
- trading volume of our common stock;
- an inability to obtain additional funding;
- sales of our stock by insiders and stockholders;
- general economic, industry and market conditions other events or factors, including as a result of inflation, liquidity constraints or banking stability, many of which are beyond our control;
- our commercialization, marketing and manufacturing prospects and capabilities;
- additions or departures of key personnel; and
- intellectual property, product liability or other litigation against us.

In addition, the stock markets in general, and the markets for biopharmaceutical and biotechnology stocks in particular, have experienced extreme volatility that may have been unrelated to the operating performance of the issuer. These broad market fluctuations may adversely affect the market price or liquidity of our common stock. In the past, when the market price of a stock has been volatile, holders of that stock have sometimes instituted securities class action litigation against the issuer. If any of our stockholders were to bring such a lawsuit against us, we could incur substantial costs defending the lawsuit and the attention of our management would be diverted from the operation of our business.

The sale and issuance of our common stock or rights to purchase our common stock, stock incentive plans and upon the exercise of outstanding securities exercisable for shares of our common stock, including our AEROSURF warrants, which are exercisable in the future for no consideration, could result in substantial additional dilution of our stockholders, cause our stock price to fall and adversely affect our ability to raise capital.

We will require additional capital to continue to execute our business plan and advance our research and development efforts. To the extent that we raise additional capital through the issuance of additional equity securities and through the exercise of outstanding warrants, our stockholders may experience substantial dilution. We may sell shares of preferred stock or common stock in one or more transactions at prices that may be at a discount to the then-current market value of our common stock and on such other terms and conditions as we may determine from time to time. Any such transaction could result in substantial dilution of our existing stockholders. If we sell shares of our common stock in more than one transaction, stockholders who purchase our common stock may be materially diluted by subsequent sales. Such sales could also cause a drop in the market price of our common stock. The issuance of shares of our common stock in connection with a public or private financing, in connection with our compensation programs, and upon exercise of outstanding warrants will have a dilutive impact on our other stockholders and the issuance, or even potential issuance, of such shares could have a negative effect on the market price of our common stock.

The exercise of stock options and other securities could also cause our stockholders to experience substantial dilution. Moreover, holders of our stock options and warrants are likely to exercise them, if ever, at a time when we otherwise could obtain a price for the sale of our securities that is higher than the exercise price per security of the options or warrants. Such exercises, or the possibility of such exercises, may impede our efforts to obtain additional financing through the sale of additional securities or make such financing more costly. It may also reduce the price of our common stock.

A small group of our investors, including Lee's Holdings and Panacea Venture Management Company Ltd., may be able to exercise significant influence over our business strategy and operations.

As of March 31, 2023, Lee's Holdings beneficially owns directly and through its affiliates, approximately 12% of our issued and outstanding shares of common stock, and Panacea Venture Management Company Ltd., affiliates of our former Chairman, James Huang, beneficially owns directly and through affiliates approximately 8% of our issued and outstanding common stock. These investors could influence the outcome of corporate actions by us requiring stockholder approval, including the election of directors, any merger, consolidation or sale of all or substantially all of our assets or any other significant corporate transaction. These stockholders also may exert influence in delaying or preventing a change in control, even if such a change in control would benefit our other stockholders.

In addition, affiliates of Lee's Holdings in China serve as CMO for istaroxime, rostafuroxin and potentially lyophilized KL4 surfactant. As such, we are highly dependent upon their performance to maintain our operational timelines and achieve planned milestones, and as a result, they may be in a position to exert leverage over our planning processes.

Provisions of our Amended and Restated Certificate of Incorporation, or Certificate of Incorporation, our Amended and Restated By-Laws, or By-Laws, and Delaware law could deter a change of our management and thereby discourage or delay offers to acquire us.

Provisions of our Certificate of Incorporation, our By-Laws and Delaware law may make it more difficult for someone to acquire control of us or for our stockholders to remove existing management and might discourage a third party from offering to acquire us, even if a change of control or in management would be beneficial to our stockholders. Such provisions may make it costlier for a potential acquirer to engage in a business combination transaction with us. Provisions that have the effect of discouraging, delaying or preventing a change of control could limit the opportunity for our stockholders to receive a premium for their shares of our common stock and could also affect the price that some investors are willing to pay for our common stock.

Our Certificate of Incorporation provides that the Court of Chancery of the State of Delaware will be the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to file in a different judicial forum to resolve disputes with us or our directors, officers or employees.

Our Certificate of Incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a breach of fiduciary duty, any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our Certificate of Incorporation or our By-Laws, or any action asserting a claim against us that is governed by the internal affairs doctrine; provided, that, this provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act. These choice of forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees.

We do not intend to pay dividends on our common stock so any returns will be limited to the value of our stock.

We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. Any return to stockholders will therefore be limited to the appreciation of their stock.

We are a "smaller reporting company," and the reduced disclosure requirements applicable to smaller reporting companies may make our common stock less attractive to investors.

We are a "smaller reporting company" as defined in the Exchange Act and have elected to take advantage of certain of the scaled disclosures available to smaller reporting companies, which include, among other things, audited financial statements and Management Discussion and Analysis for two years instead of three years, an update of the general development of the business for such period that is material to an understanding of the company, simplified executive compensation disclosures, and exemption from the provisions of Section 404(b) of the Sarbanes-Oxley Act requiring that an independent registered accounting firm provide an attestation report on the effectiveness of internal control over financial reporting. We cannot predict whether investors will find our common stock less attractive because of our reliance on any of these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

Risks Related to this Offering

Purchasers of common stock in this offering will experience immediate and substantial dilution in the net tangible book value of their investment. You may experience further dilution upon exercise of options.

The public offering price per share of common stock in this offering is substantially higher than the net tangible book value per share of our common stock before giving effect to this offering. Based on the public offering price of $2.93 per share, if you purchase common stock in this offering, you will incur immediate substantial dilution of approximately $4.94 per share, representing the difference between the public offering price per share of common stock and our as adjusted net tangible book value as of December 31, 2022. Furthermore, if outstanding options or warrants are exercised, you could experience further dilution. For a further description of the dilution that you will experience immediately after this offering, see the section in this prospectus entitled "*Dilution*."

A substantial number of shares of common stock may be sold in the market following this offering, which may depress the market price for our common stock.

Sales of a substantial number of shares of our common stock in the public market following this offering could cause the market price of our common stock to decline. A substantial majority of the outstanding shares of our common stock are, and the shares of common stock sold in this offering upon issuance will be, freely tradable without restriction or further registration under the Securities Act.

Upon completion of this offering, based on our shares outstanding as of March 31, 2023, we will have 4,595,019 shares of common stock outstanding, which (along with the shares purchased in this offering) may be resold into the public market immediately without restriction, unless owned or purchased by our "affiliates" as that term is defined in Rule 144 under the Securities Act.

As of March 31, 2023, there were approximately 70,972 shares subject to outstanding options or subject to certain outstanding inducement grants, 6,524 shares subject to outstanding restricted stock units, and 44,232 shares reserved for future issuance or otherwise issuable under our equity compensation plans. We have registered or will register the shares of common stock available for issuance under the Company's 2011 Long-Term Incentive Plan and 2020 Equity Incentive Plan under the Securities Act on Registration Statements on Form S-8. The registered shares can be freely sold in the public market upon issuance, subject to volume limitations applicable to affiliates and the lock-up agreements described above, to the extent applicable.

As of March 31, 2023, we had outstanding warrants exercisable for 449,345 shares with a weighted-average exercise price of $179.56 per share. The shares of our common stock underlying such warrants will, upon issuance, be freely tradeable without restriction or further registration under the Securities Act.

We have broad discretion to determine how to use the funds raised in this offering, and may use them in ways that may not enhance our operating results or the price of our common stock.

Our management will have broad discretion over the use of net proceeds from this offering, and we could spend the net proceeds from this offering in ways our stockholders may not agree with or that do not yield a favorable return, if at all. We currently expect to use the net proceeds from this offering for the clinical development of istaroxime in cardiogenic shock and for working capital and other general corporate purposes, including costs and expenses associated with being a public company. However, our use of these net proceeds may differ substantially from our current plans. If we do not invest or apply the net proceeds of this offering in ways that improve our operating results, we may fail to achieve expected financial results, which could cause our stock price to decline.

There is no public market for the common warrants being offered in this offering.

There is no established public trading market for the common warrants being offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply to list the common warrants on any national securities exchange or other nationally recognized trading system, including the Nasdaq Capital Market. Without an active market, the liquidity of the common warrants will be limited.

Holders of common warrants purchased in this offering will have no rights as a common stockholder until such holder exercises its common warrants and acquires our common stock, except as set forth in such common warrants.

Until holders of common warrants acquire shares of our common stock upon exercise thereof, such holders will have no rights with respect to the shares of our common stock underlying the common warrants. Upon exercise of the common warrants, the holders will be entitled to exercise the rights of a common stockholder only as to matters for which the record date occurs after the exercise date.

The common warrants are speculative in nature.

The common warrants do not confer any rights of common stock ownership on their holders, such as voting rights or the right to receive dividends, but rather merely represent the right to acquire shares of common stock at a fixed price for a limited period of time. Specifically, holders of the common warrants may exercise their right to acquire the common stock and pay an exercise price of $2.93 per share, subject to certain adjustments, commencing immediately until expiration on the fifth anniversary of the date of issuance, after which period any unexercised common warrants will expire and have no further value. Moreover, following this offering, the market value of the common warrants is uncertain and there can be no assurance that the market value of the common warrants will equal or exceed their imputed offering price. The common warrants will not be listed or quoted for trading on any market or exchange. There can be no assurance that the market price of the common stock will ever equal or exceed the exercise price of the common warrants, and consequently, it may not ever be profitable for holders of the common warrants to exercise the common warrants.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements. All statements other than statements of historical facts contained in this prospectus are forward-looking statements. In some cases, you can identify forward-looking statements by terms such as “may,” “will,” “should,” “expect,” “plan,” “anticipate,” “could,” “intend,” “target,” “project,” “contemplate,” “believe,” “estimate,” “predict,” “potential” or “continue” or the negative of these terms or other similar expressions, although not all forward-looking statements contain these words. Forward-looking statements include, but are not limited to, statements concerning:

- our estimates regarding future results of operations, financial position, research and development costs, capital requirements, and our needs for additional financing;
- how long we can continue to fund our operations with our existing cash and cash equivalents;
- changes in market conditions, general economic conditions, and the banking sector, and potential constraints in accessing capital or credit if and when needed with favorable terms, if at all;
- the potential impairment of our intangible assets and goodwill on our consolidated balance sheet, which could lead to material impairment charges in the future;
- potential delays and uncertainties in our anticipated timelines and milestones and additional costs associated with the impact of the residual effects of the coronavirus pandemic on our clinical trial operations;
- the costs, timing, and results, of our preclinical studies and clinical trials, as well as the number of required trials for regulatory approval and the criteria for success in such trials;
- legal and regulatory developments in the United States, or U.S., and foreign countries, including any actions or advice that may affect the design, initiation, timing, continuation, progress or outcome of clinical trials or result in the need for additional clinical trials;
- the difficulties and expenses associated with obtaining and maintaining regulatory approval of our product candidates, and the indication and labeling under any such approval;
- risks related to manufacturing active pharmaceutical ingredients, drug product, and other materials we need;
- delays, interruptions or failures in the manufacture and supply of our product candidates;
- the plans of our AEROSURF and KL4 licensee, Lee’s (HK) and Zhaoke, and their ability to successfully execute necessary clinical and business development activities in a timely manner, if at all, to support development and commercialize the licensed product candidates;
- the performance of third parties, both foreign and domestic, upon which we depend, including contract research organizations, contract manufacturing organizations, contract laboratories, and independent contractors;
- the size and growth of the potential markets for our product candidates, the regulatory requirements in such markets, the rate and degree of market acceptance of our product candidates, and our ability to serve those markets;
- the success of competing therapies and products that are or may become available;
- our ability to limit our exposure under product liability lawsuits;
- our ability to obtain and maintain intellectual property protection for our product candidates;
- recently enacted and future legislation, including but not limited to, the Inflation Reduction Act of 2022, regarding the healthcare system in the U.S. or the healthcare systems in foreign jurisdictions;
- our ability to recruit or retain key scientific, commercial or management personnel or to retain our executive officers;

- our ability to secure electronically stored work product, including clinical data, analyses, research, communications, and other materials necessary to gain regulatory approval of our product candidates, including those acquired from third parties, and assure the integrity, proper functionality, and security of our internal computer and information systems and prevent or avoid cyber-attacks, malicious intrusion, breakdown, destruction, security incidents, data privacy violations, or other significant disruption;

- economic uncertainty resulting from inflation and the rapid increase in interest rates, including concerns involving liquidity, defaults or other non-performance by financial institutions;

- economic uncertainty resulting from geopolitical instability, including the ongoing military conflict between Russia and Ukraine, the People's Republic of China and the Republic of China (Taiwan); and

- other risks and uncertainties, including those described or incorporated by reference under the caption "Risk Factors" in this prospectus.

We have based these forward-looking statements largely on our current expectations, estimates, forecasts, and projections about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy, and financial needs. In light of the significant uncertainties in these forward-looking statements, you should not rely upon forward-looking statements as predictions of future events. Although we believe that we have a reasonable basis for each forward-looking statement contained in this prospectus, we cannot guarantee that the future results, levels of activity, performance, or events and circumstances reflected in the forward-looking statements will be achieved or occur at all. You should refer to the section entitled "Risk Factors" in this prospectus and the risk factors set forth in the documents incorporated by reference in this prospectus for a discussion of important factors that may cause our actual results to differ materially from those expressed or implied by our forward-looking statements. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. Except as required by law, we undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise.

You should read this prospectus and the documents incorporated by reference in this prospectus completely and with the understanding that our actual future results, performance or achievements may be materially different from what we expect. We qualify all of the forward-looking statements in this prospectus by these cautionary statements.

Trademark Notice

AEROSURF®, **AFECTAIR®**, **SURFAXIN®**, **SURFAXIN LS™**, **WINDTREE THERAPEUTICS® (logo)**, **WINDTREE THERAPEUTICS™**, and **WINDTREE™** are registered and common law trademarks of Windtree Therapeutics, Inc. (Warrington, PA).

USE OF PROCEEDS

We estimate that the net proceeds to us from this offering will be approximately $9.3 million, or approximately $10.8 million if the underwriters exercise their option to purchase additional shares of common stock and/or common warrants from us in full, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, excluding the proceeds, if any, from the exercise of the common warrants issued pursuant to this offering. In addition, if all of the common warrants offered pursuant to this prospectus are exercised in full for cash, we will receive approximately an additional $10.8 million in cash. We cannot predict when or if these common warrants will be exercised. It is possible that these common warrants may expire and may never be exercised.

We intend to use up to $3.5 million of the net proceeds of this offering to extend enrollment and complete a Phase 2 clinical trial for istaroxime in cardiogenic shock, with the remainder of the net proceeds being used for working capital and other general corporate purposes. We may also use a portion of the net proceeds from this offering to in-license, acquire or invest in complementary businesses, technologies, products or assets. Although we currently have no agreements, commitments or obligations to do so, we evaluate such opportunities and engage in related discussions with third parties from time to time.

Our expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions. As of the date of this prospectus, we cannot predict with certainty all of the particular uses for the net proceeds to be received upon the completion of this offering or the amounts that we will actually spend on the uses set forth above. The amounts and timing of our actual expenditures and the extent of our preclinical, clinical and future development activities may vary significantly depending on numerous factors, including the progress of our development efforts, the status of and results from our planned clinical trials, our ability to take advantage of expedited programs or to obtain regulatory approval for product candidates, the timing and costs associated with the manufacture and supply of product candidates for clinical development or commercialization and any unforeseen cash needs. As a result, our management will retain broad discretion over the allocation of the net proceeds from this offering.

Pending the uses described above, we plan to invest the net proceeds from this offering in short-term, interest-bearing obligations, investment-grade instruments or other securities.

DIVIDEND POLICY

We have not paid any cash dividends and we do not anticipate paying any cash dividends in the foreseeable future and we intend to retain all of our earnings, if any, to finance our growth and operations and to fund the expansion of our business. Payment of any dividends, if any, will be made in the discretion of our board of directors, or Board, after taking into account various factors, including our financial condition, operating results, current and anticipated cash needs and plans for expansion.

DILUTION

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

Our historical net tangible book value as of December 31, 2022 was $(18.3) million, or $(23.69) per share of our common stock, based on 772,202 shares of common stock outstanding as of December 31, 2022 (giving effect to the one-for-fifty (1-50) reverse stock split). Our historical net tangible book value represents our total tangible assets less total liabilities. Historical net tangible book value per share is our historical net tangible book value divided by the number of shares of our common stock outstanding as of December 31, 2022.

After giving effect to the sale of 3,686,006 shares of our common stock and common warrants to purchase 3,686,006 shares of our common stock in this offering at a public offering price of $2.93 per share and accompanying common warrant, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us, our as adjusted net tangible book value as of December 31, 2022 would have been $(9.0) million, or $(2.01) per share. This represents an immediate increase in as adjusted net tangible book value of $21.68 per share to our existing stockholders and an immediate dilution of $4.94 per share to investors purchasing our common stock and common warrants in this offering at the combined public offering price.

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

Combined public offering price per share of common stock and accompanying common warrant		$ 2.93
Historical net tangible book value per share as of December 31, 2022	$ (23.69)	
Increase in net tangible book value per share as of December 31, 2022 attributable to investors purchasing shares in this offering	21.68	
As adjusted net tangible book value per share as of December 31, 2022 after giving effect to this offering		(2.01)
Dilution per share to investors participating in this offering		$ 4.94

If the underwriters exercise in full their option to purchase additional shares and/or common warrants, our as adjusted net tangible book value per share after this offering would be $(1.49) per share, representing an immediate increase in as adjusted net tangible book value per share of $22.20 to existing stockholders and immediate dilution of $4.42 in as adjusted net tangible book value per share to investors purchasing common stock in this offering.

The foregoing discussion and tables above are based on 772,202 shares of common stock outstanding as of December 31, 2022, assumes no exercise of any common warrants and no exercise by the underwriters of their option to purchase additional shares of our common stock and/or common warrants, and excludes:

- 330,927 shares of our common stock issuable upon the exercise of outstanding warrants as of December 31, 2022, with a weighted-average price of $332.02 per share;
- 77,559 shares of our common stock issuable upon the exercise of outstanding stock options as of December 31, 2022, with a weighted-average exercise price of $381.24 per share;
- 11,162 shares of our common stock issuable upon the exercise of outstanding restricted stock units as of December 31, 2022, with a weighted-average grant date fair value of $49.68 per share; and
- 11,786 shares of our common stock reserved for future issuance under our 2020 Plan, as amended, plus any future increases in the number of shares of common stock reserved for issuance.

To the extent that any outstanding warrants or options are exercised, new options or other equity awards are issued under our equity incentive plans, or we issue additional shares in the future, there will be further dilution to new investors participating in this offering. In addition, we may choose to raise additional capital due to market conditions or strategic considerations, even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or equity-based securities, the issuance of these securities could result in further dilution to our stockholders.

EXECUTIVE AND DIRECTOR COMPENSATION

NAMED EXECUTIVE OFFICERS

Our named executive officers, or NEOs, for the year ended December 31, 2022, which consists of our principal executive officer and our two other most highly compensated executive officers, are:

- Craig E. Fraser, our President and CEO;
- John P. Hamill, our former Senior Vice President, CFO, and Corporate Secretary; and
- Steven G. Simonson, M.D., our Senior Vice President and CMO.

This section discusses the material components of the executive compensation program for our NEOs.

The following table presents summary information regarding the total compensation that was awarded to, earned by or paid to our NEOs for services rendered during the years ended December 31, 2021 and 2022.

SUMMARY COMPENSATION TABLE

Name and Principal Position	Year	Salary ($)	Bonus ($)	Stock Awards ($)(1)	Option Awards ($)(2)	All Other Compensation ($)(3)	Total ($)
Craig E. Fraser	2022	544,600	—	170,238	216,922	9,150	940,910
President and CEO	2021	479,931	95,986	-	1,292,545	8,700	1,877,162
John P. Hamill	2022	398,017	—	67,626	86,283	9,150	561,076
Former Senior VP, CFO, and Corporate Secretary	2021	380,175	83,639	-	270,690	8,700	743,204
Steven G. Simonson, M.D.	2022	434,952	—	67,626	86,283	11,150	600,011
Senior VP and CMO	2021	418,193	85,311	-	507,995	10,800	1,022,299

(1) Represents the aggregate grant date fair value of restricted stock unit awards, or RSUs, computed in accordance with Financial Accounting Standards Board Accounting Standards Codification, or ASC, Topic 718, Stock Compensation, or ASC Topic 718, and does not take into account estimated forfeitures related to service-based vesting conditions, if any. The valuation assumptions used in calculating these values are discussed in Note 11 of the Audited Consolidated Financial Statements of our Annual Report on Form 10-K for the year ended December 31, 2022. These amounts do not represent actual amounts paid or to be realized. Amounts shown are not necessarily indicative of values to be achieved, which may be more or less than the amounts shown as awards are subject to time-based vesting.

(2) Represents the aggregate grant date fair value of option awards computed in accordance with ASC Topic 718 and does not take into account estimated forfeitures related to service-based vesting conditions, if any. The valuation assumptions used in calculating these values are discussed in Note 11 of the Audited Consolidated Financial Statements of our Annual Report on Form 10-K for the year ended December 31, 2022. These amounts do not represent actual amounts paid or to be realized. Amounts shown are not necessarily indicative of values to be achieved, which may be more or less than the amounts shown as awards are subject to time-based vesting.

(3) Reflects matching contributions under our 401(k) Plan, and, with respect to Dr. Simonson, includes $2,000 for the Company’s funding of a health savings account in 2022 and $2,100 for a car allowance in 2021.

Narrative Disclosure to Summary Compensation Table

Elements of Compensation

The compensation of our NEOs generally consists of base salary, annual cash bonus opportunities, long term incentive compensation in the form of equity awards and other benefits, as described below.

Base Salary

The base salary payable to each NEO is intended to provide a fixed component of compensation reflecting the NEO's skill set, experience, role, responsibilities, and contributions.

Annual Cash Bonus Opportunities

The performance-based cash bonus opportunity for each of our NEOs is expressed as a percentage of the applicable NEO's base salary that can be achieved at a target level by meeting predetermined corporate and individual performance objectives. Each executive's target bonus for the year is set forth in their employment agreements, as may be amended by the compensation committee from time to time. For 2022, our compensation committee and Board determined that each NEO's performance bonus should be based principally on contribution towards the achievement of corporate goals. These goals primarily included research and development, financial, and positioning and awareness objectives. The compensation committee established that the 2022 annual target bonus amount for Mr. Fraser be targeted at 50% of his base salary and for Dr. Simonson and Mr. Hamill be targeted at 40% of their respective base salaries. No bonus payments will be made for the 2022 performance year.

Equity-Based Incentive Awards

Our equity-based incentive awards are designed to align our interests and the interests of our stockholders with those of our employees and consultants, including our NEOs. Our Board or compensation committee approves equity grants in its discretion, which have historically been in the form of stock options or restricted stock units, or RSUs.

On March 4, 2022, the compensation committee approved grants of stock options to Messrs. Fraser and Hamill and Dr. Simonson to purchase 5,008, 1,992, and 1,992 shares of our common stock, respectively, each with a per share exercise price of $51.00. All options vest in equal annual installments on each of the first three anniversaries of the date of grant, subject to the NEO's continuous service through the relevant vesting dates; provided, however, that such stock options may be eligible to fully accelerate in vesting in connection with a termination of employment as further described in the section titled "*Executive Employment Agreements*" below. See "*Executive Compensation—Outstanding Equity Awards at Fiscal Year-End*" for more information regarding equity awards made to our NEOs.

Other Benefits

We currently provide health and welfare benefits that are available to all of our employees, including our NEOs, including health, dental, life, vision and disability insurance.

In addition, we maintain, and the NEOs participate in, our 401(k) Plan that is intended to be qualified under Section 401(a) of the Code and that provides eligible employees with an opportunity to save for retirement on a tax advantaged basis and under which we are permitted to make discretionary employer contributions. The 401(k) Plan also includes a discretionary company match in an amount per participant equal to 50% of each participant's contribution (up to a maximum of 6% of the participant's base salary). Matching contributions were made in 2021 and 2022.

We do not maintain any defined benefit pension plans or nonqualified deferred compensation plans.

OUTSTANDING EQUITY AWARDS AT FISCAL YEAR-END

The following table summarizes the number of shares of common stock underlying outstanding equity incentive plan awards for each NEO as of December 31, 2022:

		Option Awards				Stock Awards	
Name	**Grant Date**	**Number of Securities Underlying Unexercised Options - Exercisable (#)(1)**	**Number of Securities Underlying Unexercised Options - Unexercisable (#)(1)**	**Option Exercise Price ($)**	**Option Expiration Date**	**Number of Units of Stock That Have Not Vested (#)(2)**	**Market Value of Units of Stock That Have Not Vested ($)**
Craig E. Fraser	02/02/16	68		6,990.00	02/02/26		
	07/28/16	13		5,310.00	07/28/26		
	03/01/17	33		3,690.00	03/01/27		
	12/24/18	8,438		633.00	12/24/28		
	03/19/19	667		645.00	03/19/29		
	01/22/21	2,865	2,865	272.00	01/22/31		
	03/04/22	1,252	3,756	51.00	03/04/32	3,338	28,373
John P. Hamill	07/20/20	2,813	1,407	349.00	07/20/30		
	01/22/21	400	800	272.00	01/22/31		
	03/04/22	498	1,494	51.00	03/04/32	1,326	11,271
Steven G. Simonson, M.D.	05/19/14	3		71,400.00	05/19/24		
	03/27/15	7		49,140.00	03/27/25		
	02/02/16	12		6,990.00	02/02/26		
	07/28/16	8		5,310.00	07/28/26		
	03/01/17	18		3,690.00	03/01/27		
	12/24/18	4,922		633.00	12/24/28		
	03/19/19	333		645.00	03/19/29		
	01/22/21	1,101	1,151	272.00	01/22/31		
	03/04/22	498	1,494	51.00	03/04/32	1,326	11,271

(1) Options granted prior to 2022 vest and become exercisable in equal installments on each of the first three anniversaries of the applicable grant date, assuming that the NEO continues to be employed with us through each vesting date. Options granted in 2022 vest and become exercisable with respect to one-twelfth of the total number of shares subject to the options on a quarterly basis (every three months) provided that the NEO remains in continuous service on each vesting date.

(2) The RSUs represent a contingent right to receive the equivalent number of shares of common stock. These RSUs shall vest with respect to one-third of the total number of shares subject to the RSUs on an annual basis (every 12 months) provided that the NEO remains in continuous service on each vesting date.

EXECUTIVE EMPLOYMENT AGREEMENTS

We are party to executive employment agreements, or the Executive Agreements, as amended from time to time, with each of our NEOs, the key terms of which are described below.

Mr. Fraser's Employment Agreement

We entered into an employment agreement with Mr. Fraser, effective February 1, 2016 and subsequently amended. Mr. Fraser's employment agreement provides for an annual base salary, which in 2022 was $557,300, and eligibility to receive an annual incentive-based cash bonus, which may be awarded at the discretion of the compensation committee, with a target amount equal to 50% of his base salary.

If Mr. Fraser's employment is terminated due to death or Disability (as such term is defined in the employment agreement), all equity awards held by Mr. Fraser shall become fully vested and all stock options shall continue to be exercisable for the remainder of their stated term.

If Mr. Fraser's employment is terminated by us without Cause or by Mr. Fraser for Good Reason prior to a Change of Control (as such terms are defined in the employment agreement) or after the 2nd anniversary of a Change of Control, Mr. Fraser will be eligible to receive the following, in addition to any amounts or benefits that are due under any of our vested plans or other policies, and on the condition that he enters into a separation agreement containing a final and effective plenary release of claims in a form acceptable to us, provided that all of our obligations shall cease if Mr. Fraser engages in a material breach of the employment agreement, or his restrictive covenant obligations, and fails to cure such breach within five business days after receipt from us of notice of such breach:

- A pro rata bonus equal to a percentage of Mr. Fraser's target bonus amount determined by dividing the total actual bonuses paid to other contract executives for the year in which the termination occurs by the aggregate of such other contract executives' total target bonuses for that year, and further prorated for the number of days Mr. Fraser was employed in the year of termination, payable at the time that other contract executives are paid bonuses with respect to the year of termination;

- A severance amount equal to the sum of Mr. Fraser's base salary then in effect (determined without regard to any reduction constituting Good Reason) and the target bonus amount, payable in equal installments in accordance with our regular payroll schedule from the date of termination to the date that is 12 months after the date of termination, or the Severance Period;

- All vested stock options and other similar equity awards held by Mr. Fraser shall continue to be exercisable during the Severance Period; and

- During the Severance Period, if Mr. Fraser elects to continue medical benefits through the Consolidated Omnibus Budget Reconciliation Act of 1985, or COBRA, we will continue to pay our costs of Mr. Fraser's and his dependents' benefits as in effect on the date of termination as such benefits are provided to active employees.

If Mr. Fraser's employment is terminated by us without Cause or by Mr. Fraser for Good Reason prior to but in connection with a Change of Control or prior to the 2nd anniversary of a Change of Control, Mr. Fraser will be eligible to receive the following, in addition to any amounts or benefits that are due under any of our vested plans or other policies, and on the condition that he enters into a separation agreement containing a final and effective plenary release of claims in a form acceptable to us, provided that all of our obligations shall cease if Mr. Fraser engages in a material breach of the employment agreement, or his restrictive covenant obligations, and fails to cure such breach within five business days after receipt from us of notice of such breach:

- A pro rata bonus equal to Mr. Fraser's target bonus amount and prorated for the number of days Mr. Fraser was employed in the year of termination, payable in a lump sum within 10 days after the date of termination;

- A severance amount equal to 1.5 times the sum of Mr. Fraser's base salary then in effect (determined without regard to any reduction constituting Good Reason) and the target bonus amount, payable in a lump sum within 10 days after the date of termination except in certain limited circumstances;

- All equity awards held by Mr. Fraser shall accelerate and become fully vested and all stock options shall continue to be exercisable for the remainder of their stated terms; and

- For a period of 18 months following the termination date, if Mr. Fraser elects to continue medical benefits through COBRA, we will continue to pay our costs of Mr. Fraser and his dependents' benefits as in effect on the date of termination as such benefits are provided to active employees.

In addition, upon a Change of Control, for a period of 24 months after the date of the Change of Control and provided that Mr. Fraser is employed on the last day of a fiscal year ending in that period, Mr. Fraser will be entitled to an annual bonus at least equal to Mr. Fraser's target bonus amount, payable no later than March 15 in the next succeeding fiscal year.

Mr. Fraser's employment agreement includes 12-month post-employment non-competition and non-solicitation covenants and provides for confidentiality and the assignment to us of all intellectual property.

Mr. Hamill's Employment Agreement

We are a party to an employment agreement with Mr. Hamill, which was effective July 20, 2020. Mr. Hamill's employment agreement provides for an annual base salary, which in 2022 was $401,400, and an annual incentive-based cash bonus, which may be awarded at the discretion of the compensation committee, with a target amount equal to 40% of his annual base salary.

The employment agreement provides for Mr. Hamill to receive severance upon termination without Cause or by Mr. Hamill with Good Reason (as such terms are defined in the employment agreement) of (a) continued payment of base salary and subsidized COBRA benefits for 12 months following termination, (b) any earned but unpaid annual bonus for the fiscal year preceding Mr. Hamill's date of termination and a pro rata bonus equal to the annual bonus Mr. Hamill would have earned absent his separation (as defined in the employment agreement) which amount shall be paid when our other executives are paid, and (c) during the 12-month period following termination, all vested stock options and similar equity awards held by Mr. Hamill shall continue to be exercisable (such benefits the Hamill Severance Benefits).

If Mr. Hamill is terminated by us without Cause or Mr. Hamill terminates his employment with Good Reason within 24 months after a Change of Control (as defined in the employment agreement), the employment agreement further provides Mr. Hamill with severance, or the Hamill Change of Control Severance Benefits, consisting of any earned but unpaid annual bonus for the fiscal year preceding the date of Mr. Hamill's termination, a lump sum equal to one and one-half times Mr. Hamill's base salary and annual bonus amount paid in a lump sum within 10 days after the date of termination, 18 months of COBRA benefits, full vesting and acceleration of Mr. Hamill's equity awards upon the date of Mr. Hamill's termination and the continued exercisability of Mr. Hamill's equity awards for the remainder of their stated terms.

Mr. Hamill's receipt of the Hamill Severance Benefits or the Hamill Change of Control Severance Benefits, as applicable, is conditioned on his execution of a separation and release agreement in a form acceptable to us. The employment agreement further provides that in the event of a Change of Control transaction, all of Mr. Hamill's outstanding equity incentive awards will become fully vested so long as Mr. Hamill is actively employed by us at the time of such transaction. In the case of a termination of Mr. Hamill's employment due to death or disability, all shares of stock and all options shall become fully vested and any earned but unpaid annual bonus for the fiscal year preceding the termination date would be paid.

In January 2023, Mr. Hamill resigned as Chief Financial Officer. Pursuant to the terms of Mr. Hamill's employment agreement, upon his resignation, Mr. Hamill was eligible to receive all salary payable to him through the date of his resignation, as well as any other benefits as set forth in his employment agreement.

Dr. Simonson's Employment Agreement

We are a party to an employment agreement with Dr. Simonson, which was effective December 19, 2014, as subsequently amended on December 29, 2014 and March 13, 2018. Dr. Simonson's employment agreement provides for an annual base salary, which in 2022 was $438,100, and an annual incentive-based cash bonus, which may be awarded at the discretion of the compensation committee, with a target amount equal to 40% of his annual base salary.

The employment agreement provides for Dr. Simonson to receive severance (upon termination without Cause or by Dr. Simonson with Good Reason (as such terms are defined in the employment agreement)) of (a) continued payment of base salary and subsidized COBRA benefits for 12 months following termination, (b) a pro rata bonus equal to a percentage of Dr. Simonson's target bonus amount determined by dividing the total actual bonuses paid to other contract executives for the year in which the termination occurs by the aggregate of such other contract executives' total target bonuses for that year, and further prorated for the number of days Dr. Simonson was employed in the year of termination, payable at the time that other contract executives are paid bonuses with respect to the year of termination, and, (d) during the 12-month period following termination, all vested stock options and similar equity awards held by Dr. Simonson shall continue to be exercisable (such benefits, the Simonson Severance Benefits).

If Dr. Simonson is terminated by us without Cause or Dr. Simonson terminates his employment with Good Reason within 24 months of a Change of Control (as defined in the employment agreement), the employment agreement further provides Dr. Simonson with severance, or the Simonson Change of Control Severance Benefits, consisting of a lump sum equal to one and one-half times Dr. Simonson's base salary and annual bonus amount paid in a lump sum within 10 days after the date of termination, a pro rata bonus equal to Dr. Simonson's target bonus amount prorated for the number of days Dr. Simonson was employed in the year of termination, payable in a lump sum within 10 days after the date of termination, 18 months of COBRA benefits, full vesting and acceleration of Dr. Simonson's equity awards upon the date of Dr. Simonson's termination and the continued exercisability of Dr. Simonson's equity awards for the remainder of their stated terms.

Dr. Simonson's receipt of the Simonson Severance Benefits or the Simonson Change of Control Severance Benefits, as applicable, is conditioned on his execution of a separation and release agreement in a form acceptable to us. In the case of a termination of Dr. Simonson's employment due to death or disability, all shares of stock and all options shall become fully vested and any earned but unpaid annual bonus for the fiscal year preceding the termination date would be paid.

Securities Authorized for Issuance Under Equity Compensation Plans

The following table describes as of December 31, 2022 the number of shares of our common stock issuable upon exercise of outstanding awards under our 2020 and 2011 Plans.

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted-average exercise price of outstanding options, warrants and rights (b)(1)	Number of securities available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders			
2020 Long-Term Incentive Plan	50,293	$ 135.02	11,786
2011 Long-Term Incentive Plan (2)	29,140	683.94	—
Equity compensation plans not approved by security holders (3)			
Inducement Grants (4)	9,288	306.50	—
Total	**88,721**	**$ 333.26**	**11,786**

(1) Represents the weighted-average exercise price of outstanding stock options and does not include RSUs.

(2) The 2011 Plan terminated on the effective date of the 2020 Plan. All shares that were available under the 2011 Plan, including any that are expired, forfeited or otherwise returnable to the 2011 Plan are transferred to and become available for grant under the 2020 Plan. All awards granted under the 2011 Plan continue to be governed by the terms of the 2011 Plan and the award agreements.

(3) Our board of directors has not established any specific number of shares that could be issued without stockholder approval. Inducement grants to new key employees are determined on a case-by-case basis. Other than possible inducement grants, we expect that all equity awards will be made under stockholder-approved plans.

(4) Reflects grants of stock options to purchase 9,288 shares of common stock that were “inducement grants” as defined under Nasdaq Listing Rule 5635(c)(4).

DIRECTOR COMPENSATION

We have designed and implemented our compensation program for our non-employee directors to attract, motivate and retain individuals who are committed to our values and goals and who have the expertise and experience that we need to achieve those goals.

Directors who are also employees are not compensated separately for serving on the Board or any of its committees. Each of our non-employee directors receives cash compensation for his or her services. The compensation committee periodically conducts reviews of peer company director compensation practices, including before considering changes to our director compensation policy and amounts. In addition, to better align the interests of our Board with our stockholders, the compensation committee considers and recommends to the Board long-term equity compensation.

Non-Employee Director Compensation Policy

Pursuant to our Non-Employee Director Compensation Policy in place during 2022, our directors received annual cash retainers, paid on a quarterly basis. Each non-employee director received a quarterly retainer of $10,000. The Chairman of the Board received an additional $6,250 per quarter, in addition to the $10,000 quarterly retainer for all non-employee directors. Non-employee directors serving on committees of our Board also received additional cash retainers as set forth in the table below.

Non-Employee Director Compensation Policy

	Cash Retainer ($)
Board Member	10,000
Board Chair	6,250
Audit Committee	
Chair	3,750
Member	1,750
Compensation Committee	
Chair	2,500
Member	1,250
Nominating and Corporate Governance Committee	
Chair	1,875
Member	1,000
	Equity Retainer
Initial Equity Grant	Option to purchase 600 shares of common stock, vesting in three equal annual installments, beginning on the first anniversary of the grant date and subject to the director's continued service on the Board
Annual Equity Grant	Option to purchase 300 shares of common stock, vesting in three equal annual installments, beginning on the first anniversary of the grant date and subject to the director's continued service on the Board

Cash fees are paid quarterly and are typically pro-rated for non-employee directors who do not serve a full quarter. Our non-employee directors are also reimbursed for their business-related expenses incurred in connection with attendance at Board and Committee meetings and related activities. Our only employee director, Mr. Fraser, receives no separate compensation for his service in such capacity.

2022 Director Compensation

The following table summarizes information concerning the compensation awarded to, earned by, or paid for services rendered in all capacities by our non-employee directors during the year ended December 31, 2022.

Name of Non-Employee Director	Fee Earned or Paid in Cash ($) (*)	Stock Awards ($)(1)	Option Awards ($)(2)	Total ($)
James Huang	65,000	2,350	2,994	70,344
Daniel E. Geffken	60,000	2,350	2,994	65,344
Evan Loh, M.D. (3)	28,500	—	—	28,500
Leslie Williams	54,500	2,350	2,994	59,844
Robert Scott, M.D.	55,000	2,350	2,994	60,344

(1) Represents the aggregate grant date fair value of RSUs computed in accordance with ASC Topic 718 and does not take into account estimated forfeitures related to service-based vesting conditions, if any. The valuation assumptions used in calculating these values are discussed in Note 11 of the Audited Consolidated Financial Statements of our Annual Report on Form 10-K for the year ended December 31, 2022. These amounts do not represent actual amounts paid or to be realized. Amounts shown are not necessarily indicative of values to be achieved, which may be more or less than the amounts shown as awards are subject to time-based vesting. As of December 31, 2022, Messrs. Huang and Geffken, Dr. Scott, and Ms. Williams each held RSUs to receive 100 shares of our common stock.

(2) Represents the aggregate grant date fair value of option awards computed in accordance with ASC Topic 718 and does not take into account estimated forfeitures related to service-based vesting conditions, if any. The valuation assumptions used in calculating these values are discussed in Note 11 of the Audited Consolidated Financial Statements of our Annual Report on Form 10-K for the year ended December 31, 2022. These amounts do not represent actual amounts paid or to be realized. Amounts shown are not necessarily indicative of values to be achieved, which may be more or less than the amounts shown as awards are subject to time-based vesting. As of December 31, 2022, Messrs. Huang and Geffken each held options to purchase 1,150 shares of our common stock; (ii) Dr. Scott and Ms. Williams each held options to purchase 750 shares of our common stock; and (iii) Dr. Loh held options to purchase 600 shares of our common stock.

(3) On May 9, 2022, Dr. Loh resigned from our Board.

(*) Due to cash resource constraints, we suspended payments of director fees in the fourth quarter of 2022. We plan to pay the accrued but unpaid director fees when cash resources become available. The amounts related to 2022 that are payable to our directors as of December 31, 2022 are as follows: Mr. Huang – $16,250, Mr. Geffken – $15,000, Ms. Williams – $13,625, and Dr. Scott – $15,520.

RELATED PARTY TRANSACTIONS

We describe below transactions and series of similar transactions, since January 1, 2021 or currently proposed, to which we were a party or will be a party, in which:

- the amounts involved exceeded $120,000; and
- any of our directors, executive officers or beneficial holders of more than 5% of any class of our capital stock had or will have a direct or indirect material interest.

Other than as described below, there have not been, nor are there any currently proposed, transactions or series of similar transactions meeting this criteria to which we have been or will be a party other than compensation arrangements, which are described where required under the sections titled "*Management—Board Leadership Structure*" and "*Executive Compensation*" of Amendment No. 1 to our Annual Form 10-K/A, as filed with the SEC on April 29, 2022, as well the section titled "*Executive and Director Compensation*" included in this prospectus.

Our Board has adopted a written related person transaction policy setting forth the policies and procedures for the review and approval or ratification of related-person transactions. This policy covers any transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships, in which we were or are to be a participant, where the amount involved exceeds $120,000 and a related person had or will have a direct or indirect material interest. Our management is responsible for determining whether a transaction is a related party transaction subject to our policy, and upon subject determination, is responsible for disclosing the material facts concerning the transaction and the related party's interest in our transaction to our Audit Committee. In reviewing and approving any such transactions, our Audit Committee is tasked to consider all relevant facts and circumstances with respect to the transaction and shall evaluate all available options, including ratification, revision or termination of the transaction. All of the transactions described above either were approved or ratified in compliance with this policy.

Since January 1, 2021, we have engaged in the following transactions with our directors, executive officers, holders of more than 5% of our voting securities, and affiliates or immediate family members of our directors, executive officers, and holders of more than 5% of our voting securities. We believe that all of these transactions were on terms as favorable as could have been obtained from unrelated third parties.

Lee's Pharmaceutical Holdings Limited and Affiliates

We have received substantial support from Lee's Holdings, our largest stockholder. Lee's Holdings is a company incorporated in the Cayman Islands with limited liability, whose common stock is listed on the Hong Kong Stock Exchange. As of December 31, 2022 and 2021, Lee's Holdings' beneficial ownership of our issued and outstanding shares of common stock was 13% and 17%, respectively.

Asia License Agreement

In June 2017, we entered into a License, Development and Commercialization Agreement, or the Asia License Agreement, with Lee's (HK), an affiliate of Lee's Holdings, and thereafter amended it, effective August 2017. Under the Asia License Agreement, as amended, we granted to Lee's (HK) an exclusive license with a right to sublicense (i) to develop, manufacture, and commercialize our KL4 surfactant products, including SURFAXIN, which was approved by the FDA in 2012 for respiratory distress syndrome, or RDS, in premature infants, SURFAXIN LS™, the lyophilized dosage form of SURFAXIN, and AEROSURF, including the Aerosol Delivery System, or ADS, and (ii) to register and manufacture SURFAXIN and SURFAXIN LS for use in the licensed territory, which includes the People's Republic of China, Hong Kong, Thailand, Taiwan, and 12 other countries.

Under the Asia License Agreement, Lee's (HK) made an upfront payment to us of $1.0 million. We were also eligible to receive up to $35.8 million in potential clinical, regulatory and commercial milestone payments and would have shared in any sublicense income Lee's (HK) may receive at a rate equal to low double digits. In addition, Lee's (HK) was responsible for all costs and expenses in and for the licensed territory related to development activities, including a planned AEROSURF Phase 3 clinical program, regulatory activities, and commercialization activities.

On August 17, 2022, we entered into an Amended and Restated License, Development and Commercialization Agreement, or the A&R License Agreement, with Lee's (HK) and Zhaoke Pharmaceutical (Hefei) Co. Ltd., a company organized under the laws of the People's Republic of China, effective as of August 9, 2022. We refer to Zhaoke and Lee's (HK) together as the "Licensee." The A&R License Agreement amends, restates, and supersedes the Asia License Agreement.

Under the A&R License Agreement, we granted to Licensee an exclusive license, with a right to sublicense, to develop, register, make, use, sell, offer for sale, import, distribute, and otherwise commercialize our KL4 surfactant products, including SURFAXIN®, the lyophilized dosage form of SURFAXIN, and aerosolized KL4 surfactant, in each case for the prevention, mitigation and/or treatment of any respiratory disease, disorder, or condition in humans worldwide, except for Andorra, Greece, and Italy (including the Republic of San Marino and Vatican City), Portugal, and Spain, or the Licensed Territory, which countries are currently exclusively licensed to Laboratorios Del Dr. Esteve, S.A.

We may receive up to $78.9 million in potential clinical, regulatory, and commercial milestone payments under the A&R License Agreement. We are also entitled to receive a low double-digit percentage of Licensee's non-royalty sublicense income. Further, Licensee is solely and exclusively responsible for all costs and activities related to the development, manufacturing, regulatory approval, and commercialization of licensed products in the Licensed Territory, including all royalties payable in respect of third-party intellectual property rights sublicensed by us to Licensee and all intellectual property prosecution, maintenance and defense activities and costs.

Project Financing Agreement

In August 2020, we entered into a Project Financing Agreement with Lee's (HK), or the PF Agreement, dated and effective as of August 12, 2020, under which we received payments totaling $2.8 million through October 2020. Pursuant to the PF Agreement, Lee's (HK) agreed to pay additional amounts to be set forth in an updated development budget to be agreed between the parties by September 1, 2020 and updated every six months thereafter, to fund the continued development of AEROSURF and to be paid with the payment schedule to be set forth in each updated development budget. In partial satisfaction of our obligations under the PF Agreement, we agreed to pay Lee's (HK) 50% of any Commercialization Net Revenues (as defined in the PF Agreement) up to an amount that is equal to 125% of the Project Expenses (as defined in the PF Agreement) funded by Lee's (HK). On November 12, 2020, Lee's (HK) provided notice of termination of additional funding under the PF Agreement, and we and Lee's (HK) revised our plans for the continued development of AEROSURF. Lee's (HK) agreed to continue the development of AEROSURF in Asia at its own cost. Lee's (HK) agreed to fund an additional $1.0 million to us in 2021 for certain transition and analytical services to be provided by us with respect to the development of AEROSURF, which will be considered "Project Expenses" under the terms of the PF Agreement. In 2021, we received payments totaling $1.0 million from Lee's (HK) and no further amounts are due under the PF Agreement as of December 31, 2021.

With the termination of the PF Agreement in November 2020, we ceased enrollment in our Phase 2b bridging study at the EU, clinical sites and transferred AEROSURF development activities to Lee's (HK) to be implemented under the terms of the A&R License Agreement.

Panacea Venture Management Company Ltd.

As of December 31, 2022 and 2021, Panacea Venture Management Company Ltd.'s, or Panacea's, beneficial ownership of our issued and outstanding shares of common stock was 9% and 8%, respectively. James Huang, who in connection with the CVie Acquisition in December 2018 was appointed as a director and Chairman of our Board, is a founding and Managing Partner to Panacea.

February 2023 Warrant Exercise Inducement Offer Letter

On February 21, 2023, we entered into a warrant exercise inducement offer letter with Panacea Venture Healthcare Fund I, L.P., a holder of certain of our: (i) warrants issued in July 2018 to purchase 1,250 shares of common stock with an exercise price of $600.00 per share; (ii) warrants issued in December 2018 to purchase 9,960 shares of common stock with an exercise price of $607.50 per share; (iii) warrants issued in December 2019 to purchase 5,519 shares of common stock with an exercise price of $604.50 per share; and (iv) warrants issued in May 2020 to purchase 5,517 shares of common stock with an exercise price of $398.75 per share (collectively, the February 2023 Existing Warrants).

Pursuant to the terms of the inducement letter, we agreed to amend the February 2023 Existing Warrants by lowering the exercise price of the February 2023 Existing Warrants to $7.06 per share. Additionally, the exercising holder agreed to exercise for cash all of their February 2023 Existing Warrants to purchase an aggregate of 22,246 shares of common stock in exchange for our agreement to issue to such exercising holder new warrants, or the February 2023 New Warrants, to purchase up to an aggregate of 44,492 shares of common stock. We received aggregate gross proceeds of approximately $157,000 from the exercise of the February 2023 Existing Warrants by the exercising holders.

Each February 2023 New Warrant is exercisable into shares of common stock at a price per share of $10.76, will be exercisable six months following its date of issuance, or the initial exercise date, and will expire on the fifth anniversary the initial exercise date. Subject to limited exceptions, Panacea will not have the right to exercise any portion of its February 2023 New Warrants if Panacea (together with Panacea's affiliates, and any persons acting as a group together with Panacea or any of Panacea's affiliates) would beneficially own a number of shares of our common stock in excess of 19.99% of our total shares of common stock outstanding.

Other Transactions

We have granted stock options to our NEOs and certain of our directors. See "*Item 11. Executive Compensation—Outstanding Equity Awards at Fiscal Year-End*" of our Definitive Proxy Statement on Schedule 14A, filed with the SEC on May 11, 2022, for a description of these grants.

We have entered into change of control and severance agreements with certain of our executive officers that provide for certain severance and change in control benefits. See "*Item 11. Executive Compensation—Executive Employment Agreements*" of our Definitive Proxy Statement on Schedule 14A, filed with the SEC on May 11, 2022 for more information.

During 2022, we incurred $0.4 million in research and development expenses for services provided by an affiliate of Lee's Holdings to our wholly owned subsidiary, CVie Therapeutics.

On December 31, 2021, we entered into a Master Manufacturing and Supply Agreement with an affiliate of Lee's Holdings for the manufacture of our istaroxime drug product candidate.

Control by Officers and Directors

Our officers and directors and their affiliates beneficially own, in the aggregate, approximately 12.07% of our outstanding common stock as of March 31, 2023. As a result, in certain circumstances, these stockholders acting together may be able to determine matters requiring approval of our stockholders, including the election of our directors, or they may delay, defer or prevent a change in control.

Indemnification Agreements

We have entered into indemnification agreements with each of our directors and executive officers. These indemnification agreements, our amended and restated Certificate of Incorporation, as amended, or our Amended and Restated Certificate of Incorporation, and our By-Laws, require us to indemnify directors to the fullest extent permitted by Delaware law.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

Based solely upon information made available to us, the following table sets forth information as of March 31, 2023, regarding the beneficial ownership of our common stock by:

- each person known by us to be the beneficial owner of more than 5% of the outstanding shares of our common stock;
- each of our NEOs and directors; and
- all of our executive officers as a group.

The percentage of common stock outstanding is based on 909,013 shares of our common stock outstanding as of March 31, 2023. For purposes of the table below, and in accordance with the rules of the SEC, we deem shares of common stock subject to options that are currently exercisable or exercisable within sixty days of March 31, 2023 to be outstanding and to be beneficially owned by the person holding the options for the purpose of computing the percentage ownership of that person, but we do not treat them as outstanding for the purpose of computing the percentage ownership of any other person. Except as otherwise noted, each of the persons or entities in this table has sole voting and investing power with respect to all of the shares of common stock beneficially owned by them, subject to community property laws, where applicable. Except as otherwise noted below, the street address of each beneficial owner is c/o Windtree Therapeutics, Inc. 2600 Kelly Road, Suite 100, Warrington, PA 18976.

Name Of Beneficial Owner	Number Of Shares Of Common Stock	Percentage Of Common Stock
5% or Greater Stockholders		
Lee's Pharmaceutical Holdings Limited(1) 1/F, Building 20E, Phase 3, Hong Kong Science Park, Shatin, Hong Kong	107,189	11.65%
Panacea Venture Healthcare Fund I L.P.(2) #6 Lane 1350 Middle Fuxing Rd., Xuhui District, Shanghai, China 200319	68,983	7.59%
NEOs and Directors		
James Huang(3)	75,609	8.31%
Daniel Geffken(4)	882	*
Robert Scott, M.D.(5)	400	*
Leslie J. Williams(5)	400	*
Craig E. Fraser(6)	17,715	1.92%
Steven G. Simonson, M.D.(7)	8,559	*
All executive officers and directors as a group (8 persons)	110,152	12.07%

* Less than 1%

(1) Includes 96,337 shares of common stock and 446 Series A-1 Warrants to purchase 446 shares of common stock held directly by Lee's Holdings exercisable within 60 days of March 31, 2023, 903 Series C warrants to purchase 903 shares of common stock exercisable within 60 days of March 31, 2023, 3,984 Series G Warrants to purchase 3,984 shares of common stock exercisable within 60 days of March 31, 2023 and 5,519 Series I Warrants to purchase 5,519 shares of common stock exercisable within 60 days of March 31, 2023, held by LPH II Investments Limited, or LPH II. Lee's Holdings may be deemed to have beneficial ownership of the shares held by LPH II due to its ownership of 100% of LPH II. LPH II is currently unable to exercise the Series C and G warrants due to an ownership cap restriction, and Lee's Holdings Series A-1 Warrants are subject to a 9.99% ownership cap. The Series I Warrants are subject to a 4.99% ownership cap (or such other percentage as designated by each holder not to exceed 19.99%). Other than for purposes of Rule 13d-3 of the Act, Lee's Holdings disclaims beneficial ownership of the shares of common stock and warrants, as applicable, except to the extent of its pecuniary interest therein, as applicable. Mses. Lee Siu Fong and Leelalertsuphakun Wanee are executive directors, Dr. Li Xiaoyi is an executive director and the Chief Executive Officer, Mr. Simon Miles Ball is a non-executive director, and Drs. Chan Yau Ching (Bob) and Tsim Wah Keung (Carl) and Mr. Lam Yat Cheong are the independent directors, of Lee's Holdings, or the Lee's Holdings Directors. The Lee's Holdings Directors and the shareholders of Lee's Holdings have shared voting and investment power over the shares held by Lee's Holdings. The address for Lee's Holdings and LPH II is 1/F, Building 20E, Phase 3, Hong Kong Science Park, Shatin, Hong Kong.

(2) Includes 68,983 shares of common stock held by Panacea Venture Healthcare Fund I, L.P., or the Panacea Fund. Panacea Venture Healthcare Fund GP I, L.P. or the Immediate GP, is the general partner of the Panacea Fund, Panacea Venture Healthcare Fund GP Company, Ltd., or the Parent GP, is the general partner of the Immediate GP, and Panacea Venture Management Company Ltd., or the Management Company, is the management company of the Immediate GP. The Management Company, the Panacea Fund, the Immediate GP and the Parent GP are collectively referred to as the Panacea Entities. The Management Company together with the Parent GP and the Immediate GP may be deemed to have beneficial ownership over the shares of common stock held by the Panacea Fund. The Panacea Entities may be deemed to constitute a "group" within the meaning of Section 13(d)(3) of the Exchange Act. James Huang and Hai Mi serve as directors of the Parent GP and the Management Company. Mr. Huang, Hai Mi, and the shareholders of the Parent GP and Management Company have shared voting and investment power over the shares held by the Panacea Fund. Mr. Huang expressly disclaims beneficial ownership of the securities reported herein, except to the extent of his pecuniary interest therein, if any. The address of the Panacea Fund, Immediate GP, Parent GP and the Management Company is #6 Lane 1350 Middle Fuxing Rd., Xuhui District, Shanghai, China 200319.

(3) Includes 5,826 shares of common stock and options to purchase 800 shares of common stock exercisable within 60 days of March 31, 2023 held directly by Mr. Huang, and 68,983 shares of common stock held by Panacea Venture Healthcare Fund I, L.P., or the Panacea Fund. Panacea Venture Healthcare Fund GP I, L.P., or the Immediate GP, is the general partner of the Panacea Fund, Panacea Venture Healthcare Fund GP Company, Ltd., or the Parent GP, is the general partner of the Immediate GP, and Panacea Venture Management Company Ltd., or the Management Company, is the management company of the Immediate GP. The Management Company, the Panacea Fund, the Immediate GP and the Parent GP are collectively referred to as the Panacea Entities. The Management Company together with the Parent GP and the Immediate GP may be deemed to have beneficial ownership over the shares of common stock held by the Panacea Fund. The Panacea Entities may be deemed to constitute a "group" within the meaning of Section 13(d)(3) of the Exchange Act. Mr. Huang serves as a director of the Parent GP and the Management Company. Mr. Huang, Hai Mi, and the shareholders of the Parent GP and Management Company have shared voting and investment power over the shares held by the Panacea Fund. Mr. Huang serves as a director of the Immediate GP and may be deemed to beneficially own the shares held by the Panacea Fund. Mr. Huang expressly disclaims beneficial ownership of the securities reported herein of the Panacea Entities, except to the extent of his pecuniary interest therein, if any. The address of Mr. Huang is #6 Lane 1350 Middle Fuxing Rd., Xuhui District, Shanghai, China 200319. On April 18, 2023, Mr. Huang resigned from our Board.

(4) Includes 41 shares of common stock, 41 May 2020 Warrants to purchase 41 shares of common stock exercisable within 60 days of March 31, 2023 and options to purchase 800 shares of common stock exercisable within 60 days of March 31, 2023. The May 2020 Warrants are subject to a 4.99% ownership cap (or, at the election of each holder prior to the date of issuance, 9.99%), except that upon at least sixty-one (61) days' prior notice to us, each holder may increase the ownership cap after exercising such holder's May 2020 Warrants up to 9.99% (or up to 19.99% upon prior written approval by us).

(5) Includes options to purchase 400 shares of common stock exercisable within 60 days of March 31, 2023

(6) Includes 1,976 shares of common stock, 2 Series A-1 Warrants to purchase 2 shares of common stock exercisable within 60 days of March 31, 2023, 41 May 2020 Warrants to purchase 41 shares of common stock exercisable within 60 days of March 31, 2023, 30 March 2021 Warrants to purchase 30 shares of common stock exercisable within 60 days of March 31, 2023, and options to purchase 15,666 shares of common stock exercisable within 60 days of March 31, 2023. The May 2020 Warrants are subject to a 4.99% ownership cap (or, at the election of each holder prior to the date of issuance, 9.99%), except that upon at least sixty-one (61) days' prior notice to us, each holder may increase the ownership cap after exercising such holder's May 2020 Warrants up to 9.99% (or up to 19.99% upon prior written approval by us).

(7) Includes 695 shares of common stock, 1 Series A-1 Warrant to purchase 1 share of common stock exercisable within 60 days of March 31, 2023, 10 May 2020 Warrants to purchase 10 shares of common stock exercisable within 60 days of March 31, 2023, 30 March 2021 Warrants to purchase 30 shares of common stock exercisable within 60 days of March 31, 2023, and options to purchase 7,823 shares of common stock exercisable within 60 days of March 31, 2023. The May 2020 Warrants are subject to a 4.99% ownership cap (or, at the election of each holder prior to the date of issuance, 9.99%), except that upon at least sixty-one (61) days' prior notice to us, each holder may increase the ownership cap after exercising such holder's May 2020 Warrants up to 9.99% (or up to 19.99% upon prior written approval by us).

DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock is not complete and may not contain all the information you should consider before investing in our capital stock. This description is summarized from, and qualified in its entirety by reference to our Amended and Restated Certificate of Incorporation, which has been publicly filed with the SEC. See "Where You Can Find Additional Information and Incorporation of Certain Information by Reference."

Capital Stock

Our authorized capital stock consists of 120,000,000 shares of common stock, par value $0.001 per share and 5,000,000 shares of preferred stock, par value $0.001 per share.

Common Stock

Voting Rights

Each holder of common stock is entitled to one vote for each share on all matters submitted to a vote of the stockholders, including the election of directors. Our stockholders do not have cumulative voting rights in the election of directors. The affirmative vote of the voting power of the outstanding shares of capital stock entitled to vote, voting as a single class, will be required to amend certain provisions of our Amended and Restated Certificate of Incorporation, including the provisions relating to amending our By-Laws, procedures for our stockholder meetings, director liability, and exclusive forum for proceedings.

Dividends

Subject to preferences that may be applicable to any then outstanding preferred stock, holders of our common stock are entitled to receive dividends, if any, as may be declared from time to time by our Board out of legally available funds.

Liquidation

In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities, subject to the satisfaction of any liquidation preference granted to the holders of any then outstanding shares of preferred stock.

Rights and Preferences

Holders of our common stock have no preemptive, conversion or subscription rights, and there are no redemption or sinking fund provisions applicable to our common stock. In the event of a liquidation, dissolution or winding up of us, holders of our common stock will be entitled to share ratably in all assets remaining after payment of all debts and other liabilities and any liquidation preference of any outstanding preferred stock.

Number of Holders

There are approximately 38 holders of our common stock as of March 31, 2023.

Preferred Stock

Our Board currently has the authority, without further action by our stockholders, to issue up to 5,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms and the number of shares constituting, or the designation of, such series, any or all of which may be greater than the rights of common stock. The issuance of preferred stock by us could adversely affect the voting power of holders of our common stock and the likelihood that such holders will receive dividend payments and payments upon a liquidation of us. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing a change in control of us or other corporate action.

Anti-takeover provisions

Amended and Restated Certificate of Incorporation and By-Laws

Among other things, our Amended and Restated Certificate of Incorporation and By-Laws:

- permit our Board to issue up to 5,000,000 shares of preferred stock, with any rights, preferences and privileges as they may designate;
- provide that the authorized number of directors may be changed only by resolution of our Board;
- provide that, subject to the rights of any series of preferred stock to elect directors, directors may be removed for cause or without cause, which removal may be effected, by the affirmative vote of a majority of the votes of the issued and outstanding shares of stock entitled to vote for the election of the stockholders called and held for that purpose, or by a majority vote of the Board at a meeting called for such purpose, and the vacancy in the Board caused by any such removal may be filled by such stockholders or directors, as the case may be, at such meeting, and if the stockholders shall fail to fill such vacancy, such vacancy shall be filled in the manner as provided by the By-Laws;
- provide that all vacancies, including newly created directorships, may be filled by the decision of majority of the directors then in office, including those who have so resigned, and shall have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations shall become effective, and each director so chosen shall hold office as provided in this Section for the filling of other vacancies;
- provides that stockholders may act via a consent of stockholders in lieu of a meeting without prior notice and without a vote, if a consent or consents in writing, set forth the action so taken, and is signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted and shall be delivered to the Company by delivery to its registered office in this State, its principal place of business, or an officer or agent of the Company having custody of the book in which proceedings of meetings of stockholders are recorded;
- provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide advance notice in writing, and also specify requirements as to the form and content of a stockholder's notice;
- provide that special meetings of our stockholders may be called only by the Board, the Chairman of the Board, or the Chief Executive Officer; and
- do not provide for cumulative voting rights, therefore allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election, if they should so choose.

The amendment of any of these provisions would require the affirmative vote of the majority of voting power of the outstanding shares of capital stock entitled to vote.

The combination of these provisions makes it more difficult for our stockholders to replace our Board as well as for another party to obtain control of us by replacing our Board. Because our Board has the power to retain and discharge our officers, these provisions could also make it more difficult for existing stockholders or another party to effect a change in management. In addition, the authorization of undesignated preferred stock makes it possible for our Board to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change our control.

These provisions are intended to enhance the likelihood of continued stability in the composition of our Board and its policies and to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to reduce our vulnerability to hostile takeovers and to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and may have the effect of delaying changes in our control or management. As a consequence, these provisions may also inhibit fluctuations in the market price of our stock that could result from actual or rumored takeover attempts. We believe that the benefits of these provisions, including increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure our Company, outweigh the disadvantages of discouraging takeover proposals, because negotiation of takeover proposals could result in an improvement of their terms.

Section 203 of the Delaware General Corporation Law

We are subject to Section 203 of the Delaware General Corporation Law, or DGCL, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the Board of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;

- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (i) by persons who are directors and also officers and (ii) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

- on or after such date, the business combination is approved by the Board and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 662⁄3% of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines a "business combination" to include the following:

- any merger or consolidation involving the corporation and the interested stockholder;

- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;

- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;

- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; and

- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits by or through the corporation.

In general, Section 203 defines an "interested stockholder" as an entity or person who, together with the person's affiliates and associates, beneficially owns, or within three years prior to the time of determination of interested stockholder status did own, 15% or more of the outstanding voting stock of the corporation.

The statute could prohibit or delay mergers or other takeover or change in control attempts and, accordingly, may discourage attempts to acquire us even though such a transaction may offer our stockholders the opportunity to sell their stock at a price above the prevailing market price.

A Delaware corporation may "opt out" of these provisions with an express provision in its certificate of incorporation. We have not opted out of these provisions, which may as a result, discourage or prevent mergers or other takeover or change of control attempts of us.

Choice of Forum

Our Amended and Restated Certificate of Incorporation provides that the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for the following claims or causes of action brought under Delaware statutory or common law: (1) any derivative claim or action brought on our behalf; (2) any claim or cause of action asserting a breach of fiduciary duty by any of our directors or officers; (3) any claim or cause of action asserting a claim against us arising out of, or pursuant to, the DGCL, our Amended and Restated Certificate of Incorporation or our By-Laws; or (4) any action asserting a claim against the Company governed by the internal affairs doctrine.

Limitations of Liability and Indemnification

Our Amended and Restated Certificate of Incorporation and our By-Laws limit our directors' liability and may indemnify our directors and officers to the fullest extent permitted under the DGCL. The DGCL provides that directors of a corporation will not be personally liable for monetary damages for breach of their fiduciary duties as directors, except for liability for:

- any breach of the director's duty of loyalty to us or our stockholders;

- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- any unlawful payment of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the DGCL; or
- any transaction from which the director derived an improper benefit.

The DGCL and our By-Laws provide that we will, in certain situations, indemnify our directors and officers, to the fullest extent permitted by law.

We have entered into indemnification agreements with our directors and officers. These indemnification agreements may require us, among other things, to indemnify our directors and officers for some expenses, including attorneys' fees, judgments, penalties, fines and settlement amounts incurred by a director or officer in any action or proceeding arising out of his or her service as one of our directors or officers, or any of our subsidiaries or any other company or enterprise to which the person provides services at our request. Subject to certain limitations, our indemnification agreements also require us to advance expenses incurred by our directors and officers for the defense of any action for which indemnification is required or permitted.

We maintain a directors' and officers' insurance policy pursuant to which our directors and officers are insured against liability for actions taken in their capacities as directors and officers. We believe that these provisions in our Amended and Restated Certificate of Incorporation, our By-Laws and these indemnification agreements are necessary to attract and retain qualified persons as directors and officers.

The limitation of liability and indemnification provisions in our Amended and Restated Certificate of Incorporation and By-Laws may discourage stockholders from bringing a lawsuit against our directors and officers for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and our stockholders. Further, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage awards against directors and officers as required by these indemnification provisions.

At present, there is no material pending litigation or proceeding involving any of our directors, officers or employees for which indemnification is sought and we are not aware of any threatened material litigation that may result in claims for indemnification.

Insofar as indemnification for liabilities arising under the Securities Act of 1933, as amended, or the Securities Act, may be permitted to directors, officers or control persons, in the opinion of the SEC, such indemnification is against public policy, as expressed in the Securities Act, and is therefore unenforceable.

Listing

Our common stock is listed on the Nasdaq Capital Market under the trading symbol "WINT".

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Continental Stock Transfer & Trust Company.

DESCRIPTION OF THE SECURITIES WE ARE OFFERING

Common Stock to be Issued as Part of this Offering

The material terms and provisions of our common stock and each other class of our securities which qualifies or limits our common stock are described above under the sections "*Description of Capital Stock—Common Stock*," and "*Description of Capital Stock—Preferred Stock*" of this prospectus.

Common Warrants to be Issued as Part of this Offering

The common warrants will be issued in a form filed as an exhibit to the registration statement of which this prospectus is a part. You should review a copy of the form of common warrant for a complete description of the terms and conditions applicable to the common warrants.

Pursuant to a warrant agency agreement between us and Continental Stock Transfer and Trust Company, as warrant agent, the common warrants will be issued in book-entry form and shall initially be represented only by one or more global warrants deposited with the warrant agent, as custodian on behalf of The Depository Trust Company, or DTC, and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC. The following is a brief summary of the common warrants and is still subject in all respect to the provisions contained in the form of common warrant.

Duration and Exercise Price

Each whole common warrant will have an exercise price of $2.93 per share, will be immediately exercisable upon issuance and will expire on the fifth anniversary of the date of issuance. The exercise price and number of shares of common stock issuable upon exercise is subject to appropriate adjustment in the event of stock dividends, stock splits, reorganizations or similar events affecting our common stock and the exercise price.

The common warrants will be issued separately from the common stock included in this offering. Each share of our common stock purchased in this offering will include one common warrant to purchase one share of our common stock.

Exercisability

The common warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our common stock purchased upon such exercise (except in the case of a cashless exercise as discussed below in " *Certain Adjustments*"). A holder may not exercise any portion of the common warrant to the extent that the holder would beneficially own more than 4.99% (or, at the election of the purchaser prior to the date of issuance, 9.99%) of the outstanding common stock after exercise, except that upon at least 61 days' prior notice from the holder to us, the holder may increase the amount of ownership of outstanding stock after exercising the holder's common warrants up to 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the common warrants.

Certain Adjustments

The exercise price and the number of shares issuable upon exercise of the common warrants is subject to appropriate adjustment in the event of stock splits, stock dividends, recapitalizations, reorganizations, schemes, arrangements or similar events affecting our common stock. The common warrant holders must pay the exercise price in cash or wire transfer of immediately available funds upon exercise of the common warrants, unless such holders are utilizing the cashless exercise provision of the common warrants, which is only available in certain circumstances such as if the underlying shares are not registered with the SEC pursuant to an effective registration statement. We intend to use commercially reasonable best efforts to have the registration statement of which this prospectus forms a part, effective when the common warrants are exercised.

Fundamental Transactions

In the event we consummate a merger or consolidation with or into another person or other reorganization event in which our common stock is converted or exchanged for securities, cash or other property, or we sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our assets or we or another person acquire 50% or more of our outstanding shares of common stock, then following such event, the holders of the common warrants will be entitled to receive upon exercise of the common warrants the same kind and amount of securities, cash or property which the holders would have received had they exercised the common warrants immediately prior to such fundamental transaction. Any successor to us or surviving entity shall assume the obligations under the common warrants. Additionally, as more fully described in the common warrant, in the event of certain fundamental transactions, the holders of the common warrants will be entitled to receive consideration in an amount equal to the Black Scholes value of the common warrants on the date of consummation of such transaction.

Transferability

Subject to applicable laws and the restriction on transfer set forth in the common warrant, the common warrant may be transferred at the option of the holder upon surrender of the common warrant to us together with the appropriate instruments of transfer.

Exchange Listing

There is no established trading market for the common warrants. In addition, we do not intend to apply for the listing of the common warrants on any national securities exchange. Without an active trading market, the liquidity of the common warrants will be limited.

Right as a Stockholder

Except as otherwise provided in the common warrants or by virtue of such holder’s ownership of shares of our common stock, the holders of the common warrants do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise their common warrants.

Waivers and Adjustments

Subject to certain exceptions, any terms of the common warrants may be amended or waived with our written consent and the written consent of the holder.

UNDERWRITING

We are offering the securities described in this prospectus through the underwriters named below. We have entered into an underwriting agreement dated April 20, 2023 with Ladenburg Thalmann & Co. Inc., as the representative of the underwriters in this offering. Subject to the terms and conditions of the underwriting agreement, the underwriters have agreed to purchase the number of our securities set forth opposite its name below.

Underwriters	Number of Shares	Number of Common Warrants
Ladenburg Thalmann & Co. Inc.	3,686,006	3,686,006
Total		

A copy of the underwriting agreement has been filed as an exhibit to the registration statement of which this prospectus is part.

We have been advised by the underwriters that they propose to offer the shares of common stock and common warrants directly to the public at the public offering price set forth on the cover page of this prospectus. Any securities sold by the underwriters to securities dealers will be sold at the public offering price less a selling concession not in excess of $0.1401600 per share of common stock and $0.0004800 per common warrant to purchase shares of common stock.

The underwriting agreement provides that the underwriters' obligation to purchase the securities we are offering is subject to conditions contained in the underwriting agreement.

No action has been taken by us or the underwriters that would permit a public offering of the securities in any jurisdiction outside the United States where action for that purpose is required. None of our securities included in this offering may be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sales of any of the securities offering hereby be distributed or published in any jurisdiction except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons who receive this prospectus are advised to inform themselves about and to observe any restrictions relating to this offering of securities and the distribution of this prospectus. This prospectus is neither an offer to sell nor a solicitation of any offer to buy the securities in any jurisdiction where that would not be permitted or legal.

The underwriters have advised us that they do not intend to confirm sales to any account over which they exercise discretionary authority.

Underwriting Discount and Expenses

The following table summarizes the underwriting discount and commission to be paid to the underwriters by us.

	Per Share and Accompanying Common Warrant (1)	Total Without Over-Allotment	Total With Full Over-Allotment
Public offering price	$ 2.93	$ 10,799,997.58	$ 12,419,994.58
Underwriting discounts and commissions(2)(3)	$ 0.2344	$ 863,999.81	$ 993,599.57
Proceeds to us, before expenses	$ 2.6956	$ 9,935,997.77	$ 11,426,395.01

(1) The public offering price and underwriting discount corresponds, in respect of the securities of (i) a public offering price per share of common stock of $2.92 ($2.6864 net of the underwriting discount) and (ii) a public offering price per common warrant of $0.01 ($0.0092 net of the underwriting discount).

(2) We have also agreed to pay the representative a management fee equal to 1.0% of the aggregate gross proceeds received from the sale of the securities in the transaction and reimburse the accountable expenses of the representative, including a pre-closing expense allowance of up to a maximum of $15,000 and an additional closing expense allowance up to a maximum of $95,000.

(3) We have granted a 45-day option to the underwriters to purchase up to 552,900 additional shares of common stock and/or additional common warrants exercisable for up to an additional 552,900 shares of common stock at the public offering price per share of common stock and the public offering price per common warrant set forth above less the underwriting discounts and commissions solely to cover over- allotments, if any.

We estimate the total expenses payable by us for this offering to be approximately $1.5 million, which amount includes (i) the underwriting discount of approximately $864,000, (ii) the management fee of approximately $108,000, (iii) reimbursement of the accountable expenses of the underwriters, including the legal fees of the representative, in an amount not to exceed $110,000 and (iv) other estimated company expenses of approximately $380,000, which includes legal, accounting, printing costs and various fees associated with the registration and listing of our securities.

The securities we are offering are being offered by the underwriters subject to certain conditions specified in the underwriting agreement.

Over-allotment Option

We have granted to the underwriters an option exercisable not later than 45 days after the date of this prospectus to purchase up to an additional 552,900 shares of common stock and/or 552,900 common warrants at the public offering price per share of common stock and the public offering price per common warrant set forth on the cover page hereto less the underwriting discounts and commissions. The underwriters may exercise the option solely to cover overallotments, if any, made in connection with this offering. If any additional shares of common stock and/or common warrants are purchased, the underwriters will offer these shares and/or common warrants on the same terms as those on which the other securities are being offered.

Right of First Refusal

We have granted to Ladenburg Thalmann & Co. Inc. the right of first refusal for a period of twelve months following the closing of this offering to act as sole bookrunner, exclusive placement agent or exclusive sales agent in connection with any financing of the Company, subject to certain conditions.

Tail Financing Payments

We have also agreed to pay the representative a tail fee equal to 8% of the total gross proceeds received by us from any investor who was contacted by the representative during the term of its engagement, if such investor provides us with capital in any public or private offering or other financing or capital raising transaction for a period of twelve months after expiration or termination of the engagement with the representative; provided however, we shall not be required to pay any such tail fee in respect of proceeds received by us from certain excluded investors agreed upon between us and the representative.

Listing

Our shares of common stock are listed on The Nasdaq Capital Market under the symbol “WINT.”

The last reported sale price of our shares of common stock on April 19, 2023 was $5.60 per share. There is no established public trading market for the common warrants, and we do not expect such a market to develop. In addition, we do not intend to apply for a listing of the common warrants on any national securities exchange or other nationally recognized trading system.

Lock-up Agreements

Each of our officers, directors and each of their respective affiliates and associated partners have agreed with the underwriters to be subject to a lock-up period of 75 days following the date of this prospectus. This means that, during the applicable lock-up period, such persons may not offer for sale, contract to sell, sell, distribute, grant any option, right or warrant to purchase, pledge, hypothecate or otherwise dispose of, directly or indirectly, any shares of our common stock or any securities convertible into, or exercisable or exchangeable for, shares of our common stock. Certain limited transfers are permitted during the lock-up period if the transferee agrees to these lock-up restrictions. We have also agreed, in the underwriting agreement, to similar lock-up restrictions on the issuance and sale of our securities from the date of this prospectus for a period of 75 days following the date of this prospectus, subject to certain exceptions. Ladenburg Thalmann & Co. Inc. may, in its sole discretion and without notice, waive the terms of any of these lock-up agreements.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Continental Stock Transfer & Trust Company.

Determination of Offering Price

Our common stock is currently traded on The Nasdaq Capital Market under the symbol "WINT." On April 19, 2023 the closing price of our common stock was $5.60 per share. We do not intend to apply for listing of the common warrants on any securities exchange or other trading system. The public offering price of the securities offered by this prospectus was negotiated between us and the underwriters. Among the factors that were considered in determining the public offering price:

- our history and our prospects;
- the industry in which we operate;
- our past and present operating results;
- the previous experience of our executive officers; and
- the general condition of the securities markets at the time of this offering.

The public offering price stated on the cover page of this prospectus should not be considered an indication of the actual value of the shares of common stock or common warrants sold in this offering. That price is subject to change as a result of market conditions and other factors and we cannot assure you that the shares of common stock and common warrants sold in this offering can be resold at or above the public offering price.

Stabilization, Short Positions and Penalty Bids

The underwriters may engage in syndicate covering transactions stabilizing transactions and penalty bids or purchases for the purpose of pegging, fixing or maintaining the price of our common stock:

- Syndicate covering transactions involve purchases of securities in the open market after the distribution has been completed in order to cover syndicate short positions. Such a naked short position would be closed out by buying securities in the open market. A naked short position is more likely to be created if the underwriters are concerned that there could be downward pressure on the price of the securities in the open market after pricing that could adversely affect investors who purchase in the offering.
- Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specific maximum.
- Penalty bids permit the underwriters to reclaim a selling concession from a syndicate member when the securities originally sold by the syndicate member are purchased in a stabilizing or syndicate covering transaction to cover syndicate short positions.

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

In connection with this offering, the underwriters also may engage in passive market making transactions in our common stock in accordance with Regulation M during a period before the commencement of offers or sales of shares of our common stock in this offering and extending through the completion of the distribution. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for that security. However, if all independent bids are lowered below the passive market maker's bid that bid must then be lowered when specific purchase limits are exceeded. Passive market making may stabilize the market price of the securities at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

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

Other Relationships

From time to time, certain of the underwriters and their affiliates may provide in the future, various advisory, investment and commercial banking and other services to us in the ordinary course of business, for which they will receive customary fees and commissions. The representative has received compensation in connection with advisory services provided to the company and may receive additional compensation in connection with such advisory services. The representative also acted as book-running manager in connection with our public offerings that we consummated in May 2020 and March 2021, and as warrant solicitation agent in connection with a warrant inducement transaction that we consummated in January 2023 for which it received compensation.

Indemnification

We have agreed to indemnify the underwriters against certain liabilities, including certain liabilities arising under the Securities Act, or to contribute to payments that the underwriters may be required to make for these liabilities.

Electronic Distribution

A prospectus in electronic format may be made available on the websites maintained by the underwriters, if any, participating in this offering and the underwriters may distribute prospectuses electronically. Other than the prospectus in electronic format, the information on these websites is not part of this prospectus or the registration statement of which this prospectus forms a part, has not been approved or endorsed by us or the underwriters, and should not be relied upon by investors.

LEGAL MATTERS

The validity of the issuance of our common stock offered in this prospectus will be passed upon for us by Goodwin Procter LLP, Philadelphia, Pennsylvania. Certain legal matters in connection with this offering will be passed upon for the underwriters by Ellenoff Grossman & Schole LLP, New York, New York.

EXPERTS

The consolidated balance sheet of Windtree Therapeutics, Inc. and Subsidiaries as of December 31, 2022, and the related consolidated statements of operations, changes in mezzanine equity and stockholders' equity, and cash flows for the year then ended have been audited by EisnerAmper LLP, independent registered public accounting firm, as stated in their report which is incorporated herein by reference, which report includes an explanatory paragraph about the existence of substantial doubt concerning our ability to continue as a going concern. Such financial statements have been incorporated herein by reference in reliance on the report of such firm given upon their authority as experts in accounting and auditing.

The consolidated financial statements of Windtree Therapeutics, Inc. at December 31, 2021, and for the year then ended, appearing in Windtree Therapeutics, Inc.'s 2022 Annual Report (Form 10-K) for the year ended December 31, 2022 have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon (which contains an explanatory paragraph describing conditions that raise substantial doubt about the Company's ability to continue as a going concern as described in Note 3 to the consolidated financial statements), included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

This prospectus forms part of a registration statement on Form S-1 that we filed with the SEC. This prospectus does not contain all of the information set forth in the registration statement and the exhibits to the registration statement or the documents incorporated by reference herein and therein. For further information with respect to us and the securities that we are offering under this prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement and the documents incorporated by reference herein and therein. You should rely only on the information contained in this prospectus or incorporated by reference herein or therein. We have not authorized anyone else to provide you with different information. We are not making an offer of these securities in any state where the offer is not permitted. You should not assume that the information in this prospectus is accurate as of any date other than the date on the front page of this prospectus, regardless of the time of delivery of this prospectus or any sale of the securities offered hereby. We file annual, quarterly and current reports, proxy statements and other information with the SEC. The SEC maintains a website that contains reports, proxy statements and other information regarding issuers that file electronically with the SEC, including Windtree. The address of the SEC website is *www.sec.gov*.

We also maintain a website at *https://ir.windtreetx.com/filings/sec-filings*, at which you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. Information contained on or accessible through our website is not a part of this prospectus, and the inclusion of our website address in this prospectus is an inactive textual reference only.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to "incorporate by reference" information from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus. We incorporate by reference into this prospectus and the registration statement of which this prospectus is a part the information or documents listed below that we filed with the SEC:

- our Annual Report on Form 10-K for the year ended December 31, 2022, filed with the SEC on March 31, 2023;
- our Definitive Proxy Statements on Form DEF 14A filed with the SEC on May 11, 2022 and January 10, 2023;
- our Current Reports on Form 8-K, filed with the SEC on January 19, 2023, January 26, 2023, February 8, 2023, February 22, 2023, February 23, 2023, and April 19, 2023; and
- the description of our common stock contained in Exhibit 4.18 our 2022 Annual Report on Form 10-K, including any amendments or reports filed for the purposes of updating this description.

Notwithstanding the statements in the preceding paragraphs, no document, report or exhibit (or portion of any of the foregoing) or any other information that we have "furnished" to the SEC pursuant to the Exchange Act shall be incorporated by reference into this prospectus.

We also incorporate by reference into this prospectus all documents (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) that are filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus but prior to the termination of the offering. These documents include periodic reports, such as Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, as well as proxy statements on Schedule 14A.

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, without charge upon written or oral request, a copy of any or all of the documents that are incorporated by reference into this prospectus but not delivered with the prospectus, including exhibits that are specifically incorporated by reference into such documents. You should direct any requests for documents to Windtree Therapeutics, Inc., 2600 Kelly Road, Suite 100., Warrington, Pennsylvania 18976, Attn: Corporate Secretary.

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

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

3,686,006 Shares of Common Stock and Accompanying
Common Warrants to Purchase 3,686,006 Shares of Common Stock
and
3,686,006 Shares of Common Stock Issuable Upon Exercise of the Common Warrants

Prospectus
April 20, 2023

Ladenburg Thalmann