UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, DC 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): May 6, 2020

Windtree Therapeutics, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**000-26422**	**94-3171943**
(State or other jurisdiction of incorporation or organization)	**(Commission File Number)**	**(I.R.S. Employer Identification No.)**

2600 Kelly Road, Suite 100, Warrington, Pennsylvania	**18976**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (215) 488-9300

Not Applicable
(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	**Trading Symbol(s)**	**Name of each exchange on which registered**

Securities registered pursuant to Section 12(g) of the Act:

Common Stock, par value $0.001 per share

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Item 1.01 Entry into a Material Definitive Agreement.

On May 6, 2020 Windtree Therapeutics, Inc. (the "Company") and certain of the holders of the Company's Series I Warrants (the "Series I Holders") dated as of December 6, 2019 (the "Series I Warrants") to purchase Common Stock, par value $0.001 per share ("Common Stock") entered into Amendment No. 1 to the Series I Warrant to Purchase Common Stock (the "Series I Amendment") pursuant to which the exercise price of the Series I Warrants was reduced from $12.09 to $9.67 if such Series I Warrant is exercised, in whole or in part, prior to December 5, 2021, in consideration for the Series I Holders agreeing to be bound by a lockup provision with respect to any shares of Common Stock or securities convertible, exchangeable or exercisable into shares of Common Stock that are beneficially owned, held or acquired by the Series I Holders (the "Securities"). Such lockup provision provides that the Series I Holders will not offer, sell, contract to sell, hypothecate, pledge or otherwise dispose of the Securities for a period of ninety (90) days following the earlier of (i) the closing date of the Company's next public offering of securities, or (ii) December 24, 2020.

The foregoing description of the Series I Amendment does not purport to be complete and is qualified in its entirety by the terms and conditions of the Series I Amendment, which is attached hereto as Exhibit 4.1 and incorporated herein by reference.

Item 7.01 Regulation FD Disclosure.

On May 7, 2020, Windtree Therapeutics, Inc. (the "Company") released an investor presentation to be used in presentations to investors from time to time. A copy of this investor presentation is attached hereto as Exhibit 99.1.

The information in this Item 7.01 (including Exhibit 99.1) is being furnished solely to satisfy the requirements of Regulation FD and shall not be deemed to be "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act') or otherwise subject to the liabilities of that Section, nor shall it deemed to be incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act.

Item 9.01. Financial Statements and Exhibits

(d) Exhibits

Exhibit No.	Document
4.1	Form of Series I Amendment dated May 6, 2020.
99.1	Windtree Therapeutics, Inc. Investor Presentation (May 2020)

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Windtree Therapeutics, Inc.

By: /s/ Craig E. Fraser
Name: Craig E. Fraser
Title: President and Chief Executive Officer

Date: May 7, 2020

FORM OF SERIES I WARRANT TO PURCHASE COMMON STOCK

THIS AMENDMENT NO. 1 TO THE SERIES I WARRANT TO PURCHASE COMMON STOCK (THIS "AGREEMENT") IS MADE AS OF MAY 6, 2020, BY AND BETWEEN WINDTREE THERAPEUTICS, INC., A DELAWARE CORPORATION (THE "COMPANY") AND THE UNDERSIGNED HOLDER ("HOLDER"). THE COMPANY AND THE HOLDER ARE SOMETIMES REFERRED TO HEREIN COLLECTIVELY AS THE "PARTIES" AND INDIVIDUALLY AS A "PARTY."

RECITALS

WHEREAS, the Company issued to the Holder that certain Series I Warrant to Purchase Common Stock on December 6, 2019 (the "Warrant"), which, among other things, entitles the Holder to purchase _____ shares of common stock of the Company, par value $0.001 per share (the "Warrant Shares");

WHEREAS, the Warrant may be exercised in exchange for Warrant Shares at a price a per share of $12.09 at any time or times commencing on June 6, 2020 until December 6, 2024; and

WHEREAS, in accordance with Section 8 of the Warrant, the Company and the Holder hereby wish to amend the Warrant (as more fully set forth below).

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, the receipt and sufficiency of which are hereby acknowledged, the Parties do hereby agree as follows:

AGREEMENT

1. Definitions. Any and all capitalized terms not specifically defined herein shall have the meanings ascribed to them in the Warrant.

2. Amendment to Section 1(b) of the Warrant. Section 1(b) of each Warrant is hereby deleted in its entirety and replaced with:

"Exercise Price. For purposes of this Warrant, "Exercise Price" means a per Warrant Share price of $12.09, subject to adjustment as provided herein; provided, if this Warrant is exercised, in whole or in part, prior to December 5, 2021, "Exercise Price" shall mean a per Warrant Share price of $9.67, subject to adjustment as provided herein.

3. Insertion of New Section 1(g) into the Warrant. A new Section 1(g) of the Warrant as set forth below is hereby inserted into the Warrant immediately following Section 1(f) thereof:

"The Holder irrevocably agrees with the Company that, for a period of ninety (90) days following the earlier of (i) the closing date of the Company's next public offering of securities, or (ii) December 24, 2020, the Holder will not offer, sell, contract to sell, hypothecate, pledge or otherwise dispose of (or enter into any transaction which is designed to, or might reasonably be expected to, result in the disposition (whether by actual disposition or effective economic disposition due to cash settlement or otherwise) by the Holder or any of its Affiliates and Attribution Parties), directly or indirectly, or establish or increase a put equivalent position or liquidate or decrease a call equivalent position within the meaning of Section 16 of the Exchange Act, with respect to any shares of Common Stock or securities convertible, exchangeable or exercisable into, shares of Common Stock beneficially owned, held or hereafter acquired by the Holder (the "**Restricted Securities**"). Beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act. In furtherance of the foregoing, the Company and any duly appointed transfer agent for the registration or transfer of the Restricted Securities are hereby authorized to decline to make any transfer of securities if such transfer would constitute a violation or breach of this Section 1(g)."

4. Governing Law. This Agreement and the Parties' rights and obligations hereunder shall be governed by, and construed and interpreted in accordance with, the laws of the State of Delaware, without regard to the principles of conflicts of law thereof.

5. Successors and Assigns. This Agreement shall be binding upon, and inure to the benefit of, the Parties and their respective successors, heirs and permitted assigns. No Party may assign its rights, duties or obligations under this Agreement without the prior written consent of the other Parties.

6. Counterparts. This Agreement may be executed in any number of separate counterparts, all of which shall constitute one agreement. Execution and delivery of this Agreement may be effected by pdf, facsimile, or other electronic transmission of signature pages.

7. Amendments. This Agreement may be amended, modified or waived only in a writing signed by each of the Parties hereto.

[*Signature pages follow*]

IN WITNESS WHEREOF, the undersigned have executed this Amendment No. 1 to Series I Warrant to Purchase Common Stock as of the date first written above.

WINDTREE THERAPEUTICS, INC.

By: _____

Name: Craig Fraser

Title: President and Chief Executive Officer

[Signature Page to Amendment No. 1 to Series I Warrant to Purchase Common Stock]

HOLDER:

INVESTOR: _____

By: _____

Name: _____

Title: _____

[Signature Page to Amendment No. 1 to Series I Warrant to Purchase Common Stock]

Exhibit 99.1

Windtree Therapeutics

Corporate Presentation

May 2020

OTCQB: WINT

WINDTREE THERAPEUTICS™

Forward-looking Statements

This presentation includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These statements, among other things, include statements about the Company's clinical development programs, business strategy, outlook, objectives, plans, intentions, goals, future financial conditions, future collaboration agreements, the success of the Company's product development activities, or otherwise as to future events. The forward-looking statements provide our current expectations or forecasts of future events and financial performance and may be identified by the use of forward-looking terminology, including such terms as "believes," "estimates," "anticipates," "expects," "plans," "intends," "may," "will," "should," "could," "targets," "projects," "contemplates," "predicts," "potential" or "continues" or, in each case, their negative, or other variations or comparable terminology, though the absence of these words does not necessarily mean that a statement is not forward-looking. We intend that all forward-looking statements be subject to the safe-harbor provisions of the Private Securities Litigation Reform Act of 1995. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified and some of which are beyond our control, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. These risks and uncertainties are further described in the Company's periodic filings with the Securities and Exchange Commission ("SEC"), including the most recent reports on Form 10-K, Form 10-Q and Form 8-K, and any amendments thereto ("Company Filings"). Moreover, we operate in an evolving environment. New risks and uncertainties may emerge from time to time, and it is not possible for management to predict all risks and uncertainties. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise.

Under no circumstances shall this presentation be construed as an offer to sell or as a solicitation of an offer to buy any of the Company's securities. In addition, the information presented in this deck is qualified in its entirety by the Company Filings. The reader should refer to the Company Filings for a fuller discussion of the matters presented here.

Risk Factors

Investing in our securities includes a high degree of risk. You should consider carefully the specific factors discussed below, together with all of the other information contained in our SEC filings. If any of the following risks actually occurs, our business, financial condition, results of operations and future prospects would likely be materially and adversely affected. This could cause the market price of our securities to decline and could cause you to lose all or part of your investment. Risks include but are not limited to:

- 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 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.
- Raising additional capital may cause dilution to our stockholders, including purchasers of securities in this offering, restrict our operations or require us to relinquish rights to our technologies or product candidates.
- Delays associated with COVID-19 in anticipated timelines and milestones;
- Clinical development is a lengthy and expensive process with an uncertain outcome, and results of earlier studies and trials may not be predictive of future trial results. Clinical failure can occur at any stage of clinical development;
- We are subject to regulatory approval processes that are lengthy, time consuming and unpredictable, and we may not obtain approval for our product candidates;
- Our activities are subject to various and complex laws and government regulations, and we are susceptible to a changing regulatory environment;
- If we are unable to adequately protect our intellectual property rights, or if we are accused of infringing on the intellectual property rights of others, our competitive
- 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.
- 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.
- 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.
- We are currently conducting, and may in the future conduct, certain of our 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.
- Failure of our new ADS to perform as intended for our AEROSURF phase 2 bridging study and phase 3 development activities and, if approved, initial commercial activities, would have a material adverse effect on our efforts to develop AEROSURF as well as our other aerosolized KL4 surfactant products, and our business strategy.
- Risks related to manufacturing active pharmaceutical ingredients, drug product, medical devices and other materials

Windtree Therapeutics

Windtree Therapeutics is a clinical-stage biopharmaceutical and medical device company with **multiple advanced clinical programs** spanning cardiovascular and respiratory disease states

	Lead Products	Pre-	Phase I	Phase II	Phase III	Next Milestone
FDA Fast Track Designation	**Istaroxime** (Acute Heart Failure)			Phase 2b		▪ H2 2020 - Initiate study start up for second phase 2b clinical trial in ~300 patients
Potential for Breakthrough designation	**Istaroxime** (Cardiogenic Shock)			Phase 2		▪ Mid 2020 - Initiate ~60 patient study in early cardiogenic shock
FDA, EMA Orphan Drug for RDS	**KL4 Surfactant – COVID 19** (COVID 19 Pilot; Possible invasive Tx for RDS in neonates)			Phase 2		▪ Q2-2020 File IND; Initiate trial*
FDA Fast Track Designation, Orphan Drug	**AEROSURF** (Non-Invasive Tx for RDS)			Phase 2b		▪ Active study in ~80 patient with new ADS supported by licensee resources
	Rostafuroxin (Genetically Associated HTN)			Phase 2b		▪ Out-licensing opportunity
	Oral SERCA2a Activators (Chronic HF; including HFpEF)					▪ High interest target for partnership ▪ Chronic and Acute Heart Failure

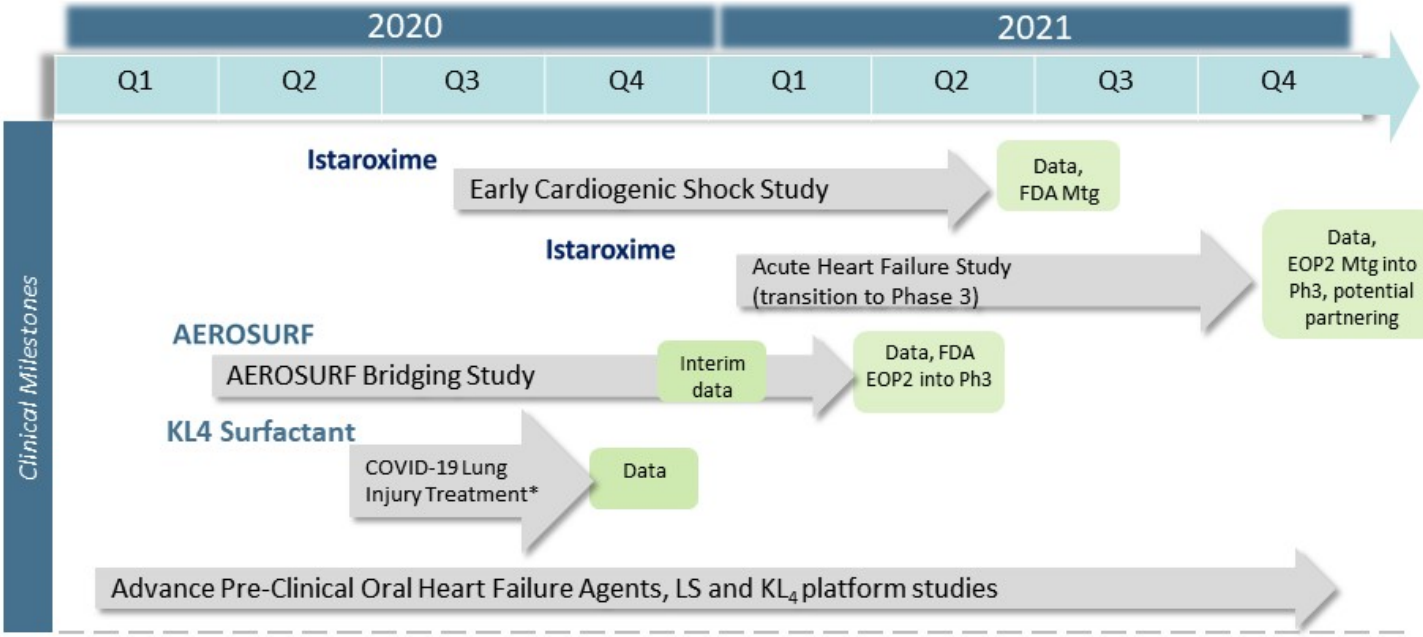
WINDTREE THERAPEUTICS

*to be funded from equity financing and/or grants

Strategy for Value Creation

Planned Milestones

- **Three clinical programs** focused on significant markets with unmet needs
- **Multiple clinical and business milestones which have the potential to be catalysts**



Corporate Milestones

- Planned NASDAQ up listing
- SERCA2a & CV deal process
- Rosta deal process (potential for out-license)

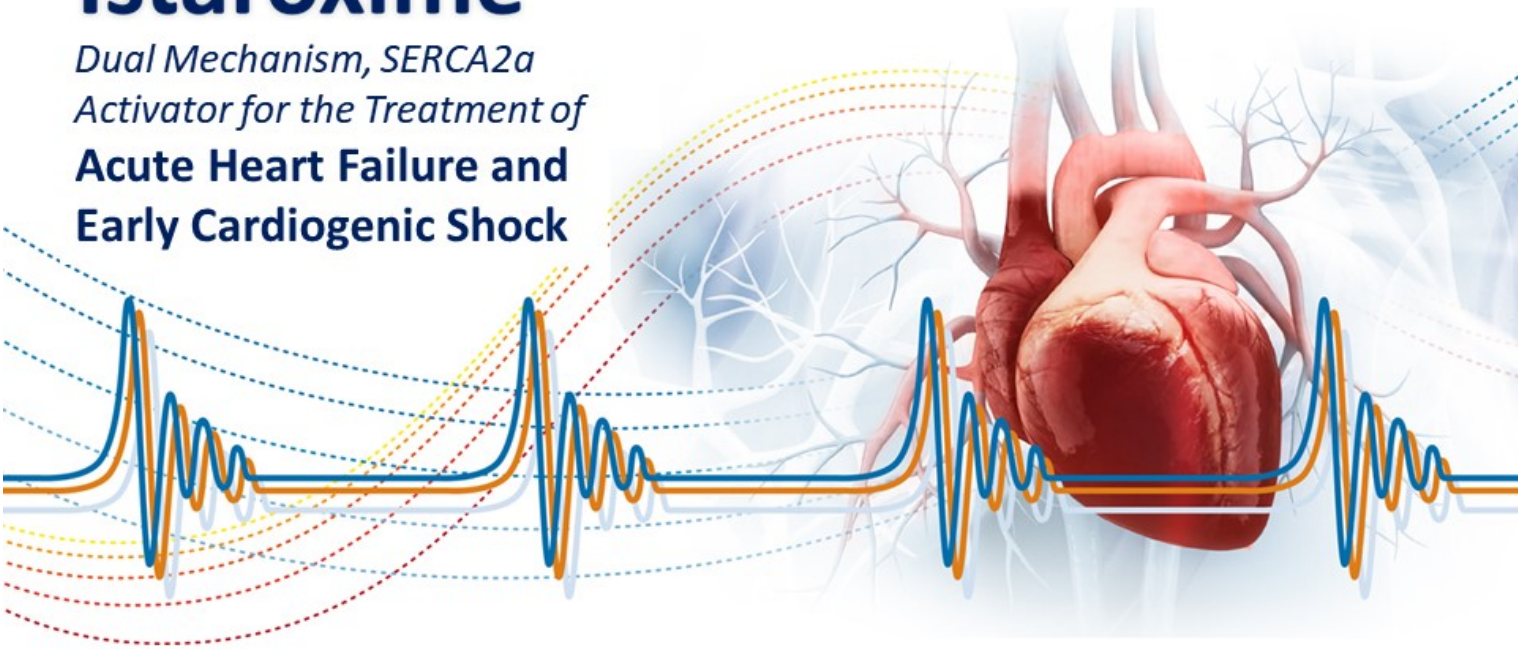
*to be funded from equity financing and/or grants

To be updated once full assessment of potential COVID-19 impact to trial conduct is fully understood

Istaroxime

Dual Mechanism, SERCA2a Activator for the Treatment of

Acute Heart Failure and Early Cardiogenic Shock



WINDTREE THERAPEUTICS

Heart Failure -

The prevalence of HF is high and on the rise (as is mortality)

# of Patients:	▪ 6M (U.S.) | 18M (Worldwide)
Hospital Admissions:	▪ #1 cause of hospitalization in patients > 65 years old (U.S.) ▪ > 1.3M admissions annually (U.S.) ▪ ~1.5M admissions annually (E.U.)
Inpatient Mortality:	▪ Up to 7% ▪ 30-day: can exceed 10%
Estimated Costs:	▪ U.S. Hospitals: > $18B annually ▪ Most expensive of the Medicare diagnoses

Lack of therapeutic advances led the FDA to issue new Heart Failure Guidance in July 2019 for greater development flexibility in acceptable endpoints, specifically acknowledging mortality is not a required

WINDTREE THERAPEUTICS

Sources: American Heart Association; DRG Data

Acute Heart Failure -
Significant Healthcare Issue with Significant Unmet Clinical Need

- **There has not been meaningful new pharmacologic advancements** in acute heart failure for decades
- **Current approaches to acutely improve cardiac function are associated with unwanted effects:**
  - Heart rhythm disturbances
  - Increased heart rate and myocardial oxygen demand
  - Decreased blood pressure
  - Potential damage to the heart muscle (increased troponin)
  - Worsening renal function
  - Mortality
- **Patients with low blood pressure and peripheral hypoperfusion are high risk,** challenging patients. These patients are also **generally resistant to diuretic therapy and often discharged in a sub-optimal state**
  - Low SBP in-patient mortality approximately two-fold greater than normal / high SBP[1]
  - There is a direct relationship between early drop in SBP and worsening renal function in acute heart failure[2]

1) ADHERE Registry, n=48,567; JAMA 2006
2) European Journal of Heart Failure; Voors, PRE-RELAX AHF Study; 2011; 13

Istaroxime – Novel First-in-Class Therapy

Novel intravenous agent designed to **improve systolic contraction and diastolic relaxation of the heart.**

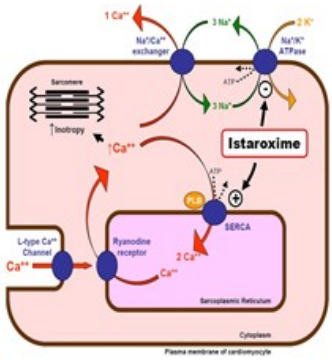
Dual Mechanism of Action

1 Inhibition of the sodium-potassium pump and effects on the sodium-calcium exchanger results in increased contraction

Istaroxime

2 Stimulation of SERCA2a activity enhances calcium reuptake resulting in improvement of the diastolic relaxation and subsequent contraction cycle

Impact on *both* systolic and diastolic dysfunction



WINDTREE THERAPEUTICS

Istaroxime AHF Phase 2b Study - Summary

Primary Endpoint:	▪ Change in E/e' at 24 hours (non-invasive estimate of PCWP) measured by echocardiography
Trial Design:	▪ Adult patients hospitalized for recurrent AHF (dyspnea plus need for IV furosemide ≥ 40mg) ▪ 120 patients ▪ Multicenter, double blind, placebo-controlled, parallel group
Dosing:	▪ 24-hour infusion of istaroxime at doses of 0.5 and 1.0 mg/kg/min
Results:	▪ **Primary endpoint was significantly improved by both doses of istaroxime** ▪ **Heart rate decreased and stroke volume increased at 24 hours** ▪ **Istaroxime maintained / increased systolic blood pressure** ▪ **Renal function also tended to improve** ▪ **No evidence for increased risk of arrythmia or increases in troponin** ▪ **Generally well tolerated (nausea and infusion site discomfort were the most common AE)**

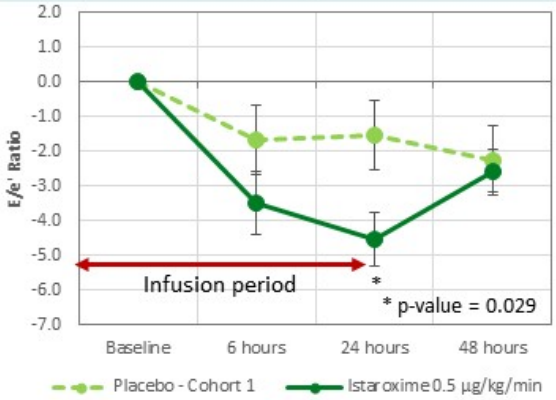
We believe results are consistent with phase 2a and support istaroxime and SERCA2a activation for AHF

Primary Endpoint –

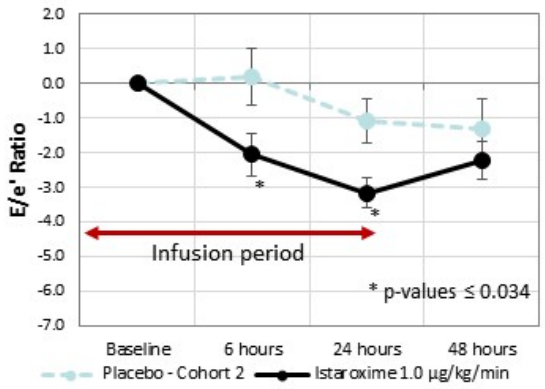
Significant Changes in E/e' Ratio and Stoke Volume

E/e'

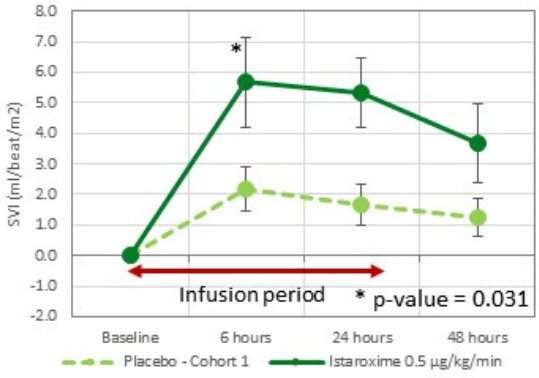
istaroxime 0.5 µg/kg/min vs. placebo

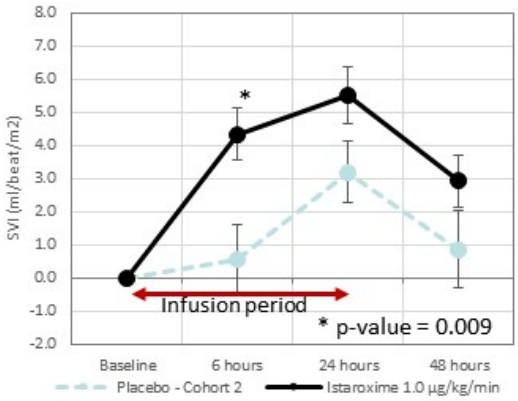


istaroxime 1.0 µg/kg/min vs. placebo



Stroke Volume



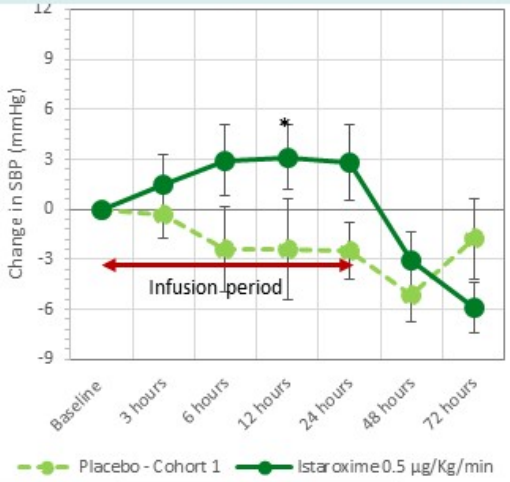


WINDTREE THERAPEUTICS

Data shown as means and standard errors

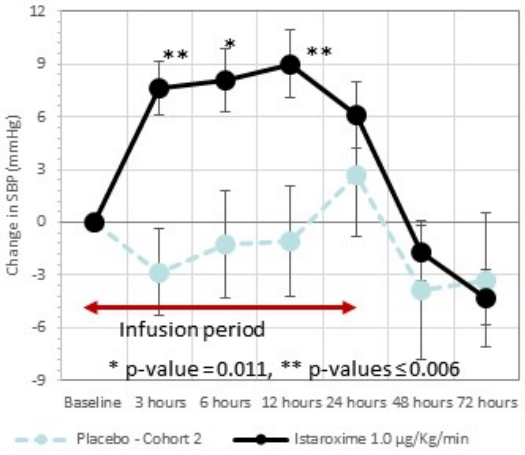
Systolic Blood Pressure Maintained or Increased During Treatment and Renal Function Tended to Improve

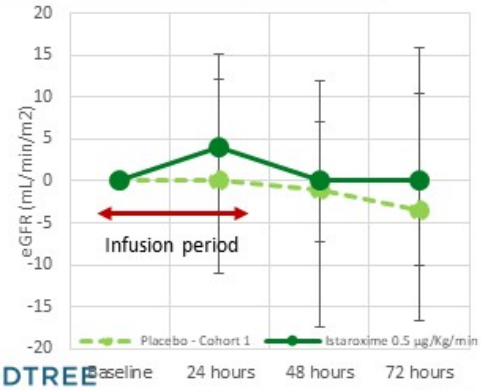
istaroxime 0.5 µg/kg/min vs. placebo



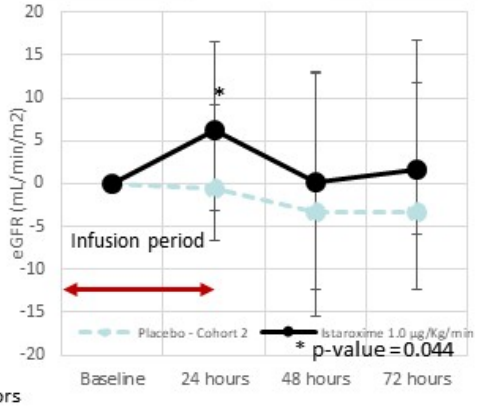
SBP

istaroxime 1.0 µg/kg/min vs. placebo





GFR



Data shown as means and standard errors

Istaroxime – Acute Heart Failure
Next Steps

Objective: Create a strong phase 3 and partnership position -

AHF Next Steps

- Execute an additional study that is expected to complete Phase 2 and inform Phase 3
  - 300 patients, 75 centers globally (estimates)
- Leverage characteristics in a target population that most particularly benefit from the unique attributes of the drug: low blood pressure and/or diuretic resistance
- Increase infusion time to >24 hours (ideally 48-96 hours)
- Include measures that can be pivotal for phase 3

Planned study start up in 2H 2020 to be in a position to commence in early 2021 with resourcing

Early Cardiogenic Shock Treatment

Istaroxime Potential Opportunity for Accelerated Approval Pathway

Cardiogenic shock is a **severe presentation of heart failure** characterized by **very low blood pressure and hypoperfusion** accompanied by high PCWP and decreased urine output

Challenges

No Satisfactory Pharmacological Intervention to Reverse the Conditions

High Associated Mortality and Morbidity

FDA Regulatory Guidance with Break-Through Therapy Designation Potential

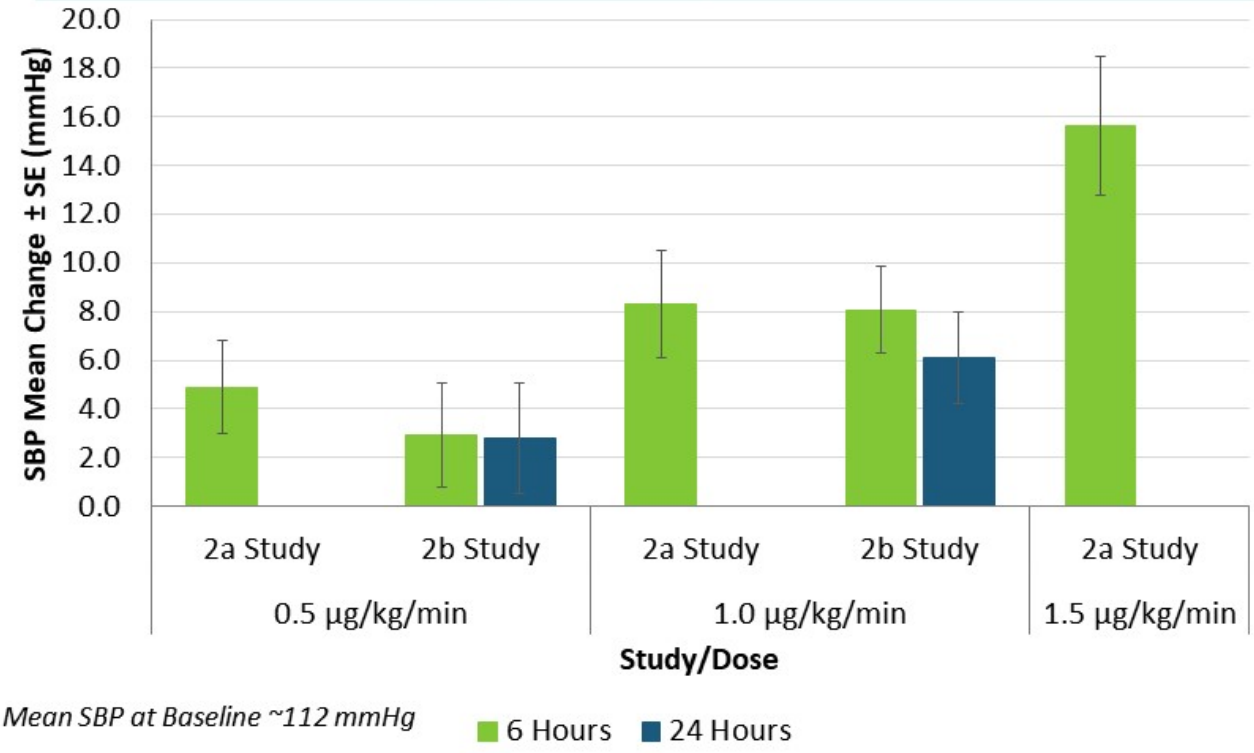
Sponsors are potentially **not required to show a benefit other than an increase in blood pressure to support approval of drugs to treat hypotension in the setting of shock**[1]**.** (Precedent: NDA for Giapreza® (IV Angiotensin II), approved in 2017 for increasing MAP in distributive shock)[2]

Guidance and precedent lead us to believe there may be opportunities for an accelerated regulatory pathway and review

1) Kosaraju A, Hai O. Cardiogenic Shock. [Updated 2019 Jan 25]. In: https://www.ncbi.nlm.nih.gov/books/NBK482255/
CSRC Think Tank - July 24, 2019
2) Senatore et al., Am J Cardiovasc Drugs, February 2019, Volume 19, Issue 1, pp 11–20 (https://doi.org/10.1007/s40256-018-0297-9)

Istaroxime SBP Change from Baseline to 6 or 24 Hours from the Phase 2a and 2b Dose Groups

Istaroxime has the potential to improve blood pressure and organ perfusion in patients with AHF



Mean SBP at Baseline ~112 mmHg

6 Hours 24 Hours

Istaroxime – Early Cardiogenic Shock – Next Steps

Next Steps

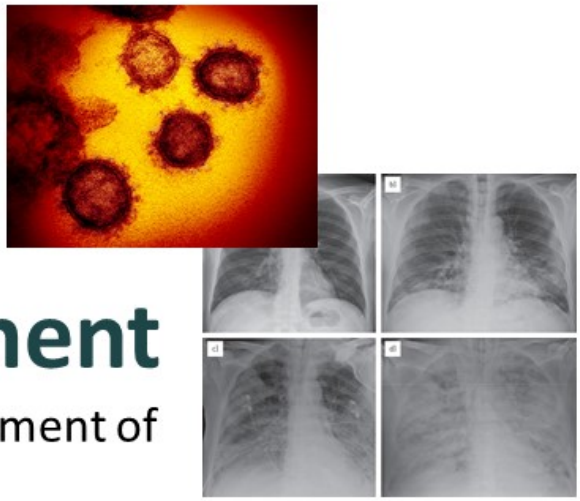
- Initiate a study in early cardiogenic shock while we are preparing for the larger phase 2b acute heart failure study
  - ~60 patients conducted in the Europe and US
  - Start mid-2020 with data expected in Q2 2021
- Phase 2 clinical program suggests a meaningful increase in blood pressure may be achieved in early cardiogenic shock by istaroxime

Goal:

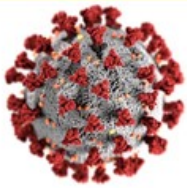
- Improve SBP with acceptable safety profile
  - Increased systolic and diastolic cardiac function without increasing heart rate, risk for arrythmias or myocardial oxygen demand
- Support a breakthrough therapy regulatory application

COVID-19
Lung Injury Treatment

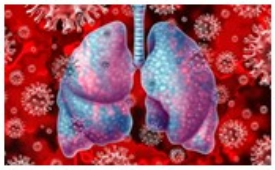
Synthetic KL4 Surfactant for the Treatment of Lung Injury in COVID-19 Patients



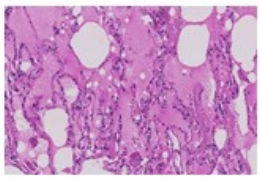
COVID-19 and ARDS Have A Significant Negative Impact On Surfactant Related Lung Function



Uses angiosten-converting enzyme 2 (ACE2) for entry into host cells



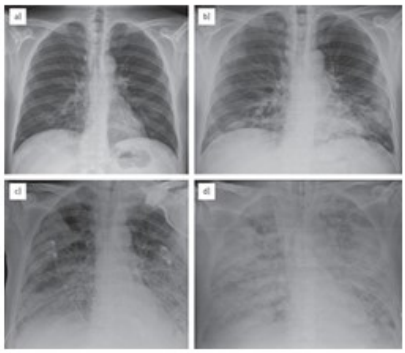
ACE2 is a surface molecule on alveolar Type 2 cells of lungs, the source of surfactant in the lung



Damaged Type 2 cells results in impaired surfactant production

Increased likelihood of mechanical ventilation

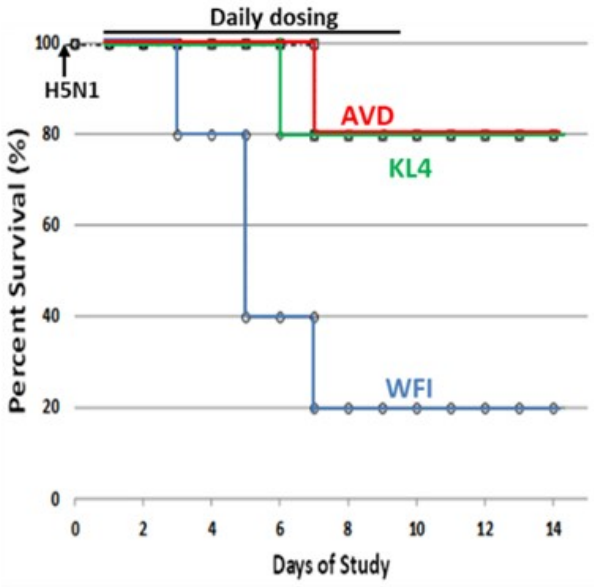
- COVID-19 infection can cause serious lung injury resulting in acute respiratory distress syndrome (ARDS) – a condition with high mortality and no approved drug therapies and where surfactant abnormalities are an important factor.
- Recent publications suggest that lung fibrosis and severe interstitial changes occur in COVID-19 patients who developed ARDS[1, 2, 3].
  - These changes resemble those seen in premature infants who are initially ventilated due to RDS and later develop bronchopulmonary dysplasia (BPD).
  - These observations support the rationale for use of exogenous surfactant in the treatment of ARDS caused by COVID-19.

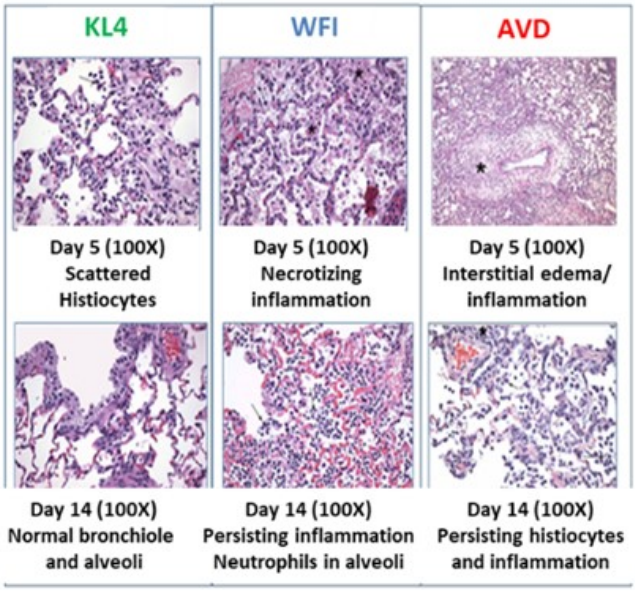


1) Bernheim, A., X. Mei, et al. (2020). "Chest CT Findings in Coronavirus Disease-19 (COVID-19): Relationship to Duration of Infection." Radiology: 200463.
2) Hosseiny, M., S. Kooraki, et al. (2020). "Radiology Perspective of Coronavirus Disease 2019 (COVID-19): Lessons From Severe Acute Respiratory Syndrome and Middle East Respiratory Syndrome." American Journal of Roentgenology: 1-5.
3) Song, F., N. Shi, et al. (0). "Emerging 2019 Novel Coronavirus (2019-nCoV) Pneumonia10.1148/radiol.2020200274." Radiology **0**(0): 200274

KL4 Surfactant Significantly Reduced Mortality in a Pre-Clinical H5N1 Study – *With and Without Anti-Viral Agent*

- Ferrets Infected with highly pathogenic avian (H5N1) influenza
- Results in significant viral and inflammation related lung damage that is substantially ameliorated by KL4 surfactant treatment





KL4 = aerosolize KL4 surfactant, WFI = aerosolized water (control), AVD = aerosolized KL4 surfactant + antiviral

Surfactant Administration In Severe COVID-19 Lung Injury May Have Potential to Provide Significant Benefits

- We believe our synthetic KL4 surfactant may have the potential to replace surfactant deficiency and resist the widespread surfactant destruction that can occur as a result of COVID-19
- Synthetic KL4 surfactant removes any immunological concerns and has manufacturing scalability versus animal-derived surfactants

Pre-clinical and clinical evidence shows surfactant replacement therapy has the potential to:

Improve

- Lung function
- Gas exchange and oxygenation
- Lung compliance

Decrease

- Inflammation in the lung
- Which may decrease lung damage, facilitate recovery and decrease mechanical ventilation

WINDTREE THERAPEUTICS

References in appendix

Phase 2 Clinical Proposal: Lucinactant (KL_4 Surfactant) For The Treatment of COVID-19

Initial phase 2 study will be to demonstrate changes in physiological parameters in COVID-19 associated lung injury and ARDS

- Up to 30 patients from 4-5 US sites (lead by institutions in Boston & Durham, NC)
- Dosing through the endotracheal tube, target 80 mg TPL/kg. Repeat dosing based on improvement in oxygenation
- Planned outcome measures (TBD):
  - Physiologic response: Oxygenation Index (OI)
  - Lung compliance on the ventilator
  - Clinical parameters (time on MV, days in ICU, mortality)

Expected recruitment in about one quarter of time (depending on COVID-19 rates)

- If study outcomes are favorable, initiate 2 expanded trials to assess:
  - Expanded study in ventilated patients to establish outcomes
  - Aerosolized delivery to avoid mechanical ventilation (similar to our respiratory distress syndrome studies)

Evidence of KL4 Surfactant Potential Utility in COVID-19 – *Demonstrated Utility Across Various Respiratory Distress*

Demonstrated Utility of KL4	
Extensive Studies in Acute Lung Conditions:	▪ 13 studies for intratracheal administration including RDS, BPD, acute hypoxemic respiratory failure and adults with ARDS ▪ 2,148 patients enrolled | 1,028 treated ▪ Aerosolized KL4 surfactant studied in 366 subjects enrolled, 223 subjects treated
SARS and Subsequent Support for Acute Lung Injury Studies	▪ CEO testified before congressional committee regarding KL4 for the treatment of SARS ▪ ~$10M of NIH support for clinical and non-clinical programs including lung protection studies involving viral infections with H1N1 and RDS
American Thoracic Society Presentation	▪ KL4 surfactant has to the potential to be employed to protect the lung and reduce mortality in patients exposed to highly pathogenic influenza as well as against pandemic strains

In May 2018 data from a preclinical animal model of a **highly pathogenic H5N1 viral** pneumonia was presented showing aerosolized KL4 surfactant reduced lung inflammation and improved overall survival

We have been evaluating the applicability of KL4 surfactant for respiratory distress as well influenza long before the COVID-19 pandemic

AEROSURF®

Synthetic KL4 Surfactant with Proprietary Aerosol Delivery System for the Treatment of RDS

Respiratory Distress Syndrome (RDS)
Current Treatment Pathways

- Premature infants experience respiratory distress syndrome ("RDS") due to lungs lacking endogenous surfactant. Surfactant helps keep lungs open between breaths and gas exchange
- Physicians have to choose between invasive surfactant delivery with known, significant complications or non-invasive nasal continuous positive airway pressure (nCPAP) alone (that often fails without surfactant)

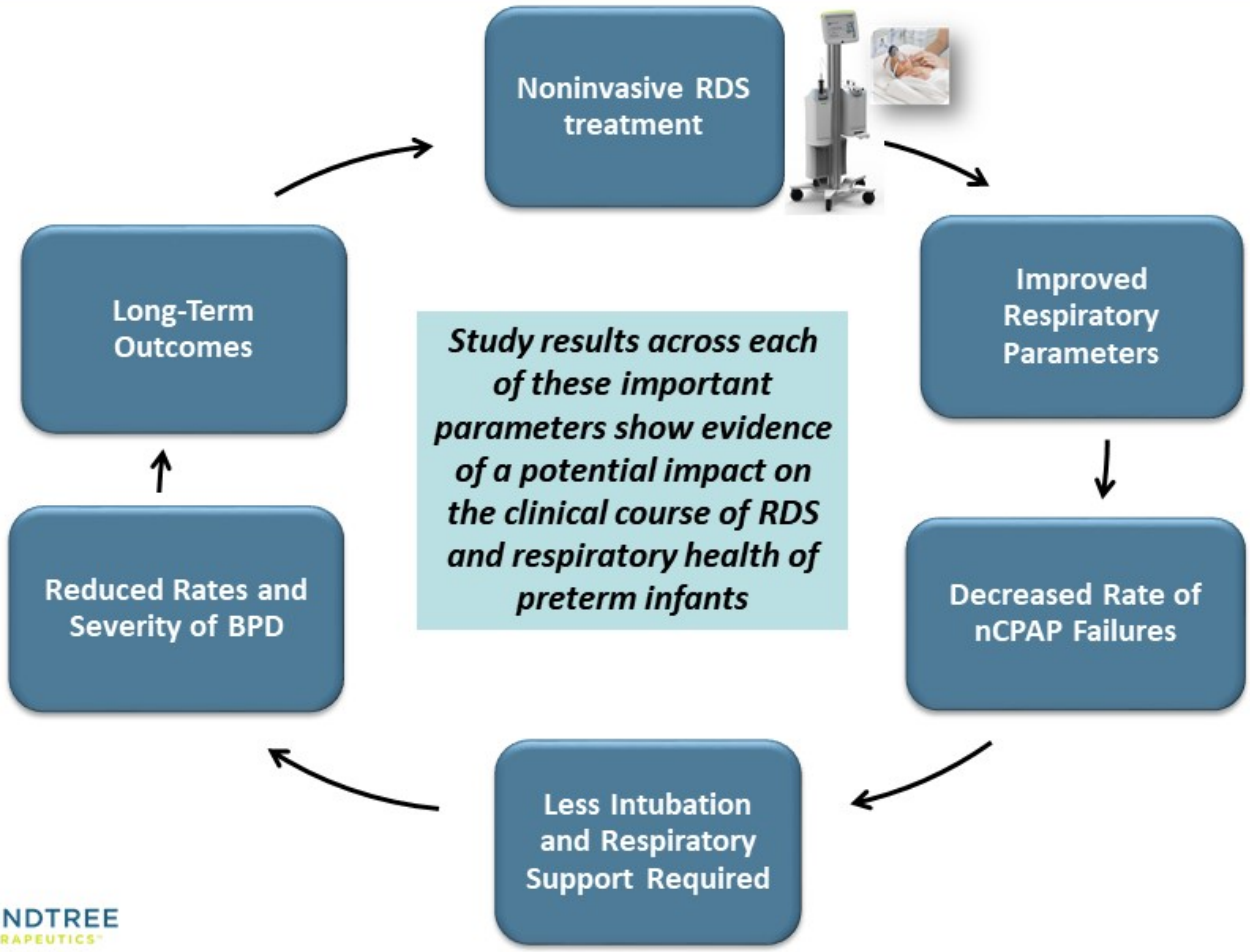
	AEROSURF	Current Treatment	
	Non-Invasive Synthetic Surfactant	**Invasive Surfactant (~40%)**	**nCPAP Only (~60%)**
Surfactant	▪ Proprietary Synthetic KL4 surfactant[1]: – Structurally similar to human lung surfactant – shown to improve lung function in premature infants	 ▪ Animal derived	 ▪ None
Method of Delivery	▪ Proprietary aerosol delivery system (ADS) with nCPAP	▪ Intubation usually in combination with mechanical ventilation	▪ nCPAP
The AEROSURF Difference	▪ **Timely surfactant therapy delivered non-invasively to avoid potential complications** ▪ **Improves respiratory parameters** ▪ **Potential for decreased nCPAP failures and decreased need for invasive intubation and decreased rates of bronchopulmonary dysplasia (BPD)**	▪ **Timely therapy, but…** ▪ **Exposure to known significant complications associated with invasive intubation**	▪ **Avoid exposure to significant complications** ▪ **Foregoing surfactant treatment results in notable nCPAP failure rate and intubations**

WINDTREE THERAPEUTICS

1. **Liquid KL4 surfactant for RDS approved by the FDA. Lyophilized KL4 currently being developed for AEROSURF**

AEROSURF® - Potential to Impact the Clinical Course of RDS

Building Evidence From Nearly 400 Patients Studied



WINDTREE THERAPEUTICS

AEROSURF® Program Evolution and Strategy

Mitigating Risks and Strengthening Our Approach

Program Evolution

- Completed Three Phase 2a and 2b Trials
- Efficacy in reducing nCPAP failure and the need for intubation
- Transitioned to the newly-developed ADS
- Safety profile supports employing a dosing regimen to deliver more aerosolized surfactant in a shorter time period

Program Strategy

- Execute a small (n=~80 - 90) Bridging Study to transition to EOP2 / Phase 3
- Demonstrate the new ADS works and supplement phase 2 data
- Optimize dosing with more drug and shorter repeat intervals
- Leverage China, the largest market for RDS and surfactants and use the partnership with Lee's to fund study in a non-dilutive manner

Summary

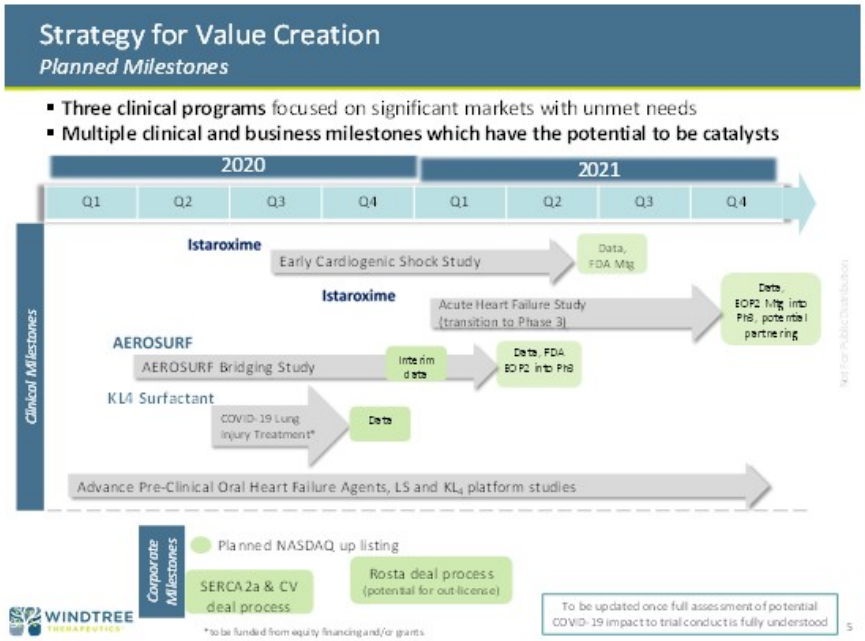
Financial Snapshot & Capitalization

- Cash & Equivalents: $22.6M (as of 12/31/19)
- Debt: $4.6M bank credit facility currently due in March 2022
  - Guaranteed by Lee's Pharmaceutical Holdings Ltd. (SEHK:950)

Securities	Common Equivalents
Common Stock	13,697,177
Options (WAEP $17.61)	1,772,277
RSUs	35,000
Warrants (WAEP $22.02)	4,741,487
Fully Diluted	20,245,941

Common Stock Ownership (12/31/19)	# of Shares	%
Lee's Pharmaceutical Holdings (SEHK:950)	4,816,866	35.2%
Panacea Venture	2,060,991	15.0%
Kleiner Perkins Caufield Byers	1,445,597	10.6%
BioEngine	1,183,917	8.6%
Buchang	1,103,753	8.1%
Tyrus Holdings	975,829	7.1%
VMS	551,876	4.0%
Other Shareholders	1,558,348	11.4%
Total	13,697,177	100.0%

Multiple Development and Business Activities Create a Robust Outlook of Potential Milestones



2020 Planned Events

- AEROSURF bridge study start
- Nasdaq Listing
- COVID-19 KL4 surfactant – IND as well as government engagement for possible funding
- COVID-19 KL4 surfactant study start and study results
- Istaroxime Cardiogenic Shock study start
- Heart Failure BD deliverables
- AHF study start up activities

WINDTREE THERAPEUTICS

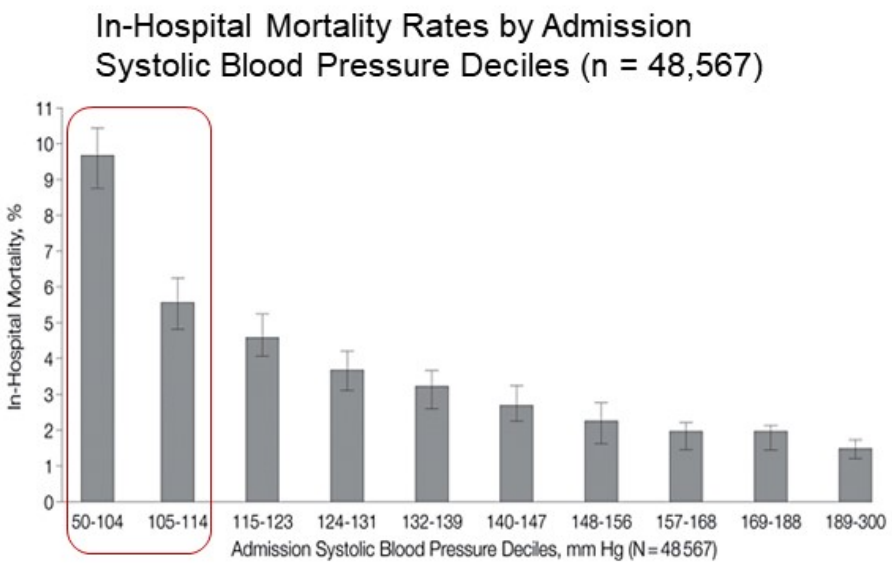
Windtree Therapeutics

"Striving to deliver Hope for a Lifetime!"

WINDTREE THERAPEUTICS

Appendix

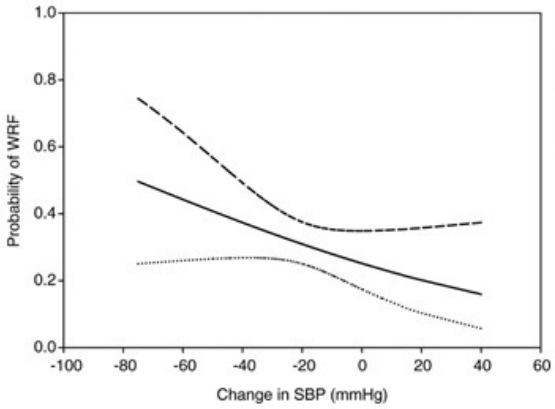
Cardiac Output, Blood Pressure and Renal Function are Critical Factors in Managing AHF Patients and Their Outcomes



European Journal of Heart Failure (2011) 13, 961–967
doi:10.1093/eurjhf/hfr060

Early drop in systolic blood pressure and worsening renal function in acute heart failure: renal results of Pre-RELAX-AHF

Adriaan A. Voors[1]*, Beth A. Davison[2], G. Michael Felker[3], Piotr Ponikowski[4], Elaine Unemori[5], Gadi Cotter[2], John R. Teerlink[6], Barry H. Greenberg[7], Gerasimos Filippatos[8], Sam L. Teichman[5], and Marco Metra[9] on behalf of the Pre-RELAX-AHF study group



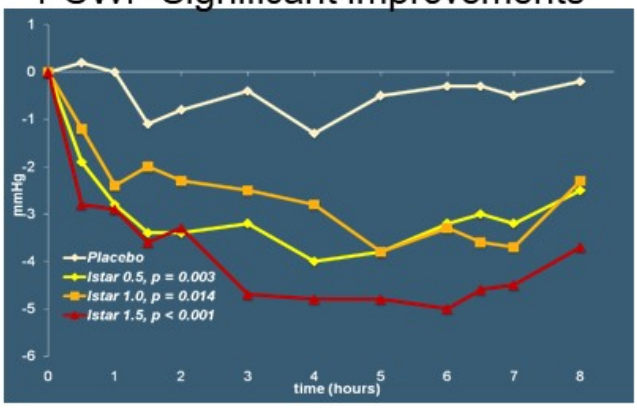
Gheorghiade, M. et al. JAMA 2006;296:2217-2226.

Istaroxime Phase 2a (HORIZON-HF) Study

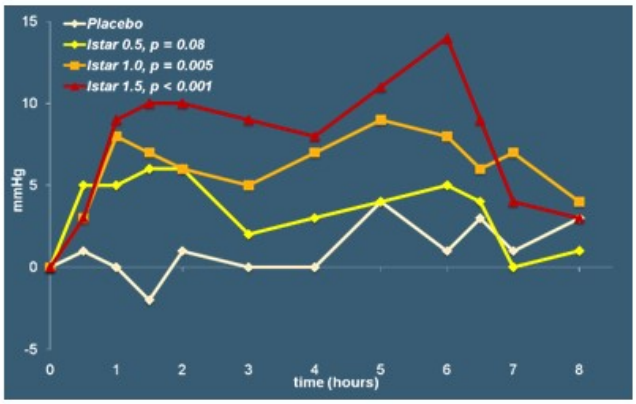
- Multicenter, double blind, placebo-controlled, doses 6-hour infusion of istaroxime 0.5, 1.0, 1.5 ug/kg/min, conducted in the EU
- Hospitalized with AHF, with criteria including:
  - LVEF ≤ 35%
  - SBP 90-150 mmHg
- N=120 (30/group)
- Significant improvement in PCWP, SBP, heart rate was lower. Istaroxime was generally well tolerated with no unexpected adverse events

Primary Endpoint:

PCWP Significant Improvements

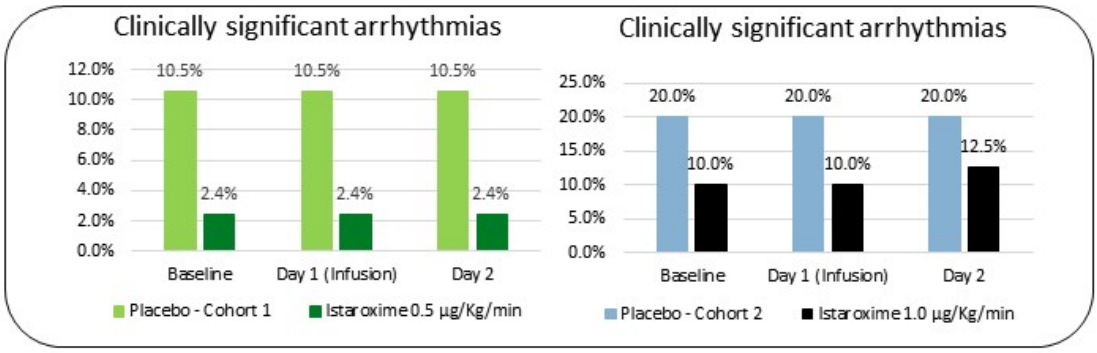


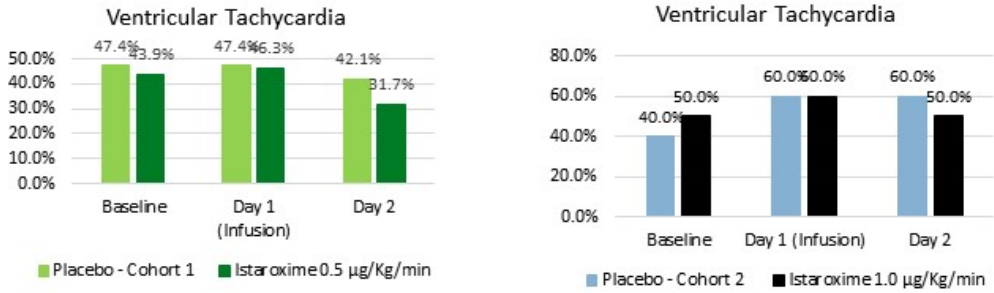
Dose-dependent Increase in SBP



WINDTREE THERAPEUTICS

Istaroxime Phase 2b Study
Favorable Profile Observed with 24-hour Holter Monitoring





PVCs (n°/24 hours) shown as median, ventricular tachycardia and clinically significant arrhythmias shown as percentage of patients

Istaroxime Phase 2b Adverse Events

Event	Pooled placebo (n=39)	istaroxime 0.5 mg/Kg/min (n=41)	istaroxime 1.0 mg/Kg/min (n=40)
All adverse events	23 (59.0%)	31 (75.6%)	33 (82.5%)
Adverse events leading to discontinuation	1 (2.6%)	-	4 (10.0%)
Serious adverse events	2 (5.1%)	2 (4.9%)	6 (15.0%)
Cardiac death	-	-	1 (2.5%)
Cardiogenic shock	-	-	1 (2.5%)*
Cardiac failure	1 (2.6%)	2 (4.9%)	3 (7.5%)
Renal embolism	-	-	1 (2.5%)
Transient ischemic attack	1 (2.6%)	-	-
Hyperventilation	1 (2.6%)	-	-
Hypotension	1 (2.6%)	-	-
Adverse Drug Reactions†	10 (25.6%)	23 (56.1%)	25 (62.5%)
Cardiovascular††	**9 (23.1%)**	**4 (9.8%)**	**7 (17.5%)**
Gastrointestinal‡	2 (5.1%)	4 (9.8%)	14 (35.0%)
Infusion site pain/inflammation	-	20 (48.8%)	13 (32.5%)

Note: data shown as n° patients (%) - patients can have more than one event during the 30-day follow up period
* Same patient who then died, and 1 additional death occurred at Day 31 (cardiac death) outside the 30 day window
† Adverse Drug Reactions are AEs related to study drug
††Most common - arrhythmia, atrial fibrillation, cardiac failure, ventricular tachycardia
‡ Most common - abdominal pain, nausea, vomiting, diarrhoea

Pre-Clinical Programs

Novel Oral SERCA2a Activators for HF + Acute Pulmonary Platform

The Company also has early exploratory research programs to identify potential product candidates including:

Cardiovascular

Selective SERCA2a Activators

- Oral & i.v. therapies for chronic heart failure (CHF) and AHF
- Attractive approach for heart failure with preserved ejection fraction (HFpEF)

Dual Mechanism Compounds for Heart Failure

- Oral & i.v. therapies for CHF, AHF

These next generation agents and platform are part of a complete chronic and acute portfolio for licensing / partnership and the market

Acute Pulmonary

KL4 Platform

for lung protection and drug delivery

Respiratory Distress Syndrome (RDS)
Current Treatment Pathways

Premature infants experience RDS due to underdeveloped lungs lacking endogenous surfactant. Surfactant helps keep lungs open between breaths and proper gas exchange

Initial treatment options include invasive and noninvasive methods:

Surfactant therapy + Invasive mechanical ventilation (IMV)	VS.	**nCPAP support until endogenous surfactant production**
• Animal-derived surfactant • Delivered via intubation, usually in combination with mechanical ventilation		• Noninvasive nasal delivery of continuous positive airway pressure (nCPAP) • Supports breathing

TRADE-OFFS

Timely therapy delivery vs. Exposure to known significant complications

Avoid exposure to significant complications vs. Foregoing surfactant treatment results in notable nCPAP failure rate

Ultimately, more than 50% of RDS infants are intubated and ventilated

WINDTREE THERAPEUTICS

Source: Windtree and third-party market research

Windtree Technology Platform - AEROSURF®

Proprietary Synthetic KL4 Surfactant

+

Proprietary Innovative Aerosol Delivery System (ADS)

Structurally similar to human lung surfactant

Liquid KL4 surfactant (intratracheal instillate) for RDS **approved by the FDA**

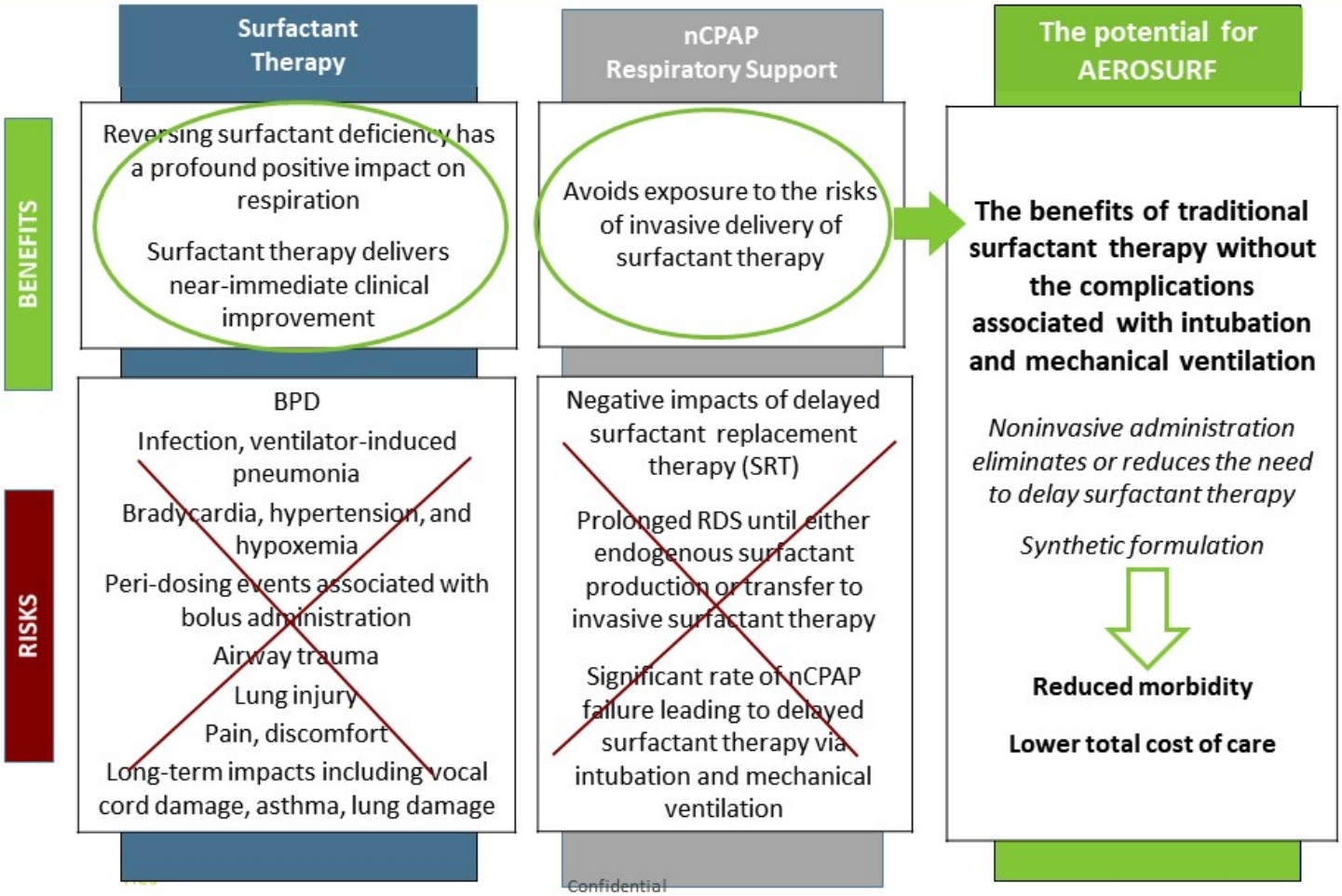
Lyophilized KL4 surfactant currently being developed for **AEROSURF**

Utilizing pressure and heated capillary has demonstrated ability to **aerosolize KL4 surfactant**

Controlled, effective and reproducible performance validated in studies

- KL4 surfactant has been shown to improve lung function in premature infants, resulting in decreased nCPAP failures and need for invasive intubation
- KL4 surfactant also has anti-inflammatory and other potentially positive attributes

Transformative Potential of AEROSURF®



References Supporting Utilization of KL_4 Surfactant for the Treatment of Lung Injury

1. Hoffmann, M., H. Kleine-Weber, et al. (2020). "The novel coronavirus 2019 (2019-nCoV) uses the SARS-coronavirus receptor ACE2 and the cellular protease TMPRSS2 for entry into target cells10.1101/2020.01.31.929042." bioRxiv: 2020.01.31.929042.
2. Bernheim, A., X. Mei, et al. (2020). "Chest CT Findings in Coronavirus Disease-19 (COVID-19): Relationship to Duration of Infection." Radiology: 200463.
3. Hosseiny, M., S. Kooraki, et al. (2020). "Radiology Perspective of Coronavirus Disease 2019 (COVID-19): Lessons From Severe Acute Respiratory Syndrome and Middle East Respiratory Syndrome." American Journal of Roentgenology: 1-5.
4. Song, F., N. Shi, et al. (0). "Emerging 2019 Novel Coronavirus (2019-nCoV) Pneumonia10.1148/radiol.2020200274." Radiology **0**(0): 200274
5. Gregory TJ, Steinberg KP, Spragg R, Gadek JE, Hyers TM, Longmore WJ, et al. Bovine surfactant therapy for patients with acute respiratory distress syndrome. Am J Respir Crit Care Med. 1997;155:1309-1315.
6. Bernard GR, Artigas A, Brigham KL, Carlet J, Falke K, Hudson L, et al. The American-European consensus conference on ARDS. Definitions, mechanisms, relevant outcomes, and clinical trial coordination. Am J Respir Crit Care Med. 1994;149:818-824.
7. Nicholas TE, Doyle IR, Bersten AD. Surfactant replacement therapy in ARDS. White knight or noise in the system? Thorax. 1997;52:195-197.
8. Brandstetter RD, Sharma KC, DellaBadia M, Cabreros LJ, Kabinoff GS. Adult respiratory distress syndrome: A disorder in need of improved outcome. Heart & Lung. 1997;26:3-14.
9. Wiedemann HP, Tai DY. Adult respiratory distress syndrome (ARDS): Current management, future directions. Cleve Clin J Med. 1997;64:365-372.
10. Fulkerson WJ, MacIntyre N, Stamler J, Crapo JD. Pathogenesis and treatment of the adult respiratory distress syndrome. Arch Intern Med. 1996;156:29-38.
11. Schuster DP, Kollef MH. Acute respiratory distress syndrome. Disease A Month. 1996;42:267-326.
12. Schuster DP, Kollef MH. The acute respiratory distress syndrome. New Engl J Med. 1995;332:27-37.
13. Sachdeva RC, Guntupalli KK. Acute respiratory distress syndrome. Crit Care Clin. 1997;13:503-521.
14. Ashbaugh DG, Bigelow DB, Petty TL, Levine BE. Acute respiratory distress in adults. Lancet. 1967;2:319-323.
15. Petty TL, Reiss OK, Paul GW, et al., Characteristics of pulmonary surfactant in adult respiratory distress syndrome associated with trauma and shock. Am Rev Respir Dis. 1977;115:531-536.
16. Petty TL, Silvers, Paul GW, Stanford RE. Abnormalities on lung properties and surfactant function in adult respiratory distress syndrome. Chest. 1979;75:571-574.
17. Hallman M, Spragg RG, Harrell JH, Moser KM, Gluck L. Evidence of lung surfactant abnormality in respiratory failure: Study of bronchoalveolar lavage phospholipids, surface activity, phospholipase activity, and plasma myoinositol. J Clin Invest. 1982;70:673-683.
18. Pison U, Seeger W, Buchhorn R, Joka T, Brand M, Obertacke U, et al. Surfactant abnormalities in patients with respiratory failure after multiple trauma. Am Rev Respir Dis. 1989;140:1033-1039.
19. Pison U, Overtacke U, Brand M, Seeger W, Joka T, Bruch J, et al. Altered pulmonary surfactant in uncomplicated and septicemia-complicated courses of acute respiratory failure. J Trauma. 1990;30:19-26.
20. Gregory TJ, Longmore WJ, Moxley MA, Whitsett JA, Reed CR, Fowler AI, et al. Surfactant chemical composition and biophysical activity in acute respiratory distress syndrome. J Clin Invest. 1991;88:1976-1981.
21. Greene KE, Wright JR, Steinburg KP, et al., Serial changes in surfactant-associated proteins in lung and serum before and after onset of ARDS. Am J Respir Crit Care Med. 1999;160:1843-1850

Surfactant in ARDS References

1. Gregory TJ, Steinberg KP, Spragg R, Gadek JE, Hyers TM, Longmore WJ, et al. Bovine surfactant therapy for patients with acute respiratory distress syndrome. Am J Respir Crit Care Med. 1997;155:1309-1315.
2. Wiedemann H, Baughman R, de Boisblanc E, et al., A multi centered trail in human sepsis-induced ARDS of aerosolized synthetic surfactant (Exosurf). Am J Respir Crit Care Med. 1992; 145:A184.
3. Weg JG, Balk RA, Tharratt RS, et al., Safety and potential efficacy of an aerosolized surfactant in human sepsis-induced adult respiratory distress syndrone. JAMA 1994;272:1433-1438.
4. Anzueto A, Baughman RP, Guntapalli KK, et al., Aerosolized surfactant in adults with sepsis-induced acute respiratory distress syndrome. New Engl J Med. 1996;334:1417-1421.
5. Spragg RG, Gilliard N, Richman P, et al., Acute effects of a single dose of porcine surfactant on patients with the acute respiratory distress syndrome. Chest 1994;105:195-202.
6. Walmrath D, Gunther A, Ardeschir H, et al., Bronchoscopic surfactant administration in patients with severe adult respiratory distress syndrome and sepsis. Am J Respir Crit Care Med 1996;154:57-62.
7. Walmrath D, Grimminger F, Papert D, et al., Bronchoscopic administration of bovine natural surfactant in ARDS and septic shock: impact on gas exchange and haemodynamics. Eur Respir J. 2002;19:805-810.
8. Wilson DF, Zaritsky A, Bauman LA, et al., Instillation of calf lung surfactant extract (calfactant) is beneficial in pediatric acute hypoxemic respiratory failure. Crit Care Med 1999;27:188-195.
9. Willson DF, Zaritsky A, Bauman LA, Dockery K, James RL, Conrad D, Craft H, Novotny WE, Egan EA, Dalton H. Instillation of calf lung surfactant extract (calfactant) is beneficial in pediatric acute hypoxemic respiratory failure. Members of the Mid-Atlantic Pediatric Critical Care Network. Crit Care Med. 1999;27(1):188-95.
10. Willson DF, Thomas NJ, Markovitz BP, Bauman LA, DiCarlo JV, Pon S, Jacobs BR, Jefferson LS, Conaway MR, Egan EA; Pediatric Acute Lung Injury and Sepsis Investigators. Effect of exogenous surfactant (calfactant) in pediatric acute lung injury: a randomized controlled trial. JAMA. 2005;293(4):470-6.
11. Willson DF, Thomas NJ, Tamburro R, Truemper E, Truwit J, Conaway M, Traul C, Egan EE; Pediatric Acute Lung and Sepsis Investigators Network. Pediatric calfactant in acute respiratory distress syndrome trial. Pediatr Crit Care Med. 2013;14(7):657-65.
12. Willson DF, Truwit JD, Conaway MR, Traul CS, Egan EE. The Adult Calfactant in Acute Respiratory Distress Syndrome Trial. Chest. 2015;148(2):356-364.
13. Walmrath D, De Vaal JB, Bruining HA, et al. Treatment of ARDS with a recombinant SP-C (rSP-C) based synthetic surfactant. Am J Respir Crit Care Med 2000;161:A379.
14. Spragg RG, Lewis JF, Wurst W, Häfner D, Baughman RP, Wewers MD, Marsh JJ. Treatment of acute respiratory distress syndrome with recombinant surfactant protein C surfactant. Am J Respir Crit Care Med. 2003;167(11):1562-6.
15. Spragg RG, Lewis JF, Walmrath HD, Johannigman J, Bellingan G, Laterre PF, Witte MC, Richards GA, Rippin G, Rathgeb F, Häfner D, Taut FJ, Seeger W. Effect of recombinant surfactant protein C-based surfactant on the acute respiratory distress syndrome. N Engl J Med. 2004;351(9):884-92.
16. Taut FJ, Rippin G, Schenk P, Findlay G, Wurst W, Häfner D, Lewis JF, Seeger W, Günther A, Spragg RG. A Search for subgroups of patients with ARDS who may benefit from surfactant replacement therapy: a pooled analysis of five studies with recombinant surfactant protein-C surfactant (Venticute). Chest. 2008;134(4):724-32.
17. Spragg RG, Taut FJ, Lewis JF, Schenk P, Ruppert C, Dean N, Krell K, Karabinis A, Günther A. Recombinant surfactant protein C-based surfactant for patients with severe direct lung injury. Am J Respir Crit Care Med. 2011;183(8):1055-61.
18. Wiswell TE, Smith RM, Katz LB, et al., Bronchopulmonary segmental lavage with Surfaxin (KL_4-surfactant) for acute respiratory distress syndrome. Am J Respir Crit Care Med 1999;160:1188-1195.