# 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): December 8, 2020**

# Larimar Therapeutics, Inc.
**(Exact name of registrant as specified in its charter)**

| **Delaware** | **001-36510** | **20-3857670** |
|---|---|---|
| **(State or other jurisdiction of incorporation or organization)** | **(Commission File Number)** | **(I.R.S. Employer Identification No.)** |

| | |
|---|---|
| **Three Bala Plaza East. Suite 506**<br>**Bala Cynwyd, Pennsylvania**<br>**(Address of principal executive offices)** | **19004**<br>**(Zip Code)** |

**Registrant's telephone number, including area code: (844) 511-9056**

**(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 |
|---|---|---|
| **Common Stock, par value $0.001 per share** | **LRMR** | **Nasdaq Global Market** |

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 7.01 Regulation FD Disclosure.**

Attached as Exhibit 99.1, and furnished for the purposes of Regulation FD, is a presentation that Larimar Therapeutics, Inc. (the "Company") will post on its website on December 8, 2020. Representatives of the Company will use the presentation in various meetings with investors, analysts and other parties from time to time.

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 be deemed to be incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act.

**Item 8.01 Other Events.**

On December 8, 2020, the Company issued a press release announcing the completion of dosing of the Company's Phase 1 single ascending dose (SAD) study evaluating CTI-1601 as a treatment for Friedreich's Ataxia (FA) and provided additional updates regarding the status of a multiple ascending dose (MAD) FA study, the timing of Phase 1 topline results, and future activities planned for 2021. A copy of this press release is filed as Exhibit 99.2 hereto and incorporated herein by reference.

**Item 9.01 Financial Statements and Exhibits.**

(d) Exhibits

Below is a list of exhibits included with this Current Report on Form 8-K.

| Exhibit No. | Document |
|---|---|
| 99.1 | Larimar Therapeutics, Inc. Corporate Presentation, dated December 8, 2020** |
| 99.2 | Press Release of Larimar Therapeutics, Inc., dated December 8, 2020* |

* Filed herewith.
** Furnished herewith.

**SIGNATURES**

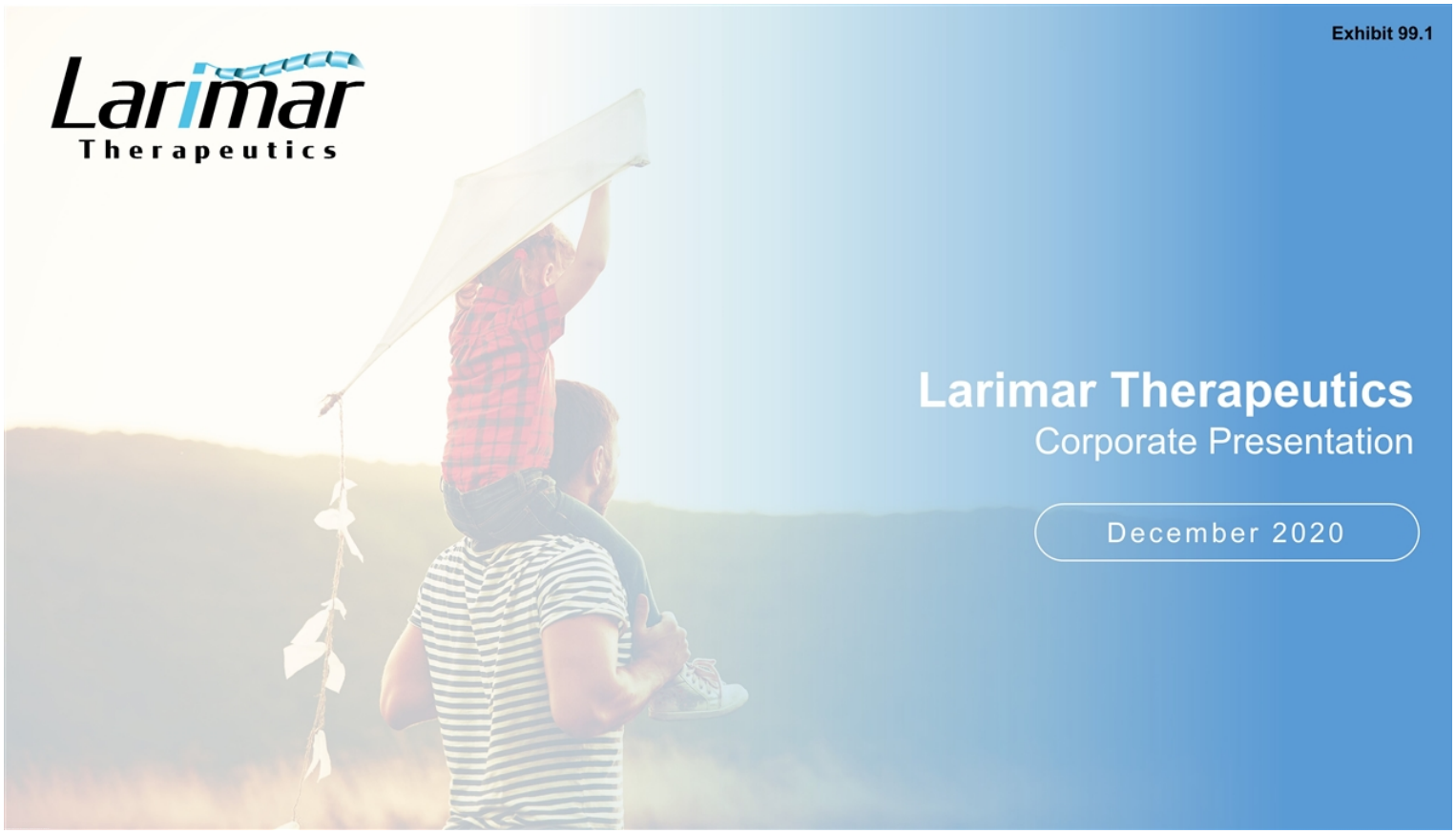
Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Larimar Therapeutics, Inc.

By: /s/ Carole S. Ben-Maimon, M.D.
*Name: Carole S. Ben-Maimon, M.D.*
*Title: President and Chief Executive Officer*

Date: December 8, 2020

Exhibit 99.1



# Larimar Therapeutics

## Corporate Presentation

December 2020

# Forward Looking Statements

This presentation contains forward-looking statements that are based on the Company's beliefs and assumptions and on information currently available to management. All statements contained in this presentation other than statements of historical fact are forward-looking statements, including but not limited to statements regarding the expectations and assumptions regarding the future of our business, Company's ability to develop and commercialize CTI-1601 and other planned product candidates, Company's planned research and development efforts, and other matters regarding Company's business strategies, use of capital, results of operations and financial position, and plans and objectives for future operations.

In some cases, you can identify forward-looking statements by the words "may," "will," "could," "would," "should," "expect," "intend," "plan," "anticipate," "believe," "estimate," "predict," "project," "potential," "continue," "ongoing" or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. These statements involve risks, uncertainties and other factors that may cause actual results, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. These risks, uncertainties and other factors include, among others, the success, cost and timing of the Company's product development activities, studies and clinical trials, including CTI-1601 clinical milestones and risk that preliminary clinical data may not be indicative of final results or predict the results of later nonclinical or clinical studies; the ongoing impact of the COVID-19 pandemic on the Company's clinical trial timelines, ability to raise additional capital and general economic conditions; the Company's ability to optimize and scale CTI-1601's manufacturing process; the Company's ability to obtain regulatory approval for CTI-1601 and future product candidates; the Company's ability to develop sales and marketing capabilities, whether alone or with potential future collaborators, and successfully commercialize any approved product candidates; the Company's ability to raise the necessary capital to conduct its product development activities; and other risks described in the filings made by the Company with the Securities and Exchange Commission (SEC), including but not limited to the Form 8-K/A filed on June 26, 2020, and the Company's subsequent periodic reports, including the annual report on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K, filed with or furnished to the Securities and Exchange Commission and available at www.sec.gov. These forward-looking statements are based on a combination of facts and factors currently known by the Company and its projections of the future, about which it cannot be certain. As a result, the forward-looking statements may not prove to be accurate. These forward-looking statements are based on information currently available to us, and we assume no obligation to update any forward-looking statements, except as required by law.

# Investment Highlights

## Novel Protein Replacement Therapy Platform Designed to Address Complex Rare Diseases

| | |
|---|---|
| **CTI-1601** | Lead candidate CTI-1601 is a recombinant fusion protein being developed to deliver human frataxin to the mitochondria for the treatment of Friedreich's ataxia (FA) |
| **Phase 1 clinical development** | Placebo-controlled Phase 1 clinical trials in Friedreich's ataxia patients ongoing with topline data expected in Q2 2021 |
| **Regulatory benefits** | Orphan Drug (US & EU), Rare Pediatric Disease (US), and Fast Track (US) designations; May be eligible for priority review voucher and 12 years of market exclusivity upon approval, if received |
| **Strong balance sheet** | ~$102M in cash as of 9/30/20 with projected runway into first half of 2022 |
| **High-quality shareholder base** | Includes investors such as Deerfield, Cowen, RA Capital, OrbiMed, Acuta, Vivo, Logos, Janus and Atlas |

Larimar Therapeutics

# Scientific Advisory Board

**Russell Clayton, DO (Chairman)**

Former Chief Medical Officer at Alcresta Therapeutics, a medical device company

Former Senior Vice President of Research and Development at Discovery Labs, a pharmaceutical and medical device company

**Giovanni Manfredi, MD, PhD**

Finbar and Marianne Kenny Professor in Clinical and Research Neurology at Weill Cornell Medicine.

Professor of Neuroscience at Weill Cornell Medicine.

**Mark Payne, MD**

Co-founder of Chondrial Therapeutics, which became Larimar Therapeutics, Inc.

Professor of Pediatrics at Indiana University School of Medicine

**Marshall Summar, MD**

Chief of the Division of Genetics and Metabolism, Director of the Rare Disease Institute, and Margaret O'Malley Chair of Genetic Medicine at Children's National Hospital

**Marni J. Falk, MD**

Executive Director of the Mitochondrial Medicine Frontier Program at The Children's Hospital of Philadelphia (CHOP)

Professor in the Division of Human Genetics, Department of Pediatrics at University of Pennsylvania Perelman School of Medicine

# Friedreich's Ataxia (FA)

## Rare and Progressive Disease

### Caused by genetic defect resulting in low levels of frataxin

- Patients with FA only produce ~20-40% of normal frataxin levels depending on the tissue considered[1]

### >70% of patients present before age 14

- Initial symptoms may include unsteady posture, frequent falling and progressive difficulty in walking
- By the time symptoms occur, heart damage has already occurred
- Progressive disease: Symptoms worsen and patients are eventually confined to a wheelchair with speech becoming hesitant and jerky (often referred to as "scanning of speech")

### Life expectancy of 30-50 years

- Early death usually caused by heart disease

### No approved therapies available

- Current treatment options are limited to symptom management

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1. E.C. Deutsch et al. Molecular Genetics and Metabolism 101 (2010) 238–245

# Market Opportunity

## Prevalence

5,000 patients in US and 20,000 patients in EU

Additional affected populations in Australia and Brazil

Highly sophisticated and active advocacy group (FARA) driving quest for treatments

## Dosing

Replacement therapy may be needed throughout life to maintain frataxin (FXN) levels

Disease is progressive and irreversible; initiating therapy early and continuing replacement therapy throughout life may be a necessity

## Regulatory Benefits

Well known by FDA; "Voice of the Patient" report for FA was released in 2017

Upon Biologics License Application (BLA) approval, CTI-1601, if approved, may be eligible for:

- 12 years market exclusivity
- Rare pediatric disease priority review voucher

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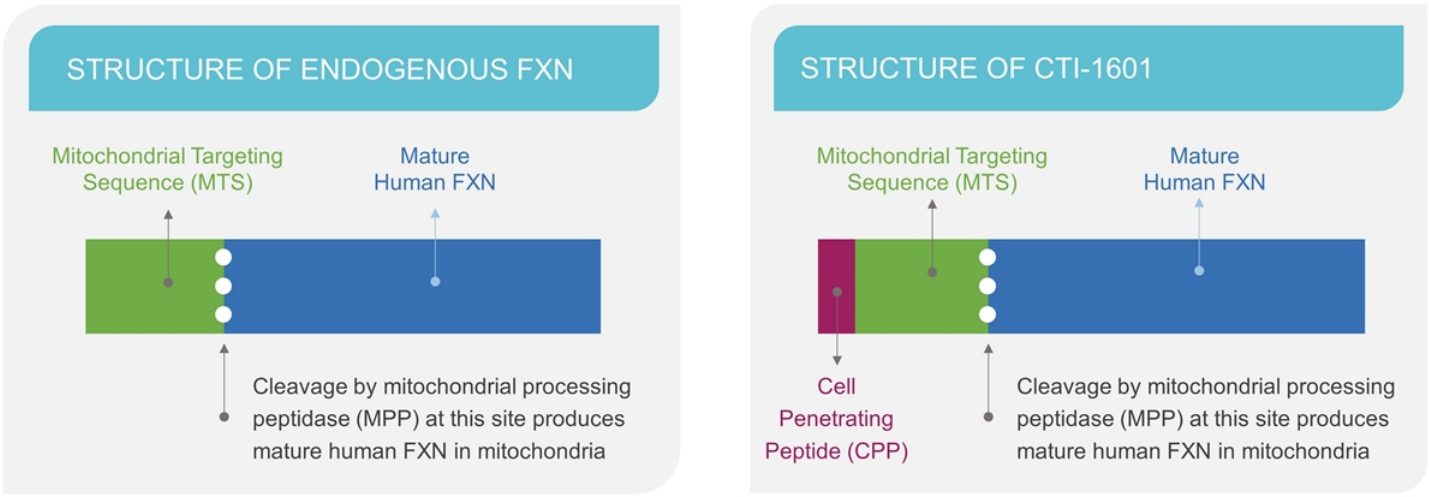
# CTI-1601 is Being Developed to Deliver Frataxin (FXN)

**CTI-1601 Maintains the Cleavage Site Between the MTS and Mature Human FXN**




**The CPP allows CTI-1601 to traverse the cell and mitochondrial membranes where the CPP and MTS are removed by mitochondrial processing peptidase to produce mature human FXN**

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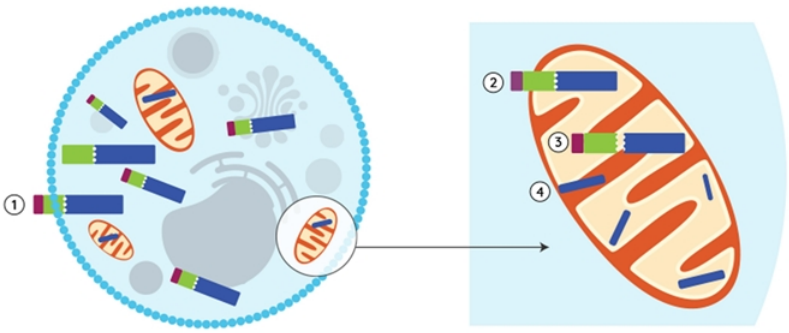
# CTI-1601 – Delivering Frataxin to the Mitochondria




01 CPP allows CTI-1601 to traverse the cell membrane into the cytoplasm

02 CPP allows CTI-1601 to traverse the mitochondrial membrane

03 MPP cleaves CTI-1601. MTS and CPP leave cell mitochondria

04 Mature human frataxin remains within the mitochondria to function

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# Strong Relationship with FARA

**Company has strong relationship with Friedreich's Ataxia Research Alliance (FARA)**

- National, non-profit organization dedicated to the pursuit of scientific research leading to treatments and a cure for FA

**FARA provides industry with several key items**

- Assistance with patient recruitment and education
- Access to Global Patient Registry with demographic and clinical information on more than 1,000 FA patients
- Sponsored a Patient-Focused Drug Development Meeting in 2017 resulting in a publication titled "The Voice of the Patient"

FARA Friedreich's Ataxia Research Alliance

# Summary of Clinical Friedreich's Ataxia Program

## SAD and MAD Topline Data Remains on Track for Announcement in Q2 2021

| | |
|---|---|
| **Single Ascending Dose Trial** | Double-blind, placebo-controlled, single ascending dose (SAD) trial completed follow-up in Q4 2020. Based on preliminary blinded data, single subcutaneous injections of CTI-1601 of up to 100 mg were thought to be well tolerated. |
| **Multiple Ascending Dose Trial** | Dosing of first two cohorts of double-blind, placebo-controlled, multiple ascending dose (MAD) trial complete. Initiation of third cohort expected in Q1 2021. |
| **Open Label Extension Trial** | Enrolls eligible participants from SAD and MAD trials. Initiation expected in 2H 2021. |
| **Pediatric Trials** | Initiation of MAD trial in patients under 18 years of age expected in 2H 2021 to be followed by open label extension. |
| **Global Registration Trial** | Preparations to begin in 2021 for Phase 2/3 double-blind placebo-controlled trial. Initiation expected in 2H 2022. |

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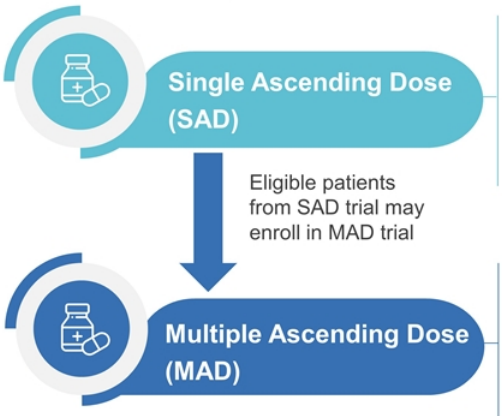
# CTI-1601: Ongoing Phase 1 Clinical Program in FA

**Phase 1 Development Plan**

- Two Double-blind, Placebo Controlled Dosing Trials
- Patient dosing began December 2019
- Safety Review Committee assesses all blinded data between each cohort to ensure patient safety
- **Topline results expected in Q2 2021**




**Number of subjects:** 28
**Dose levels:** 25 mg, 50 mg, 75 mg and 100 mg (subcutaneous administration)
**Treatment Duration:** 1 day
**1º Endpoint:** Safety and tolerability
**2º Endpoints:** PK; PD; hFXN levels; multiple exploratory
**Status:** Complete with analysis ongoing

**Number of Subjects:** Currently planning for 3 cohorts, 24-30 subjects
**Dose Range:** To be determined based on SAD data and adjusted continuously based on PK/PD data
**Treatment Regimen:** Multiple increasing doses administered subcutaneously over 14 days
**1º Endpoint:** Safety and tolerability
**2º Endpoints:** PK; PD; hFXN levels (buccal swab and optional skin biopsies); multiple exploratory
**Status:** Dosing of 1st two cohorts complete; Initiation of 3rd cohort expected in Q1 2021

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# Preliminary SAD Data Suggest CTI-1601's Favorable Safety and Tolerability Profile

## Preliminary summary of blinded data:

Single dose (25 mg, 50 mg, 75 mg and 100 mg) of CTI-1601 or placebo given subcutaneously. 28 patients were dosed in the trial.

- Injection site adverse events were mild and transient
- No serious adverse events

# Upcoming Clinical Milestones

## Topline Phase 1 Data from SAD and MAD Trials Expected in Q2 2021

Future Planned Trials Include:

Open label extension (OLE) trial for eligible patients who participated in SAD or MAD trials (expected initiation 2H 2021)

MAD trial in patients under 18 years of age, followed by OLE (expected initiation 2H 2021)

Global Phase 2/3 Double-Blind Placebo-Controlled Trial

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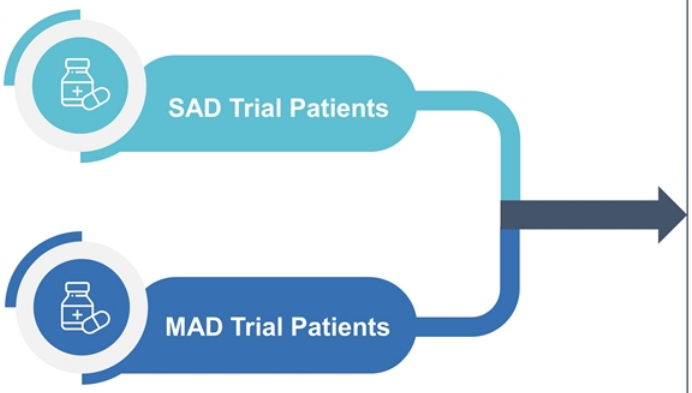
# CTI-1601 Open Label Extension Trial

**Patients from SAD and MAD trials are eligible to enter an open label extension trial**




## Multicenter Open Label Extension Trial

**Dose Level:** To be determined based on PK/PD from SAD and MAD trials

**Treatment Duration:** Planned for 24 months with any necessary extensions

**Number of Subjects:** Up to 50

**Dose Regimen:** To be determined based on PK/PD from SAD and MAD trials

**External Control Arm:** Derived from Critical Path Institute Data (includes FACOMS and placebo arms from other FA trials)

**1º Endpoint:** Safety and tolerability

**Key 2º Endpoints:** Long-term PD; efficacy assessments

**Expected Initiation:** 2H 2021

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# CTI-1601: Positive Non-Clinical Data Support Development

## Proof-of-Concept Achieved Through Multiple Non-Clinical Studies:

- CTI-1601 extended survival in a well-characterized non-clinical mouse model of FA
- CTI-1601 prevented ataxic gait in another non-clinical mouse model of FA
- Studies demonstrate the ability of CTI-1601 to deliver sufficient amounts of FXN to mitochondria in rodent and non-human primate non-clinical models
- CTI-1601 prevented left ventricle dilation and maintained function in non-clinical mouse models
- CTI-1601 is safe and well tolerated in rats and non-human primates

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# Human Frataxin Distributed Into All Tissues Tested

| Tissues Examined | |
|---|---|
| **Study Vehicle** | **Human Frataxin Distribution** |
| Rats | Brain, Heart, Liver |
| Neuro KO Mice | Brain, Dorsal Root Ganglia, Spinal Cord |
| Cardiac KO Mice | Mitochondria of Skeletal Muscle and Cardiomyocytes |
| Cynomolgus Monkey | Cerebrospinal fluid, Skin, Buccal Cells, Platelets |

# CTI-1601 Extends Survival in FXN-deficient KO Mice

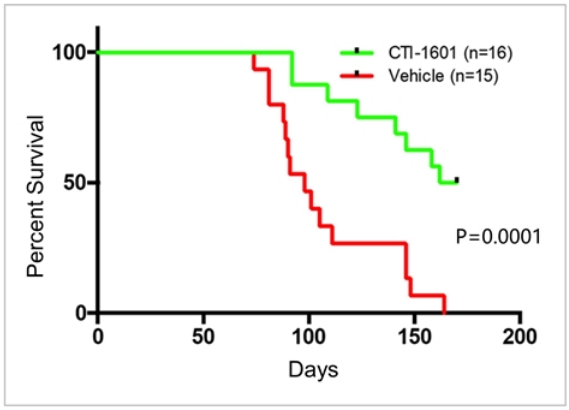
**Initial Proof of Concept for FXN Replacement Therapy in Cardiac Mouse Model of FA**

### Median Survival of MCK-Cre FXN-KO Mice

- 166 days (CTI-1601) vs. 98 days (Vehicle)
- CTI-1601 was administered 10 mg/kg SC every other day

### Survival beyond vehicle mean (107.5 days)

- 87.5% (CTI-1601) vs. 33% (Vehicle)
- Demonstrates that CTI-1601 is capable of delivering sufficient amounts of FXN to mitochondria




**CTI-1601 rescues a severe disease phenotype in a well-characterized cardiac mouse model of FA**

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# CTI-1601 Prevents The Development of Ataxic Gait in KO mice

**In-Vivo Efficacy Data in Neurologic KO Mouse Model**

## Pvalb-Cre FXN-KO mouse

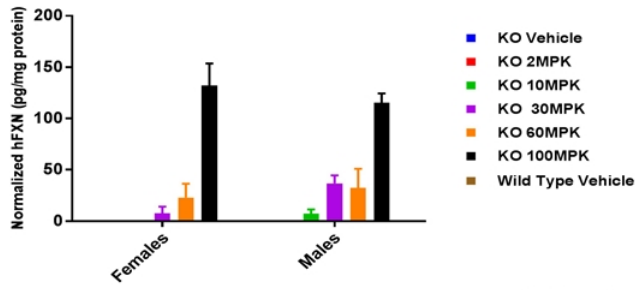
Single dose level: 10 mg/kg CTI-1601 or vehicle given intraperitoneally three times per week

- hFXN replacement with CTI-1601 **prevents the development of ataxic gait**
- CTI-1601-treated mice **survive longer** than untreated mice
- Human frataxin **present in brain, dorsal root ganglia and spinal cord** demonstrating central nervous system penetration

# CTI-1601 Delivers hFXN to Mitochondria in KO Mice

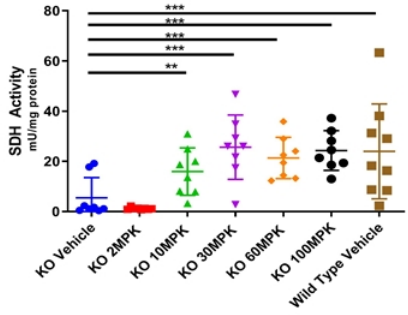
- hFXN concentration within mitochondria increases in a dose-dependent manner
- Given subcutaneously, CTI-1601 functionally replaces hFXN in mitochondria of KO mice
- *Succinate dehydrogenase (SDH) activity, which is indicative of mitochondrial function, increases in a dose-dependent manner after administration of CTI-1601; activity plateaus at 30 mg/kg and is equivalent to activity in wild type animals
- Demonstrated normalization of gene expression in cardiac tissue

## Normalized Mitochondrial FXN (Heart)




MPK = mg/kg

## Normalized SDH Activity (Muscle)




MPK = mg/kg

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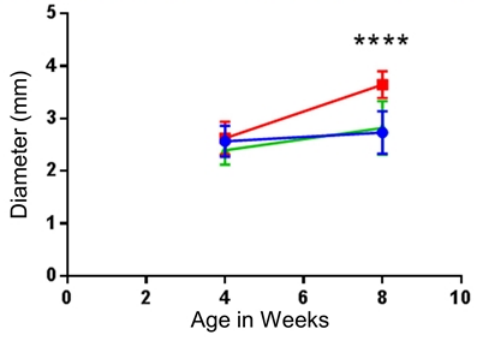
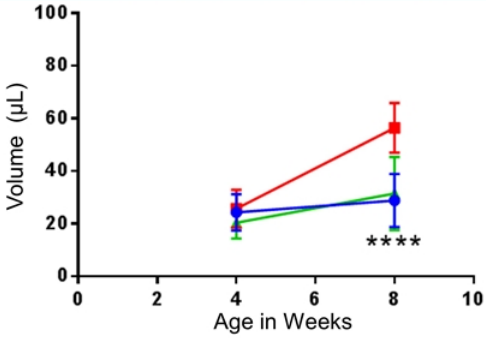
# CTI-1601 Prevents Left Ventricle Dilation in KO Mice

- Left ventricular (LV) volume increases in systole in untreated mice by 8 weeks (after 4 weeks of dosing with vehicle), but remains similar to wildtype when treated with CTI-1601 (10 mg/kg every other day)
- CTI-1601-treated mice have similar LV volume as healthy controls; echocardiogram shows significant differences between vehicle and CTI-1601 treated (10 mg/kg every other day) KO mice

**Left Ventricle Internal Diameter (Systole)**




**Left Ventricle Volume (Systole)**




KO: CTI-1601 KO: Vehicle Wild-type: Vehicle

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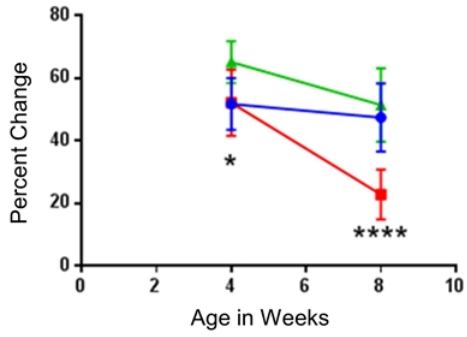
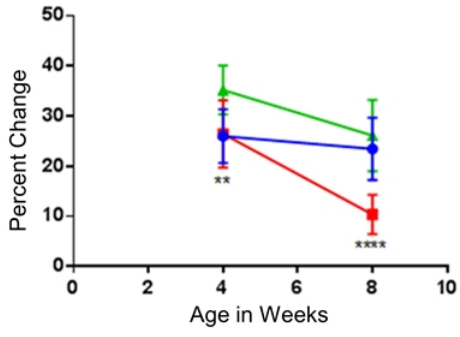
# CTI-1601 Preserves Left Ventricle Function in KO Mice

- Left ventricular (LV) function drops significantly in vehicle treated mice by week 8
- CTI-1601-treated (10 mg/kg every other day) mice have similar LV as healthy controls; echocardiogram shows significant differences between vehicle and CTI-1601 treated KO mice

**Left Ventricle Ejection Function**




**Left Ventricle Fractional Shortening**




KO: CTI-1601 KO: Vehicle Wild-type: Vehicle

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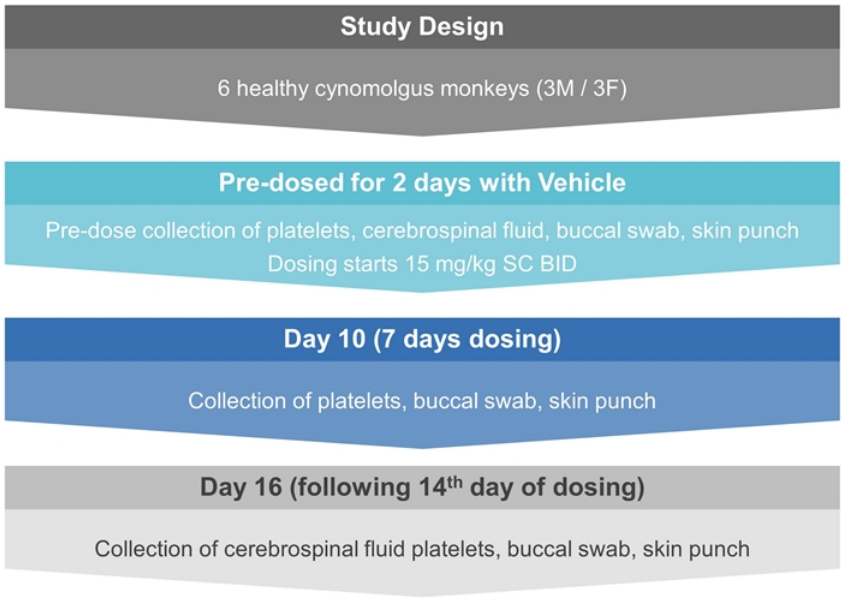
# Favorable PK/PD Profile in Healthy Cynomolgus Monkeys




- CTI-1601 is bioavailable when given subcutaneously
- Sustained levels of hFXN are found in blood cells (platelets) and peripheral tissues (buccal cells, skin) as early as the 7th day and still present after 14 days
- Sustained levels of hFXN are found after 14 days in the cerebrospinal fluid of monkeys, suggesting CNS penetration
- Results from 90 Day GLP toxicology study support these findings

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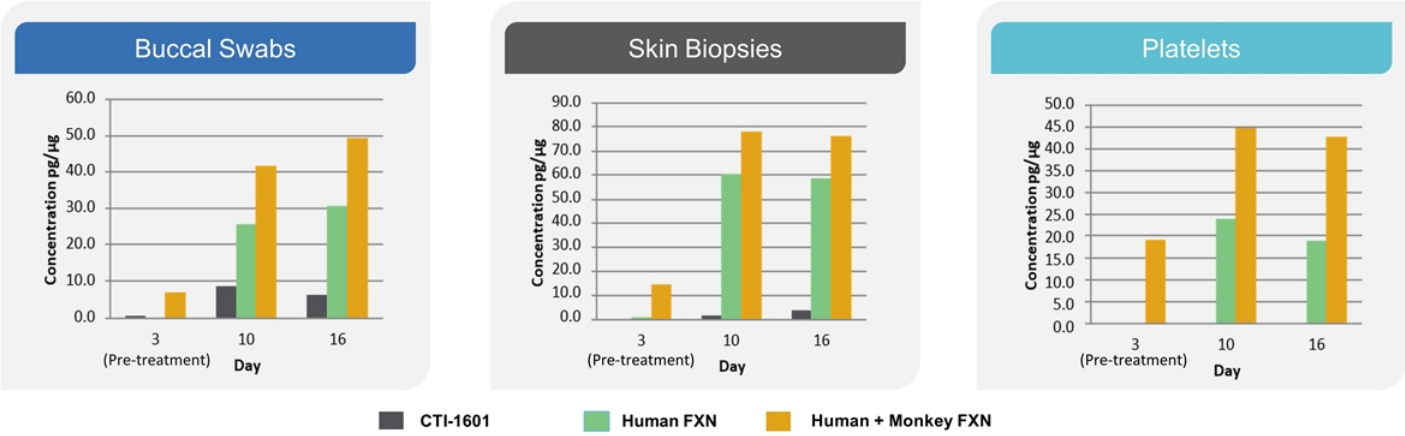
# Biodistribution in Healthy Cynomolgus Monkey




- Treatment of monkeys with CTI-1601 results in sustained levels of hFXN in peripheral tissues that are accessible in the clinic
- FXN levels increase ~4X or more following CTI-1601 administration
  - For comparison, FA patients show FXN levels that range from ~20-40% of normal FXN levels depending on the tissue considered[1]
    - Heterozygous carriers show no phenotype and display levels of FXN representing ~2-3X higher than most FA patients[1]

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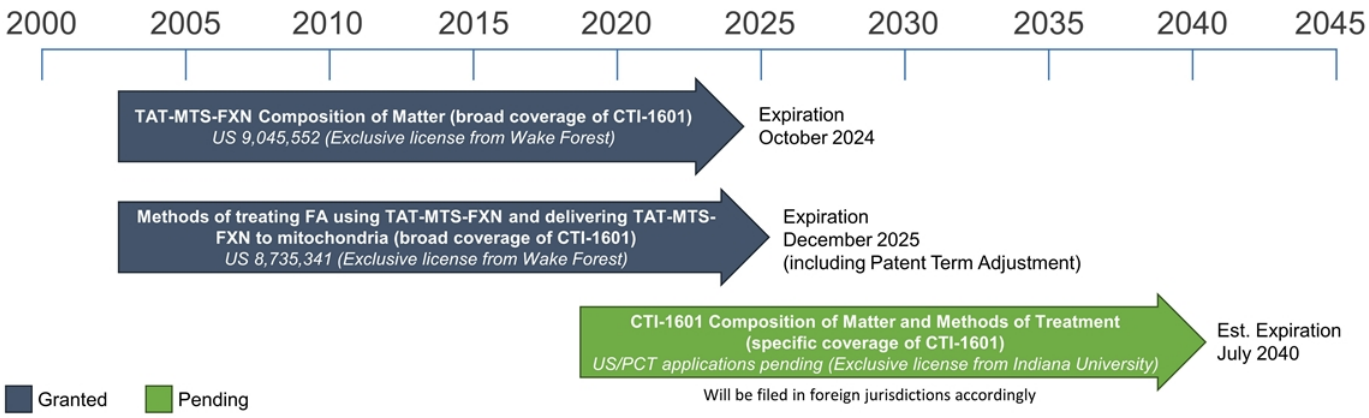
1. E.C. Deutsch et al. Molecular Genetics and Metabolism 101 (2010) 238–245

# CTI-1601 is Protected by a Strong IP Portfolio

**Pending CTI-1601 patent application extends into 2040**




## Additional intellectual property (IP) protection

- Additional pending applications cover key biomarkers, analytical tools, quantification methods and platform technology
- CTI-1601 is eligible for **12 years of market exclusivity** upon approval in the US (independent of patents)
- CTI-1601 is eligible for at least **10 years of market exclusivity** upon approval in Europe (independent of patents)

Larimar Therapeutics

# Investment Highlights

## Novel Protein Replacement Therapy Platform Designed to Address Complex Rare Diseases

| | |
|---|---|
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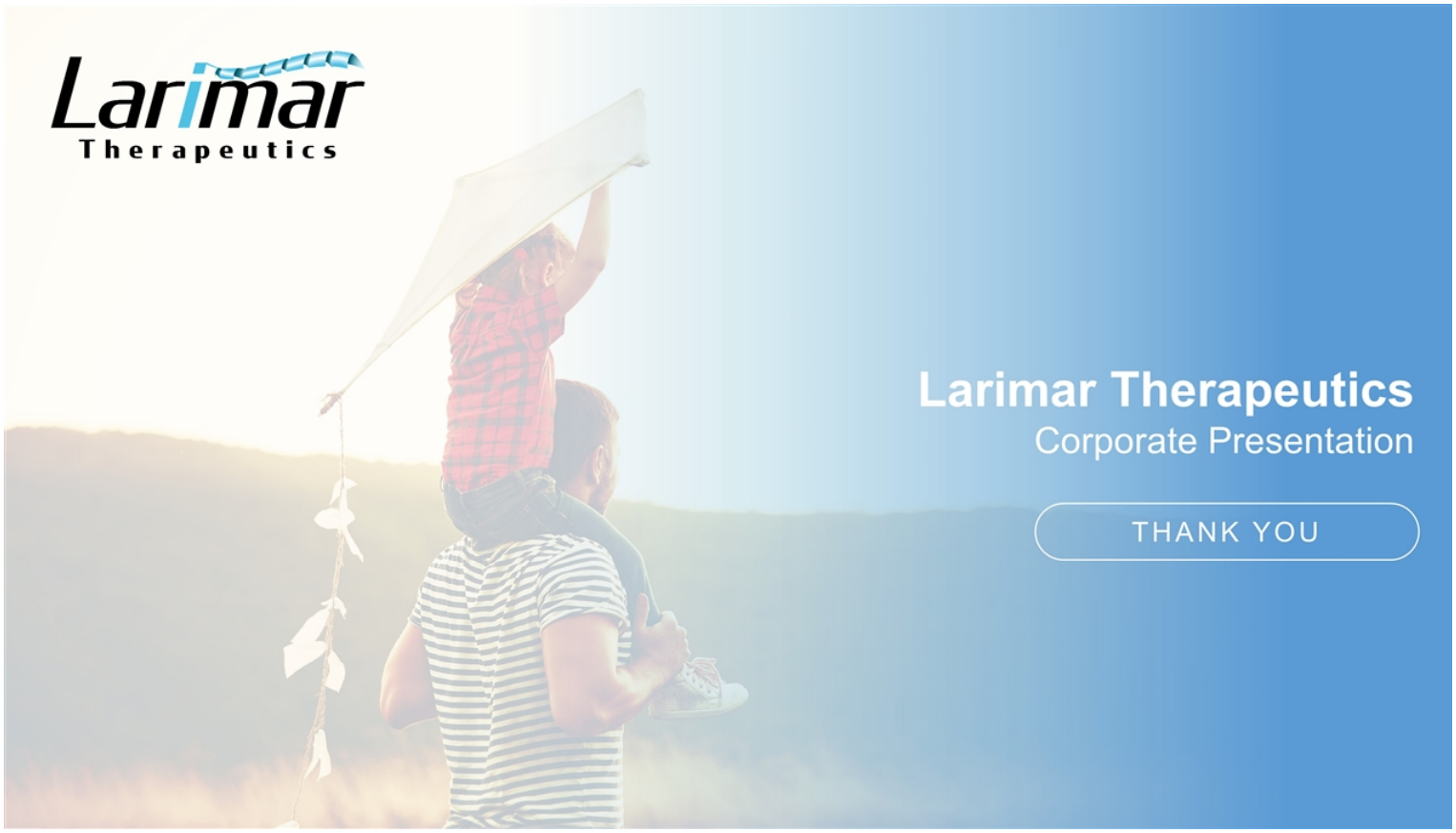
Larimar
Therapeutics
Larimar Therapeutics
Corporate Presentation
THANK YOU

# Leadership Team

**Carole Ben-Maimon, MD**
Chief Executive Officer

**Jennifer Johansson, JD**
VP Regulatory Affairs & Counsel

**Michael Celano**
Chief Financial Officer

**Nancy M. Ruiz, MD, FACP, FIDSA**
Chief Medical Officer

**David Bettoun, PhD**
VP Discovery & Non-clinical R&D

**Keith E. Lynch, Jr.**
VP, Manufacturing and Supply Chain

**John Berman, CPA**
VP Finance & Operations

**Noreen Scherer**
VP, Clinical Operations

**Francis Michael Conway**
Vice President Controller

# Scientific Advisory Board

**Russell (Rusty) Clayton, DO, Scientific Advisory Board Chair**

- Nearly two decades of executive experience in pharmaceutical, biologics and medical device development and commercialization as a consultant in clinical development, medical affairs and regulatory affairs.
- Prior to consulting, he was chief medical officer at Alcresta Therapeutics, a medical device company; senior vice president of research and development at Discovery Labs, a pharmaceutical and medical device company, where he led the scientific and regulatory efforts leading to the marketing authorization of Discovery's first product.
- Dr. Clayton is a board-certified pediatric pulmonologist who practiced at St. Christopher's Hospital for Children and the Children's Hospital of Philadelphia prior to beginning his career in the pharmaceutical, biologics, and medical device industry. He received his DO from the Philadelphia College of Osteopathic Medicine.

**Marni J. Falk, MD**

- Dr. Falk is Executive Director of the Mitochondrial Medicine Frontier Program at The Children's Hospital of Philadelphia (CHOP) and Professor in the Division of Human Genetics, Department of Pediatrics at University of Pennsylvania Perelman School of Medicine.
- She also serves as a principal investigator of a National Institutes of Health, pharma and philanthropic-funded translational laboratory group at CHOP that investigates the causes and global metabolic consequences of mitochondrial disease and directs multiple clinical treatment trials in mitochondrial disease patients.
- Dr. Falk received her BS in biology and MD from the George Washington University School of Medicine. In addition, she completed dual specialty training in the Pediatrics and Clinical Genetics residency program at Case Western Reserve University.

**Giovanni Manfredi, MD, PhD**

- Dr. Manfredi is the Finbar and Marianne Kenny Professor in Clinical and Research Neurology at Weill Cornell Medicine. He is also a Professor of Neuroscience and directs the graduate program in Neuroscience at Weill Cornell Medicine. Dr. Manfredi's lab studies alterations of mitochondrial metabolism in neurodegenerative diseases, particularly amyotrophic lateral sclerosis and primary inherited mitochondrial encephalomyopathies.
- Dr. Manfredi has authored more than 100 publications focused in areas including neurodegenerative and mitochondrial diseases.
- Dr. Manfredi received his MD and PhD in anatomy and cell biology from Catholic University of the Sacred Heart in Rome, where he also completed a residency in neurology.

**Mark Payne, MD**

- Dr. Payne is a renowned scientist and practicing cardiovascular physician who brings a long-standing scientific focus on protein targeting to mitochondria and a dedication to treating cardiomyopathies of childhood, including Friedreich's ataxia. He is the inventor of the original therapy for frataxin protein replacement in Friedreich's ataxia and co-founded Chondrial Therapeutics, which became Larimar Therapeutics, Inc.
- He holds multiple patents on mitochondrial biology and repair. He is a tenured professor of pediatrics at Indiana University School of Medicine where he directs multiple NIH-funded training, clinical, and research programs as a principal investigator.
- Dr. Payne received his BS in natural sciences from Washington & Lee University, and his MD from the University of Texas at Houston. He performed his postdoctoral clinical and research training at Washington University in St. Louis. He is a Fellow of the American College of Cardiology and the American Academy of Pediatrics.

**Marshall Summar, MD**

- Dr. Summar serves as Chief of the Division of Genetics and Metabolism, Director of the Rare Disease Institute and is the Margaret O'Malley Chair of Genetic Medicine at Children's National Hospital.
- In addition to guiding clinical research and treatment, he developed and launched the world's first Rare Disease Institute (RDI) at Children's. The RDI is the first Clinical Center of Excellence designated by the National Organization for Rare Diseases (NORD) and focuses on building best clinical practices and diagnostic pathways for patients. With NORD and the FDA, Dr. Summar has worked to develop a patient-driven natural history platform employed by over 35 rare disease advocacy organizations.
- He received his BS in molecular biology from Vanderbilt University and his MD from University of Tennessee Center for Health Sciences.

# Friedreich's Ataxia (FA)

## Symptoms & Natural History

**01**

### 70% of patients present before age 14

Significant asymptomatic period of disease

Age of onset correlated with severity and speed of progression (earlier onset correlated with more drastic progression)

**02**

### Age 10 – 15 years: Initial onset of disease

Symptoms begin to appear and may include unsteady posture, frequent falling and progressive difficulty in walking due to impaired ability to coordinate voluntary movements

By the time symptoms occur, heart damage has occurred

**03**

### Age 10 – 30 years: Progression of disease

Symptoms continue to worsen and may include development of advanced limb ataxia often requiring patient confinement to wheelchair, hypertrophic cardiomyopathy, scoliosis, fatigue, diabetes and hearing loss

**04**

### Age 30 – 50 years: Life expectancy of typical FA patient

Early death usually caused by heart disease due to advanced cardiomyopathy: Most common type is hypertrophic cardiomyopathy, a thickening of the heart muscle

# SAD Patient Demographics and Disease Characteristics

| Demographics | | |
|---|---|---|
| **Parameter** | **Statistic** | **Overall (n=28)** |
| **Sex** | | |
| Male | n (%) | 17 (60.7) |
| Female | n (%) | 11 (39.3) |
| **Age (years)** | | |
| | Mean | 31.7 |
| | Std. Deviation | 12.95 |
| | Median | 27.0 |
| | Min, Max | 19, 69 |
| **Race** | | |
| White | n (%) | 28 (100.0) |
| **Ethnicity** | | |
| Hispanic/Latino | n (%) | 2 (7.1) |
| Not Hispanic/Latino | n (%) | 26 (92.9) |

| Disease Characteristics | | |
|---|---|---|
| **Parameter** | **Statistic** | **Overall (n=28)** |
| **Age at Symptom Onset (years)** | | |
| | Mean | 16.7 |
| | Std. Deviation | 11.80 |
| | Median | 15.0 |
| | Min, Max | 5, 60 |
| **Age at Diagnosis (years)** | | |
| | Mean | 21.7 |
| | Std. Deviation | 14.31 |
| | Median | 17.5 |
| | Min, Max | 5, 64 |
| **Assisted Device** | | |
| Cane | n | 3 |
| Walker | n | 7 |
| Wheelchair | n | 14 |
| None | n | 4 |

# CTI-1601: Safe and Well Tolerated in Toxicity Studies

## Sprague Dawley Rat (28-day and 13-week studies)

**Injection Site Observations**

- Some injection sites showed edema and erythema; associated histologic changes were localized to the injection site

**Systemic Toxicity Analysis**

- No significant clinical observations or clinical pathology results
- No significant systemic histopathological findings

## Cynomolgus Monkey (28-day and 13-week studies)

**Injection Site Observations**

- Some injection sites raised and firm; dose dependent histologic changes around the injection sites

**Systemic Toxicity Analysis**

- No system toxicity observed in 28-day study
- No systemic toxicity observed at low dose in 13-week study
- Minimal to mild histopathological findings in some animals at the highest dose level at very high exposures in 13-week study

**Toxicology findings in 28-day and 13-week studies support initiation of extended dosing of patients**

**Larimar Therapeutics Announces Completion of Dosing of the Single Ascending Dose Clinical Trial in Friedreich's Ataxia Patients and Provides Program Update**

- *Preliminary data suggest that single subcutaneous injections of CTI-1601 were well tolerated at doses up to 100 mg*
- *Company remains on track to report topline data from placebo-controlled single and multiple ascending dose clinical trials in Q2 2021*

**Bala Cynwyd, PA,** December 8, 2020 – Larimar Therapeutics, Inc. ("Larimar") (Nasdaq: LRMR), a clinical-stage biotechnology company focused on developing treatments for complex rare diseases, today announced the completion of dosing from the Company's Phase 1 single ascending dose (SAD) clinical trial (n=28) evaluating CTI-1601 as a treatment for Friedreich's ataxia (FA) and provided additional updates regarding the status of an ongoing multiple ascending dose (MAD) clinical trial, the timing of Phase 1 topline results, and future activities planned for 2021.

A Safety Review Committee reviewed preliminary blinded data after each cohort of the placebo-controlled SAD clinical trial and recommended continuation of the trial. Dosing has been completed and based on preliminary data, single subcutaneous injections of CTI-1601 at doses up to 100 mg are thought to have been well tolerated. Injection site adverse events were mild and transient, and no serious adverse events were reported. Analysis of clinical trial results remains ongoing.

"At all doses tested, the Phase 1 SAD data support further investigation of CTI-1601," said Nancy M. Ruiz, MD, Chief Medical Officer of Larimar. "FA is a rare and progressive disease that has a devastating impact on patient quality of life and mortality. Current treatment options are limited to symptom management. These preliminary Phase 1 findings represent a critical step forward in developing CTI-1601 as a potential frataxin replacement therapy for patients with FA and we look forward to its continued advancement through the clinic."

Eligible participants from the SAD trial may enroll in an ongoing double-blind, placebo-controlled, MAD clinical trial. To date, dosing of the first two MAD cohorts has been completed, with dosing of the third cohort expected to begin in the first quarter of 2021. Larimar expects to report unblinded topline data from both the SAD and MAD trials in the second quarter of 2021.

Patients completing the SAD and/or MAD clinical trials are eligible to screen for an open-label extension clinical trial, which is expected to initiate in the second half of 2021. Larimar also expects to initiate a MAD clinical trial in patients under 18 years of age in the second half of 2021.

Carole Ben-Maimon, MD, President and Chief Executive Officer of Larimar, commented, "That our Phase 1 program remains on track for topline data in the second quarter of 2021 despite the industry-wide challenges posed by COVID-19 is a testament to the talent and unwavering commitment of our employees, partners, and investigators. Their hard work has allowed us to advance CTI-1601's clinical development without compromising the safety of our patients. These patients have shown a steadfast dedication to our clinical trials despite the pandemic, and for this we are extremely grateful. Looking forward, the safety of patients and employees will remain our top priority as we work to execute on clinical and corporate milestones in pursuit of our goal of developing this FA therapy."

**About the Phase 1 Single Ascending Dose (SAD) Clinical Trial**

The Phase 1 SAD clinical trial is a double-blind, placebo-controlled, randomized clinical trial to assess the safety of subcutaneously administered CTI-1601 versus placebo in adult subjects with Friedreich's ataxia (FA). Subjects receive either placebo or treatment consisting of 25 mg, 50 mg, 75 mg, or 100 mg of CTI-1601. The primary objective is to assess the safety and tolerability of single ascending doses of CTI-1601 in subjects with FA. Key secondary endpoints include pharmacokinetic and pharmacodynamic analyses following increasing single doses of subcutaneously administered CTI-1601. Patients from the SAD trial are eligible to screen for an ongoing MAD clinical trial and/or an open-label extension trial that is expected to initiate in the second half of 2021.

**About the Phase 1 Multiple Ascending Dose (MAD) Clinical Trial**

The Phase 1 MAD clinical trial is a double-blind, placebo-controlled, randomized clinical trial to assess the safety of subcutaneously administered CTI-1601 versus placebo in adult subjects with Friedreich's ataxia (FA). The primary objective is to assess the safety and tolerability of multiple ascending doses of CTI-1601 in subjects with FA. Key secondary endpoints include pharmacokinetic and pharmacodynamic analyses following increasing multiple doses of subcutaneously administered CTI-1601. Two cohorts of dosing have been completed and the third cohort is expected to begin dosing in the first quarter of 2021. Patients from the MAD trial are eligible to screen for an open-label extension trial that is expected to initiate in the second half of 2021.

**About CTI-1601**

CTI-1601 is a recombinant fusion protein intended to deliver human frataxin into the mitochondria of patients with Friedreich's ataxia who are unable to produce enough of this essential protein. Currently in Phase 1 clinical trials in the U.S., CTI-1601 has been granted Rare Pediatric Disease designation, Fast Track designation and Orphan Drug designation by the U.S. Food and Drug Administration (FDA) and orphan drug designation by the European Commission. Topline results from the Phase 1 clinical program are planned for the second quarter of 2021.

**About Larimar Therapeutics**

Larimar Therapeutics, Inc. (Nasdaq: LRMR), is a clinical-stage biotechnology company focused on developing treatments for complex rare diseases. The company's lead compound, CTI-1601, is currently being evaluated in a Phase 1 clinical program in the U.S. as a potential treatment for Friedreich's ataxia. Larimar also plans to use its intracellular delivery platform to design other fusion proteins to target additional rare diseases characterized by deficiencies in intracellular bioactive compounds. For more information, please visit: https://larimartx.com.

**Forward-Looking Statements**

This press release contains forward-looking statements that are based on Larimar's management's beliefs and assumptions and on information currently available to management. All statements contained in this release other than statements of historical fact are forward-looking statements, including but not limited to statements regarding Larimar's ability to develop and commercialize CTI-1601 and other planned product candidates, Larimar's planned research and development efforts, and other matters regarding Larimar's business strategies, use of capital, results of operations and financial position, and plans and objectives for future operations.

In some cases, you can identify forward-looking statements by the words “may,” “will,” “could,” “would,” “should,” “expect,” “intend,” “plan,” “anticipate,” “believe,” “estimate,” “predict,” “project,” “potential,” “continue,” “ongoing” or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. These statements involve risks, uncertainties and other factors that may cause actual results, performance, or achievements to be materially different from the information expressed or implied by these forward-looking statements. These risks, uncertainties and other factors include, among others, the success, cost and timing of Larimar’s product development activities, studies and clinical trials, including CTI-1601 clinical milestones, and risk that preliminary clinical data may not be indicative of final results or predict the results of later nonclinical or clinical trials; the ongoing impact of the COVID-19 pandemic on Larimar’s clinical trial timelines, ability to raise additional capital and general economic conditions; Larimar’s ability to optimize and scale CTI-1601’s manufacturing process; Larimar’s ability to obtain regulatory approval for CTI-1601 and future product candidates; Larimar’s ability to develop sales and marketing capabilities, whether alone or with potential future collaborators, and successfully commercialize any approved product candidates; Larimar’s ability to raise the necessary capital to conduct its product development activities; and other risks described in the filings made by the Company with the Securities and Exchange Commission (SEC), including but not limited to Larimar’s periodic reports, including the annual report on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K, filed with or furnished to the Securities and Exchange Commission and available at www.sec.gov. These forward-looking statements are based on a combination of facts and factors currently known by Larimar and its projections of the future, about which it cannot be certain. As a result, the forward-looking statements may not prove to be accurate. The forward-looking statements in this press release represent views as of the date hereof. Larimar undertakes no obligation to update any forward-looking statements for any reason, except as required by law.

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