Filed Pursuant to Rule 424(b)(5)
Registration No. 333-246370

PROSPECTUS SUPPLEMENT
(To Prospectus dated September 1, 2020)

22,225,000 Shares of Common Stock

We are offering 22,225,000 shares of our common stock.

Deerfield Management Company, L.P., which we refer to as Deerfield Management, our largest stockholder, and/or certain of its affiliates, which we refer to collectively with Deerfield Management as the Deerfield Funds, have indicated an interest in purchasing shares of our common stock in this offering. The amount of such investment could be a significant portion of the securities sold in this offering. In addition, certain of our directors and officers have also indicated an interest in purchasing shares of our common stock in this offering. However, because indications of interest are not binding agreements or commitments to purchase, such officers and directors or the Deerfield Funds may decide not to purchase any shares of our common stock in this offering or they could purchase fewer shares of common stock than indicated. In addition, the underwriters could determine to sell fewer or not to sell any shares of common stock to such directors and officers or the Deerfield Funds.

Our common stock is listed on The Nasdaq Global Market under the symbol "LRMR." On September 13, 2022, the last reported sale price of our common stock was $3.15 per share.

Investing in our securities involves risks. See the "Risk Factors" beginning on page S-8 of this prospectus supplement, as well as in the documents incorporated or deemed to be incorporated by reference into this prospectus supplement and the accompanying prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement or accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	Per Share	Total
Public offering price	$ 3.15	$ 70,008,750.00
Underwriting discounts and commissions(1)	$ 0.189	$ 4,200,525.00
Proceeds, before expenses, to us	$ 2.961	$ 65,808,225.00

(1) See "Underwriting" beginning on page S-20 of this prospectus supplement for additional information regarding underwriting compensation.

We have also granted the underwriters an option for a period of up to 30 days from the date of this prospectus supplement to purchase up to an additional 3,333,750 shares of common stock at the public offering price, less the underwriting discounts and commissions, solely to cover over-allotments, if any.

Delivery of the securities is expected to be made on or about September 16, 2022.

Guggenheim Securities

William Blair

LifeSci Capital **JMP Securities, a Citizen's Company**

The date of this prospectus supplement is September 13, 2022.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus form part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or SEC, utilizing a "shelf" registration process. This document contains two parts. The first part consists of this prospectus supplement, which provides you with specific information about this offering. The second part, the accompanying prospectus, provides more general information, some of which may not apply to this offering. This prospectus supplement may add, update or change information contained in the accompanying prospectus. To the extent that any statement we make in this prospectus supplement is inconsistent with statements made in the accompanying prospectus or any documents incorporated by reference herein or therein, the statements made in this prospectus supplement will be deemed to modify or supersede those made in the accompanying prospectus and such documents incorporated by reference herein and therein. You should read this prospectus supplement and the accompanying prospectus, including the information incorporated by reference herein and therein, and any related free writing prospectus that we have authorized for use in connection with this offering.

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

You should not assume that the information contained in this prospectus supplement, the accompanying prospectus or any related free writing prospectus is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference herein or therein is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus supplement, the accompanying prospectus or any related free writing prospectus is delivered, or securities are sold, on a later date.

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

When we refer to "Larimar," "we," "our," "us" and the "Company" in this prospectus supplement, we mean Larimar Therapeutics, Inc., and its subsidiary unless otherwise specified. When we refer to "you," we mean the potential holders of the applicable series of securities.

Larimar® and our logo are some of our trademarks used in this prospectus supplement. This prospectus supplement may also include trademarks, tradenames, and service marks that are the property of other organizations. Solely for convenience, our trademarks and tradenames referred to in this prospectus supplement and the accompanying prospectus appear without the ® and ™ symbols, but those references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights, or the right of the applicable licensor to these trademarks and tradenames.

PROSPECTUS SUPPLEMENT SUMMARY

This summary description about us, our business and this offering highlights selected information contained elsewhere in this prospectus supplement and the accompanying prospectus or incorporated in this prospectus supplement and the accompanying prospectus by reference. This summary does not contain all of the information you should consider before deciding to invest in our securities. You should carefully read this entire prospectus supplement, the accompanying prospectus and any free writing prospectus with respect to this offering filed by us with the SEC, including each of the documents incorporated herein or therein by reference, before making an investment decision. Investors should carefully consider the information set forth under "Risk Factors" on page S-8 and in the documents incorporated by reference into this prospectus supplement and the accompanying prospectus.

COMPANY OVERVIEW

We are a clinical-stage biotechnology company focused on developing treatments for patients suffering from complex rare diseases using our novel cell penetrating peptide, or CPP, technology platform. Our lead product candidate, CTI-1601, is a subcutaneously administered, recombinant fusion protein intended to deliver human frataxin, or FXN, an essential protein, to the mitochondria of patients with Friedreich's ataxia. Friedreich's ataxia is a rare, progressive and fatal disease in which patients are unable to produce enough FXN due to a genetic abnormality. There is currently no effective therapy for Friedreich's ataxia.

We have completed two Phase 1 clinical trials in patients with Friedreich's ataxia. In September 2022, we announced that the U.S. Food and Drug Administration, or FDA, has cleared the initiation of the 25 mg cohort of a Phase 2, four-week, placebo-controlled, dose exploration trial of CTI-1601 in Friedreich's ataxia patients, which we plan to initiate in the last quarter of 2022, and for which we expect top-line data by the second half of 2023. The FDA indicated it was lifting its previously imposed full clinical hold on the CTI-1601 program and imposing a partial hold under which dose escalation in the Phase 2 trial will be subject to FDA review.

We have received an orphan drug designation, fast track designation and rare pediatric disease designation, from the U.S. Food and Drug Administration, or FDA, for CTI-1601. In addition, we received orphan drug designation for CTI-1601 from the European Commission and a Priority Medicines designation from the European Medicines Agency, or EMA. The receipt of such designations or positive opinions may not result in a faster development process, review or approval compared to products considered for approval under conventional FDA or EMA procedures and does not assure ultimate approval by the FDA or EMA.

We believe that our CPP technology platform, which enables a therapeutic molecule to cross a cell membrane in order to reach intracellular targets, has the potential to enable the treatment of other rare and orphan diseases. We intend to use our proprietary platform to target additional orphan indications characterized by deficiencies in or alterations of intracellular content or activity.

Since our inception, we have devoted substantially all of our resources to developing CTI-1601, building our intellectual property portfolio, developing third-party manufacturing capabilities, business planning, raising capital, and providing general and administrative support for such operations.

We have assembled an experienced management team, each member of which has over 20 years of pharmaceutical industry experience. Our management team and consultants have significant expertise in discovery, nonclinical and clinical development, regulatory affairs and the development of manufacturing processes utilizing good manufacturing practices for biologics and small molecules. We believe that our management team's diverse mix of skills provides for the implementation of effective approaches to drug and biologic development.

Our Strategy

Our strategy is to become a leader in the treatment of rare diseases by leveraging our technology platform and applying our management team's know how and expertise to the development of CTI-1601 and other future pipeline programs. Key elements of our strategy include:

- ***Advance CTI-1601 through clinical development and regulatory approval in the United States, the European Union and other foreign jurisdictions***. We have completed two Phase 1 clinical trials of CTI-1601 in patients with Friedreich's ataxia in the United States. Clinical development of CTI-1601 was previously subject to a full clinical hold issued by the FDA in May 2021. During subsequent interactions and communications with the FDA, we submitted two responses to the clinical hold: one in January 2022 and a second in July 2022. In September 2022, the FDA lifted its full clinical hold on the CTI-1601 program and imposed a partial clinical hold. We plan to initiate a 25 mg cohort of a Phase 2, four-week, dose exploration trial of CTI-1601 in patients with Friedreich's ataxia in the last quarter of 2022, with top-line data expected by the second half of 2023. In connection with the FDA's partial clinical hold, the FDA will review the data from the 25 mg cohort prior to escalating the dose in the second cohort. We are continuing to collaborate with key opinion leaders and seek guidance from regulatory authorities to develop and execute a clinical development plan for regulatory approval of CTI-1601 in the United States, the European Union, the United Kingdom, Australia and Canada.
- ***If CTI-1601 receives regulatory approvals, commercialize CTI-1601 in the United States, the European Union and other relevant countries independently or with third parties***. We intend to evaluate commercialization options in the United States, the European Union and in other foreign jurisdictions throughout the world where Friedreich's ataxia patients can benefit, if we are successful in obtaining regulatory approvals. We may build our own internal sales force; we may enter into a joint marketing partnership with another pharmaceutical or biotechnology company, whereby we may jointly sell and market CTI-1601, if approved; or we may seek to out-license CTI-1601, whereby other pharmaceutical or biotechnology companies sell and market CTI-1601 and pay us milestone and/or royalty payments on sales.
- ***Expand Our Product Candidate Pipeline to Treat a Variety of Rare Diseases***. We intend to expand our pipeline to treat additional rare diseases. A key component of this strategy is to utilize our novel protein replacement therapy platform technology to deliver FXN or other molecules to intracellular targets. We employ a rational approach to selecting disease targets, and take into account many scientific, business, and indication specific factors before choosing each indication.
- ***Continue to Improve Our Novel Protein Replacement Therapy Platform***. We continue to improve the scientific understanding of our platform, including how our technology allows enhanced delivery of cargo proteins, thereby impacting the biological processes associated with the diseases we seek to treat. In addition, with our expertise in the use of a CPP to effectively deliver proteins to intracellular targets, we believe that our scientists are well positioned to design and develop additional therapies that will address unmet medical needs associated with other rare diseases. We also plan to continue to build our intellectual property portfolio to improve our protein replacement therapy platform.
- ***Continue to Strengthen Key Relationships***. We partner with experts in every aspect of development. We believe this expertise, along with our technology platform, will provide us with the ability to develop and commercialize the drug and biologic candidates we have under development and to maximize the value of our platform. In addition to partnering with experts in drug and biologic development, we collaborate with key opinion leaders, academic institutions, experts in the field of rare diseases and with patient advocacy groups associated with the diseases that are being targeted. We have established a scientific advisory board and we regularly seek advice and input from these experienced thought leaders on matters related to our research and development programs. The members of our scientific advisory board consist of distinguished research scientists, professors and

industry experts recognized as key opinion leaders in the fields of rare disease, pediatrics and mitochondrial disease. We build these relationships to enhance our knowledge of the patient's needs and utilize that knowledge to design development programs intended to address unmet medical needs and add value for potential patients.

Lead Product Candidate—CTI-1601 for the Treatment of Friedreich's ataxia

Friedreich's ataxia

Friedreich's ataxia is a rare genetic disease that is the most commonly inherited ataxia in humans, with approximately 20,000 individuals living with Friedreich's ataxia globally, and of these individuals, approximately 5,000 are in the United States and the majority of the remaining individuals are in the European Union. Friedreich's ataxia results from a deficiency of the mitochondrial protein, FXN. FXN is an essential and phylogenetically conserved protein that is found in cells throughout the body, with highest levels found in the heart, spinal cord, liver, pancreas, and skeletal muscle. FXN is encoded in the nucleus of the cell, expressed in the cytoplasm and transported into the mitochondria, where it is processed to the mature form. As part of this process the mitochondrial targeting sequence is cleaved off in the mitochondria by a naturally occurring enzyme.

Friedreich's ataxia is a progressive multi-symptom disease typically presenting in mid-childhood that affects the functioning of multiple organs and systems. It is a debilitating neurodegenerative disease that results in poor coordination of legs and arms, progressive loss of the ability to walk, generalized weakness, loss of sensation, scoliosis, diabetes and cardiomyopathy as well as impaired vision, hearing and speech. Patients suffer from progressive neurologic and cardiac dysfunction. Key among these is a primary neurodegeneration of the dorsal root ganglia and the dentate nucleus of the cerebellum, which leads to the hallmark clinical findings of progressive limb ataxia and dysarthria. A hypertrophic cardiomyopathy is common and associated with early mortality, typically between 30 and 50 years of age. As of September 2022, there are no medical treatment options approved for the treatment of Friedreich's ataxia.

CTI-1601

CTI-1601, a biologic fusion protein that is administered subcutaneously, consists of a CPP genetically fused to human FXN, and includes a mitochondrial targeting sequence. Using our proprietary peptide delivery technology, CTI-1601 carries the molecule from the intravascular space across the cell membrane and into the mitochondria where the CPP and the mitochondrial targeting sequence are cleaved off to yield mature FXN.

We have completed two Phase 1 CTI-1601 clinical trials. Clinical development of CTI-1601 was previously subject to a full clinical hold issued by the FDA in May 2021. In September 2022, the FDA lifted its full clinical hold on the CTI-1601 program and imposed a partial clinical hold. We plan to initiate a 25 mg cohort of a Phase 2, four-week, dose exploration trial of CTI-1601 in patients with Friedreich's ataxia in the last quarter of 2022, with top-line data expected by the second half of 2023. In connection with the FDA's partial clinical hold, the FDA will review the data from the 25 mg cohort prior to escalating the dose in the second cohort.

In our Phase 1 clinical trials, CTI-1601 appeared to increase FXN levels in the peripheral tissues that were tested (buccal cells, skin biopsies and platelets). Based on this, we believe that our technology may allow us to address other rare genetic diseases that either require the replacement of molecules that need to target specific intracellular organelles, or that share similar clinical symptoms that overlap with Friedreich's ataxia. Finally, the use of CTI-1601 to improve mitochondrial function in other rare diseases that demonstrate evidence of mitochondrial dysfunction is also being explored.

RECENT DEVELOPMENTS

Planned Initiation of Phase 2 Trial at 25 mg Dose Level

Clinical development of CTI-1601 was previously subject to a full clinical hold issued by the FDA in May 2021. In September 2022, the FDA lifted its full clinical hold on the CTI-1601 program and imposed a partial clinical hold that limits investigational dosing to 25 mg until the clinical data from the 25 mg cohort are available. We plan to initiate a 25 mg cohort of a Phase 2, four-week, placebo-controlled, dose exploration trial of CTI-1601 in patients with Friedreich's ataxia in the last quarter of 2022, with top-line data expected by the second half of 2023. In connection with the FDA's partial clinical hold, the FDA will review the data from the 25 mg cohort prior to our being authorized to escalate the dose in the second cohort.

Our upcoming Phase 2 trial is designed to further characterize CTI-1601's safety, pharmacodynamics, or PD, and pharmacokinetic, or PK, profiles to provide information about the preferred long-term dose and dose regimen. Eligible patients will include ambulatory and non-ambulatory individuals with Friedreich's ataxia who are at least 18 years old. Patients may be CTI-1601 treatment naïve or have previously participated in our Phase 1 single- or multiple ascending dose trials.

Patients enrolled into the Phase 2 trial will be randomized 2:1 to receive CTI-1601 or placebo. The trial is designed to enroll approximately 24 – 30 total patients across two cohorts, with the first cohort of 12-15 patients evaluating a 25 mg dose of CTI-1601. Patients will receive CTI-1601 or placebo daily via subcutaneous injections for the first 14 days, and then every other day until day 28. Key endpoints will include safety assessments, measures of FXN levels and other PD markers (e.g., lipid profiles and gene expression data) in peripheral tissues, as well as PK assessments. Dose escalation to 50 mg in the second cohort will be contingent on the FDA providing its authorization to proceed based on its review of the data from the trial's first cohort, and on the review by the trial's independent data monitoring committee.

Upon the FDA lifting the partial clinical hold, we expect to initiate a Jive open label extension trial for eligible patients who participated in single ascending dose, multiple ascending dose, or MAD, and/or four-week dose exploration studies and a MAD trial in patients 2 to 17 years of age in the second half of 2023. We also plan to initiate a global double-blind placebo-controlled pivotal trial.

COMPANY INFORMATION

We were founded in 2005 as a Delaware corporation under the name Zafgen, Inc. Our principal executive offices are located at Three Bala Plaza East, Suite 506, Bala Cynwyd, PA 19004, and our telephone number is (844) 511-9056. Our website address is *www.larimartx.com*. The information on, or that can be accessed through, our website is not part of this prospectus supplement or the accompanying prospectus and is not incorporated by reference herein. We have included our website address as an inactive textual reference only.

In May 2020, we completed our business combination with Chondrial Therapeutics, Inc., or Chondrial, and changed our name from "Zafgen, Inc." to "Larimar Therapeutics, Inc." Chondrial was determined to be the accounting acquirer for financial reporting purposes, our historical financials are those of Chondrial and the business conducted by Chondrial became our business.

THE OFFERING

Common stock offered by us	22,225,000 of shares of common stock.
Underwriters' option to purchase additional shares of common stock from us	We have granted the underwriters an option for a period of up to 30 days from the date of this prospectus supplement to purchase up to an additional 3,333,750 shares of common stock at the public offering price, less the underwriting discount and commissions, solely to cover over-allotments, if any.
Common stock to be outstanding immediately following this offering	39,935,450 shares of common stock (or 43,269,200 shares, if the underwriters exercise their option to purchase additional shares in full).
Use of Proceeds	We intend to use the net proceeds from this offering to support the clinical development of CTI-1601, and for working capital and general corporate purposes, including research and development expenses. See "Use of Proceeds."
Indications of Interest	Deerfield Management, our largest stockholder, and/or certain of its affiliates have indicated an interest in purchasing shares of our common stock in this offering. In addition, certain of our directors and officers have also indicated an interest in purchasing shares of our common stock in this offering. However, because indications of interest are not binding agreements or commitments to purchase, such officers and directors or the Deerfield Funds may decide not to purchase any shares of our common stock in this offering or they could purchase fewer shares of common than indicated. In addition, the underwriters could determine to sell fewer or not to sell any shares of common stock to such directors and officers or the Deerfield Funds.
Risk Factors	Investing in our securities involves a high degree of risk. See "Risk Factors" beginning on page S-8 of this prospectus supplement and page 7 of the accompanying prospectus and other information included in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference in this prospectus supplement and the accompanying prospectus for a discussion of factors you should carefully consider before deciding to invest in our securities.
Nasdaq Global Market symbol	Our common stock is listed on The Nasdaq Global Market under the symbol "LRMR." There is no established public trading market for the pre-funded warrants, and we do not expect a market to develop. We do not intend to apply for listing of the pre-funded warrants on any securities exchange or other nationally recognized trading system. Without an active trading market, the liquidity of the pre-funded warrants will be limited.

The number of shares of common stock that will be outstanding after this offering is based on 17,710,450 shares of common stock outstanding as of June 30, 2022, and excludes the following:

- 3,130,370 shares of our common stock issuable upon the exercise of stock options outstanding as of June 30, 2022 at a weighted-average exercise price of $12.32 per share;
- 998,301 shares of our common stock available for future issuance as of June 30, 2022 under our 2020 Equity Incentive Plan; and
- 628,403 shares of our common stock issuable upon the exercise of pre-funded warrants outstanding as of June 30, 2022, with an exercise price of $0.01 per share.

Unless otherwise indicated, all information in this prospectus supplement assumes no exercise of the outstanding options or pre-funded warrants described above and no exercise by the underwriters of their option to purchase additional shares.

RISK FACTORS

An investment in our securities involves a high degree of risk. Our business, financial condition and results of operations could be materially and adversely affected by any of these risks. If any of these risks occur, the value of our common stock may decline and you may lose all or part of your investment. Before investing in our securities, you should consider carefully the risk factors set forth in this prospectus supplement, the accompanying prospectus and in any free writing prospectus that we have authorized for use in connection with this offering, along with the risk factors described in our most recent Annual Report on Form 10-K, our subsequent Quarterly Reports on Form 10-Q, and any subsequent Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q or Current Reports on Form 8-K we file after the date of this prospectus supplement, as well as other information contained or incorporated by reference into this prospectus supplement and the accompanying prospectus, as updated by our subsequent filings under the Securities Exchange Act of 1934, as amended, or the Exchange Act.

Risks Related to This Offering

Management will have broad discretion over the use of proceeds from this offering, and may not use the proceeds effectively.

Our management will have broad discretion with respect to the use of proceeds of this offering, including for any of the purposes described in the section of this prospectus supplement entitled "Use of Proceeds." You will have limited information concerning our management's specific intentions regarding the use of the proceeds of this offering and be relying on the judgment of our management regarding the application of the proceeds of this offering. Because of the number and variability of factors that will determine our use of our existing cash, cash equivalents, short-term investments and the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. The results and effectiveness of the use of proceeds are uncertain, and we could spend the proceeds in ways that you do not agree with or that do not improve our results of operations or enhance the value of our common stock. Pending their use, we may invest the net proceeds from this offering in short-term, investment-grade, interest-bearing securities. These investments may not yield a favorable return to our stockholders. Our failure to apply these funds effectively could harm our business, delay the development of our pipeline product candidates and cause the price of our common stock to decline.

You will experience immediate and substantial dilution in the net tangible book value per share of the common stock purchased in this offering.

Since the price per share of our common stock being offered is substantially higher than the net tangible book value per share of our common stock, you will suffer immediate and substantial dilution in the net tangible book value of the common stock you purchase in this offering or the shares of common stock underlying the pre-funded warrants. The exercise of outstanding stock options and warrants, including the pre-funded warrants sold in this offering, may result in further dilution of your investment. See "Dilution" for a more detailed discussion of the dilution you will incur if you purchase shares of common stock or pre-funded warrants in this offering.

Issuances of shares of common stock or securities convertible into or exercisable for shares of common stock following this offering, as well as the exercise of existing options and warrants, will dilute your ownership interests and may adversely affect the future market price of our common stock.

As a development-stage company, we will need additional capital to fund the development and commercialization of our product candidates. We may seek additional capital through a combination of private and public equity offerings, debt financings, strategic partnerships and alliances and licensing arrangements, which may cause your ownership interest to be diluted. For example, on August 14, 2020, we entered into an Equity Distribution Agreement with Piper Sandler & Co., or Piper, pursuant to which we may sell from time to

time, at our option, up to $50.0 million of shares of our common stock through Piper, as our agent, or the ATM Program. As of June 30, 2022, we have received approximately $20.1 million in net proceeds from the sale of our common stock under the ATM Program, with approximately $29.2 million of shares of our common stock available for future issuance under the ATM Program. In addition, as of June 30, 2022, there were options to purchase 3,130,370 shares of our common stock outstanding at a weighted average exercise price of $12.32 and 628,403 shares of our common stock issuable upon the exercise of warrants outstanding with a weighted average exercise price of $0.01 per share. If these securities are exercised, you may incur further dilution. Moreover, to the extent that we issue additional options to purchase, or securities convertible into or exchangeable for, shares of our common stock in the future and those options or other securities are exercised, converted or exchanged, stockholders may experience further dilution.

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

Sales of a substantial number of shares of our common stock in the public market following this offering could cause the market price of our common stock to decline. Immediately after this offering, we will have 39,935,450 outstanding shares of common stock (or 43,269,200 shares if the underwriters exercise their option to purchase additional shares of common stock in full), based on the number of shares of common stock outstanding as of June 30, 2022. This includes the shares that we are selling in this offering and the shares obtained upon exercise of the pre-funded warrants, which may be resold in the public market immediately without restriction, unless purchased by our directors, officers or affiliates. Of the remaining shares, approximately 6,448,865 shares are restricted from sale as a result of 90-day lock-up agreements (which may be waived, with or without notice, by the representatives of the underwriters) but will be able to be sold beginning 90 days after this offering, unless held by one of our affiliates, in which case the resale of those securities will be subject to volume limitations under Rule 144 of the Securities Act of 1933, as amended, or the Securities Act. In addition, we have also registered the shares of common stock that we may issue under our equity incentive plans. As a result, these shares can be freely sold in the public market upon issuance, subject to restrictions under securities laws.

The market price and trading volume of our stock may be volatile.

The market price of our common stock could be subject to significant fluctuations. Market prices for securities of early-stage pharmaceutical, biotechnology, and other life sciences companies have historically been particularly volatile. Some of the factors that may cause the market price of our common stock to fluctuate include:

- our ability to obtain regulatory approvals for product candidates, and delays or failures to obtain such approvals;
- the results of, and delays in, current, and any future, non-clinical or clinical trials of CTI-1601 or any of our future product candidates, including any delays related to the COVID-19 pandemic;
- the entry into, or termination of, key agreements, including key licensing or collaboration agreements;
- the failure of CTI-1601 or any of our future product candidates, if approved for marketing and commercialization, to achieve commercial success;
- issues in manufacturing our approved products, if any, or product candidates;
- the initiation of material developments in, or conclusion of, disputes or litigation to enforce or defend any of our intellectual property rights or defend against the intellectual property rights of others;
- announcements by us or our commercial partners or competitors of new commercial products, clinical progress (or the lack thereof), significant contracts, commercial relationships, or capital commitments;
- adverse publicity relating to our markets, including with respect to other products and potential products in such markets;

- the introduction of technological innovations or new therapies competing with our potential products;
- the loss of key employees;
- general and industry-specific economic conditions potentially affecting our research and development expenditures;
- general economic conditions in the United States and abroad;
- changes in the structure of health care payment systems;
- adverse regulatory decisions;
- trading volume of our common stock; and
- period-to-period fluctuations in our financial results.

Moreover, the stock markets in general have experienced substantial volatility that has often been unrelated to the operating performance of individual companies or the biotechnology sector. These broad market fluctuations may also adversely affect the trading price of our common stock.

In the past, following periods of volatility in the market price of a company's securities, stockholders have often instituted class action securities litigation against those companies. Such litigation, if instituted, could result in substantial costs and diversion of management's attention and resources, which could significantly impact our profitability and reputation.

Risks Related to Our Product Development and Regulatory Approvals

The FDA has placed a partial clinical hold on CTI-1601. If the FDA does not remove the partial clinical hold on a timely basis, or at all, our development timelines and our business may be adversely affected and our stock price may decline.

On May 25, 2021 the FDA placed a full clinical hold on the CTI-1601 Investigational New Drug, or IND, clinical program following our notification to the FDA of mortalities which occurred at the highest dose levels in an ongoing 26-week non-human primate, or NHP, toxicology study, which was designed to support extended dosing of patients with CTI-1601. In the clinical hold letter, the FDA stated it needed a full study report from the then ongoing NHP study and that we may not initiate additional clinical trials until we have submitted the report and received notification from the FDA that additional clinical trials may commence. In July 2021, we completed dosing in the NHP toxicology study and data from the study were included in the complete response to the clinical hold submitted to the FDA in January 2022. In February 2022, we received a response from the FDA following our submission of a complete response including a comprehensive study report from the 26-week NHP toxicology study stating that it was maintaining its clinical hold at that time and requesting additional information. In August 2022, we submitted a complete response to the CTI-1601 clinical hold, following a Type C Meeting with the FDA. In conjunction with the complete response, we proposed as CTI-1601's next clinical trial a Phase 2, four-week dose exploration study in Friedreich's ataxia patients starting at the lower dose levels tested in our Phase 1 multiple-ascending dose clinical trial.

In September 2022, the FDA lifted its full clinical hold on the CTI-1601 program and imposed a partial clinical hold. A partial clinical hold, as opposed to a full clinical hold, is a delay or suspension of only a specific part of the clinical work requested under the IND, which allows otherwise unaffected parts of the clinical work to proceed under the IND. We plan to initiate a 25 mg cohort of a Phase 2, four-week, dose exploration trial of CTI-1601 in patients with Friedreich's ataxia in the last quarter of 2022, with top-line data expected by the second half of 2023. In connection with the FDA's partial clinical hold, the FDA will review the data from the 25 mg cohort prior to escalating the dose in the second cohort. If we are unable to reach agreement with the FDA to lift the partial clinical hold and we determine that we need to explore doses higher than 25 mg, we would be unable to complete our CTI-1601 clinical trials without delays in our clinical development plans and anticipated

data milestones and additional clinical development costs, any of which could impair our ability, cost or timeline to obtain U.S. regulatory approval for CTI-1601. We cannot be certain whether or when the FDA will lift the partial clinical hold and/or permit us to conduct clinical trials with doses higher than 25 mg. If the FDA does not lift the partial clinical hold in a timely manner, or at all, our development timelines and our business may be adversely affected and our stock price may decline. Further, even if the FDA lifts the partial clinical hold, or if the FDA or other regulatory agencies continue to express safety concerns after the partial clinical hold is lifted, additional CTI-1601 non-clinical or clinical studies may be required. In such instances, our progress in the development of CTI-1601 may be significantly slowed and the associated costs may be significantly increased, adversely affecting our business, which could impair our ability to ultimately obtain FDA approval for CTI-1601.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein may contain forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act about us and our subsidiary. These forward-looking statements are intended to be covered by the safe harbor for forward-looking statements provided by the Private Securities Litigation Reform Act of 1995. Forward-looking statements are not statements of historical fact, and can be identified by the use of forward-looking terminology such as "believes," "expects," "may," "will," "could," "should," "projects," "plans," "goal," "targets," "potential," "estimates," "pro forma," "seeks," "intends" or "anticipates" or the negative thereof or comparable terminology, although not all forward-looking statement contain these identifying words.

The forward-looking statements in this prospectus supplement, the accompanying prospectus and the documents incorporated herein by reference include, among other things, statements about:

- our ability to successfully engage with, and satisfactorily respond to, requests for additional information from the FDA concerning the partial clinical hold on our IND for CTI-1601, including the FDA review of data from cohort one from the Phase 2 dose escalation trial and FDA's agreement to escalate the dosing in cohort two and the timing and outcomes of our interactions with the FDA concerning the partial clinical hold;
- uncertainties in obtaining successful non-clinical or clinical results that reliably and meaningfully demonstrate safety, tolerability and efficacy profiles that are satisfactory to the FDA, EMA and other comparable regulatory authorities for marketing approval for CTI-1601 or any other product candidate that we may develop in the future and unexpected costs that may result therefrom;
- further delays or changes in our anticipated clinical timelines, due to our interactions with the FDA related to resolving the partial clinical hold on CTI-1601, as well as delays in patient recruitment (including the impact of other clinical trials of competitive products), delays as a result of clinical and non-clinical results, changes in clinical protocols, regulatory restrictions, including additional clinical holds, and milestones for CTI-1601, including those associated with COVID-19 and the efforts to mitigate it;
- uncertainties associated with the clinical development and regulatory approval for CTI-1601 or any other product candidate that we may develop in the future, including potential delays in the commencement, enrollment and completion of clinical trials;
- the difficulties and expenses associated with obtaining and maintaining regulatory approvals for CTI-1601 or any other product candidate we may develop in the future, and the indication and labeling under any such approvals;
- our estimates regarding future results of operations, financial position, research and development costs, capital requirements and our needs for additional financing;
- how long we can continue to fund our operations with our existing cash, cash equivalents and marketable debt securities;
- our ability, and the ability of third-party manufacturers we engage, to optimize and scale CTI-1601 or any other product candidate's manufacturing process and to manufacture sufficient quantities of clinical supplies, if the clinical hold on the CTI-1601 IND is lifted, and, if approved, commercial supplies of CTI-1601;
- our ability to realize any value from CTI-1601 and any other product candidate we may develop in the future in light of inherent risks and difficulties involved in successfully bringing product candidates to market and the risk that the product candidates, if approved, will not achieve broad market acceptance;
- our ability to comply with regulatory requirements applicable to our business and other regulatory developments in the United States and other countries;

- the size and growth of the potential markets for CTI-1601 or any other product candidate that we may develop in the future, the rate and degree of market acceptance of CTI-1601 or any other product candidate, if approved, that we may develop in the future and our ability to serve those markets;
- competing therapies and products including those that are still in clinical development which become available via marketing authorizations or compassionate use and their impact on our ability to recruit and retain clinical trial patients, to obtain and maintain potential expedited regulatory pathways, and to commercialize current and future product candidates, if approved, (including the impact of potential barriers to entry if a competitor is able to obtain FDA, EMA or other regulatory approvals for their products more rapidly than we may obtain for ours and obtain product exclusivity from the FDA for indications our product candidates are targeting);
- our ability to obtain and maintain patent protection and defend our intellectual property rights against third-parties;
- the performance of third parties upon which we depend, including third-party contract research organizations and third-party suppliers, manufacturers, distributors, and logistics providers;
- our ability to maintain our relationships, and contracts with our key vendors and to identify and contract with alternate or secondary key vendors;
- our ability to recruit and retain key scientific, technical, commercial, and management personnel and to retain our executive officers;
- our ability to maintain proper functionality and security of our internal computer and information systems and prevent or avoid cyber-attacks, malicious intrusion, breakdown, destruction, loss of data privacy or other significant disruption; and
- the extent to which health epidemics, unforeseen emergencies and other outbreaks of communicable diseases, including the ongoing COVID-19 pandemic and the efforts to mitigate it, geopolitical turmoil, including increased trade restrictions between the United States, Russia, China, and other countries, social unrest, political instability, terrorism or other acts of war could disrupt our operations, the operations of third parties on which we rely or the operations of regulatory agencies we interact with in the development of CTI-1601.

You should read this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein completely and with the understanding that our actual future results may be materially different from what we currently expect. Our business and operations are and will be subject to a variety of risks, uncertainties and other factors. Consequently, actual results and experience may materially differ from those contained in any forward-looking statements. Such risks, uncertainties and other factors that could cause actual results and experience to differ from those projected include, but are not limited to, the risk factors discussed under the heading “Risk Factors” contained in this prospectus supplement, the accompany prospectus and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus supplement and the accompanying prospectus.

You should assume that the information appearing in this prospectus supplement, the accompanying prospectus or related free writing prospectus and any document incorporated herein by reference is accurate as of its date only. Because the risk factors referred to above could cause actual results or outcomes to differ materially from those expressed in any forward-looking statements made by us or on our behalf, you should not place undue reliance on any forward-looking statements. Further, any forward-looking statement speaks only as of the date on which it is made. New factors emerge from time to time, and it is not possible for us to predict which factors will arise. In addition, we cannot assess the impact of each factor on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. Unless legally required, we do not undertake any obligation to release publicly any revisions to such forward-looking statements to reflect events or circumstances after the date of this prospectus supplement or to reflect the occurrence of unanticipated events.

USE OF PROCEEDS

We estimate that the net proceeds from our issuance and sale of shares of common stock will be $65.5 million (or $75.4 million if the underwriters exercise their option to purchase additional shares of common stock in full) after deducting underwriting discounts and commissions and estimated offering expenses payable by us. This estimate excludes the proceeds, if any, from the exercise of the pre-funded warrants. We cannot predict when or if these pre-funded warrants will be exercised.

We intend to use the net proceeds of the proposed offering to support the clinical development of CTI-1601, and for working capital and general corporate purposes, including research and development expenses.

This expected use of the net proceeds from this offering represents our intentions based on our current plans and business conditions, which could change in the future as our plans and business conditions evolve. Our management will have broad discretion over the use of the net proceeds from this offering and our investors will be relying on the judgment of our management regarding the application of the proceeds of this offering. Because of the number and variability of factors that will determine our use of our existing cash, cash equivalents, short-term investments and the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use.

Pending application of the net proceeds as described above, we intend to invest the net proceeds from this offering in short-term, investment-grade, interest-bearing securities.

DILUTION

If you invest in our securities in this offering, your ownership interest will be diluted immediately to the extent of the difference between the public offering price per share of our common stock or pre-funded warrant and the as adjusted net tangible book value per share of our common stock immediately after the closing of this offering. As of June 30, 2022, our net tangible book value was $46.9 million, or $2.56 per share. Net tangible book value per share represents our total tangible assets (excluding operating lease right-of-use assets) less our total liabilities, divided by the number of shares outstanding. After giving effect to the sale of 22,225,000 shares of our common stock in this offering at the public offering price of $3.15 per common share, and after deducting underwriting discounts and estimated offering expenses payable by us, our as adjusted net tangible book value as of June 30, 2022 would have been $112.4 million, or $2.77 per share. This amount would represent an immediate increase in net tangible book value of $0.21 per share to existing stockholders and an immediate dilution in net tangible book value of $0.38 per share to new investors participating in this offering. We determine dilution by subtracting the assumed as adjusted net tangible book value per share after this offering from the assumed price per share paid by an investor in this offering.

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

Public offering price per share		$3.15
Net tangible book value per share as of June 30, 2022	$2.56	
Increase in net tangible book value per share attributable to new investors purchasing shares in this offering	$0.26	
As adjusted net tangible book value after this offering		$2.82
Dilution per share to new investors in this offering		$0.33

To the extent that outstanding options or warrants are exercised, investors purchasing shares of our common stock in this offering could experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations, even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or equity-based securities, the issuance of these securities could result in further dilution to our stockholders.

If the underwriters exercise their option to purchase an additional 3,333,750 shares of our common stock in full at the public offering price of $3.15 per share, our as adjusted net tangible book value as of June 30, 2022 would have been $122.3 million, or $2.83 per share. This amount would represent an immediate increase in net tangible book value of $0.27 per share to existing stockholders and an immediate dilution in net tangible book value of $0.32 per share to new investors purchasing common stock in this offering.

The foregoing table and calculations are based on 17,710,450 shares of our common stock outstanding as of June 30, 2022, and excludes the following:

- 3,130,370 shares of our common stock issuable upon the exercise of stock options outstanding as of June 30, 2022 at a weighted-average exercise price of $12.32 per share;
- 998,301 shares of our common stock available for future issuance as of June 30, 2022 under our 2020 Equity Incentive Plan; and
- 628,403 shares of our common stock issuable upon the exercise of pre-funded warrants outstanding as of June 30, 2022, with an exercise price of $0.01 per share.

Unless otherwise indicated, all information in this prospectus supplement assumes no exercise of the outstanding options or warrants described above, and no exercise by the underwriters of their option to purchase additional shares.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our common stock. We currently intend to retain all available funds and any future earnings, if any, to fund the development and expansion of our business and we do not anticipate paying any cash dividends in the foreseeable future. Any future determination to pay dividends on our common stock will be made at the discretion of our Board of Directors, or our Board, and will depend on various factors, including applicable laws, our results of operations, financial condition, future prospects, anticipated cash needs, plans for expansion and any other factors deemed relevant by our Board.

UNDERWRITING

Guggenheim Securities, LLC is acting as representative of each of the underwriters named below. Subject to the terms and conditions set forth in the underwriting agreement between us and the underwriters, each of the underwriters has agreed, severally and not jointly, to purchase from us, the respective number of shares of common stock set forth opposite its name below.

UNDERWRITER	NUMBER OF SHARES
Guggenheim Securities, LLC	13,557,250
William Blair & Company, L.L.C.	4,000,500
LifeSci Capital LLC	2,444,750
JMP Securities LLC	2,222,500
Total	22,225,000

Subject to the terms and conditions set forth in the underwriting agreement, the underwriters have agreed, severally and not jointly, to purchase all of the shares of common stock sold under the underwriting agreement if any of them are purchased. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the non-defaulting underwriters may be increased or the underwriting agreement may be terminated. We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the underwriters may be required to make in respect of those liabilities.

The underwriters are offering the shares of common stock subject to their acceptance of the shares of common from us and subject to prior sale. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Deerfield Management, our largest stockholder, and/or certain of its affiliates have indicated an interest in purchasing shares of our common stock in this offering. In addition, certain of our directors and officers have also indicated an interest in purchasing shares of our common stock in this offering. The amount of such investment could be a significant portion of the securities sold in this offering. In addition, certain of our directors and officers have also indicated an interest in purchasing shares of our common stock in this offering. However, because indications of interest are not binding agreements or commitments to purchase, such officers and directors or the Deerfield Funds may decide not to purchase any shares of our common stock in this offering or they could purchase fewer shares of common stock than indicated. In addition, the underwriters could determine to sell fewer or not to sell any shares of common stock to such directors and officers or the Deerfield Funds.

Option to Purchase Additional Securities

We have granted the underwriters an option to purchase additional securities. This option, which is exercisable for up to 30 days after the date of this prospectus, permits the underwriters to purchase up to 3,333,750 shares of our common stock at a price of $3.15 per share, less underwriting discounts and commissions, solely to cover over-allotments, if any.

Commissions and Discounts; Expenses

The underwriters have advised us that they propose initially to offer the shares at the public offering price set forth on the cover of this prospectus supplement and to dealers at that price less a concession not in excess of $3.15 per share. After the offering, the public offering price, concession or any other term of the offering may be changed.

The underwriting discounts and commissions are equal to the public offering price per share of common stock less the amount paid by the underwriters to us per share of common stock. The following table shows the public offering price, underwriting discounts and commissions and proceeds before expenses to us in connection with this offering.

	Per Share	Total
Public offering price	$ 3.15	$ 70,008,750.00
Underwriting discounts and commissions to be paid by us	$ 0.189	$ 4,200,525.00
Proceeds, before expenses, to us	$ 2.961	$ 65,808,225.00

We estimate expenses payable by us in connection with this offering, other than the underwriting discounts and commissions referred to above, will be approximately $265,000.00, which includes the fees and disbursements of outside counsel for the underwriters, fees and disbursements of our external counsel and independent accountants, and other out-of-pocket expenses up to a maximum of $75,000.

No Sales of Similar Securities

Pursuant to the underwriting agreement, we have agreed that we will not, for a period of 90 days after the date of this prospectus supplement without the prior written consent of the representative:

i. offer, sell, agree to offer or sell, solicit offers to purchase, grant any call option or purchase any put option with respect to, pledge, borrow or otherwise dispose of, 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 and the rules and regulations of the SEC promulgated thereunder, with respect to, any of our common stock or any of our other securities that are substantially similar to our common stock, or any securities convertible into or exchangeable or exercisable for, or any warrants or other rights to purchase, the foregoing;

ii. file or cause to become effective a registration statement under the Securities Act relating to the offer and sale of any of our common stock or any of our other securities that are substantially similar to our common stock, or any securities convertible into or exchangeable or exercisable for, or any warrants or other rights to purchase, the foregoing, other than any registration statement on Form S-8 filed to register securities to be offered under any of our employee benefit or equity incentive plans disclosed or incorporated by reference into the registration statement of which this prospectus supplement forms a part;

iii. enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of our common stock or any of our other securities that are substantially similar to our common stock, or any securities convertible into or exchangeable or exercisable for, or any warrants or other rights to purchase, the foregoing, whether any such transaction is to be settled by delivery of our common stock or any of our other securities, in cash or otherwise; and

iv. publicly announce an intention to effect any transaction specified in clause (i), (ii) or (iii).

The foregoing shall not apply to (a) the registration of the offer and sale of the securities as contemplated by the underwriting agreement; (b) issuances of our common stock upon the conversion of securities or the exercise of options or warrants disclosed as outstanding in the registration statement of which this prospectus supplement forms a part (excluding the exhibits thereto), provided that such securities, options and warrants have not been amended since the date of this prospectus supplement to increase the number of such securities, options or warrants or to decrease the exercise price, exchange price or conversion price of such securities, options or warrants (other than in connection with stock splits or combinations) or to extend the term of such securities, options or warrants; (c) issuances of our common stock (including pursuant to restricted stock awards, restricted stock units and upon the exercise of options) and grants of equity-based awards to our employees, officers, directors or consultants pursuant to any employee stock option plan, employee stock incentive plan, employee stock purchase plan, employee dividend reinvestment plan or any other

employee benefit plan described or incorporated by reference in the registration statement of which this prospectus supplement forms a part for services rendered to us; or (d) issuances of our common stock, on an arm's-length basis, to unaffiliated collaborators, vendors, manufacturers, lessors, distributors, customers or other similar parties pursuant to a collaboration, licensing agreement, strategic alliance, lease, manufacturing or distribution arrangement or similar transaction, *provided* that any such issuances shall not represent, in the aggregate, more than 5% of our issued and outstanding shares of common stock as of the date of this prospectus supplement and that the recipients of such shares agree to be bound by a lock-up agreement (described below for our executive officers and directors) until for 90 days after the date of this prospectus supplement.

In addition, pursuant to certain lock-up agreements, our executive officers, directors and Deerfield Management, our largest stockholder, have agreed that they will not, for a period of 90 days after the date of this prospectus supplement, or the Restricted Period, without the prior written consent of the representative, directly or indirectly, sell, offer, contract or grant any option to sell (including without limitation any short sale), grant any option, right or warrant to purchase, pledge, transfer, establish an open "put equivalent position" within the meaning of Rule 16a-1(h) under the Exchange Act, lend or otherwise dispose of shares of common stock, options, rights or warrants to acquire shares of common stock, or securities exchangeable or exercisable for or convertible into shares of common stock currently or hereafter owned either of record or beneficially (as defined in Rule 13d-3 under the Exchange Act) by the lock-up signatory (or such spouse or family member), including, without limitation, entering into any swap or other arrangement that transfers, in whole or in part, the economic consequences of the ownership of common stock or publicly announce an intention to do any of the foregoing. The foregoing sentence shall not apply to:

i. transfers of shares of common stock or any security convertible into or exercisable or exchangeable for common stock as a bona fide gift;

ii. distributions of shares of common stock or any security convertible into or exercisable or exchangeable for common stock to limited partners, members or stockholders of the lock-up signatory;

iii. transfers of shares of common stock or any security convertible into or exercisable or exchangeable for common stock by will or intestate succession or to any trust or partnership for the direct or indirect benefit of such person or any member of the immediate family of the lock-up signatory;

iv. acquisitions relating to shares of common stock or other securities acquired in open market transactions after the completion of the offering contemplated in this prospectus supplement;

v. the exercise of, and the surrender of shares of common stock directly to us pursuant to tax withholding or net exercise provisions of, any equity awards issued pursuant to our equity incentive plans, which equity incentive plans exist as of the date of this prospectus supplement;

vi. the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of shares of common stock, *provided* that (a) such plan does not provide for the transfer of common stock during the Restricted Period and (b) no public announcement or filing under the Exchange Act is required of or voluntarily made by or on behalf of the lock-up signatory or us regarding the establishment of such plan; and

vii. in certain cases, the pledge of common stock as collateral pursuant to a bona fide margin loan (including any subsequent transfer upon foreclosure under any such pledge);

provided, that (A) in the case of clauses (i), (ii), (iii) and (vii) (solely in the case of subsequent tranfer upon foreclosure under any such pledge) above, each donee, distributee and transferee shall sign and deliver a lock-up agreement; (B) in the case of clauses (i), (ii), (iii) and (iv) above, no filing under Section 16(a) of the Exchange Act shall be required or shall be voluntarily made during the Restricted Period in connection with such event; and (C) in the case of clause (v) above, that if a Form 4 is required in connection with such exercise, such Form 4 shall indicate by footnote disclosure the nature of such transfer.

These restrictions terminate after the close of trading of the common stock on and including the 90th day after the date of this prospectus supplement. The representative may, in its sole discretion and at any time or from

time to time before the termination of the 90-day period release all or any portion of the securities subject to lock-up agreements. There are no existing agreements between the underwriters and any of our stockholders who will execute a lock-up agreement providing consent to the sale of shares prior to the expiration of the lock-up period.

The Nasdaq Global Market Listing

Our common stock is listed on The Nasdaq Global Market under the symbol "LRMR."

Price Stabilization and Short Positions

Until the distribution of the shares is completed, SEC rules may limit underwriters and selling group members from bidding for and purchasing our common stock. However, the representative may engage in transactions that stabilize the price of the common stock, such as bids or purchases to peg, fix or maintain that price.

In connection with the offering, the underwriters may purchase and sell our common stock in the open market. These transactions may include short sales, purchases on the open market to cover positions created by short sales and stabilizing transactions. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering. Stabilizing transactions consist of various bids for or purchases of shares of common stock made by the underwriters in the open market prior to the closing of the offering. Covered short sales are short sales made in an amount not greater than the underwriters' option to purchase additional shares of common stock in this offering described above. The underwriters may close out any covered short position either by exercising its option or by purchasing securities of common stock in the open market. To determine how they will close the covered short position, the underwriters will consider, among other things, the price per share of common stock available for purchase in the open market, as compared to the price at which they may purchase shares of common stock through the underwriters' option to purchase additional securities. Naked short sales are short sales in excess of the option to purchase additional shares of common stock. The underwriters must close out any naked short position by purchasing shares of common stock in the open market. A naked short position is more likely to be created if the underwriters are concerned that, in the open market after pricing, there may be downward pressure on the price per share of common stock that could adversely affect investors who purchase shares of common stock in this offering.

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

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

Passive Market Making

Any underwriters who are qualified market makers on The Nasdaq Global Market may engage in passive market making transactions in the securities on The Nasdaq Global Market in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the securities. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the

passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded. Passive market making may stabilize the market price of the securities at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

Electronic Distribution

In connection with the offering, certain of the underwriters or securities dealers may distribute prospectuses by electronic means, such as e-mail.

Other Relationships

The underwriters and certain of their affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. Some of the underwriters and certain of their affiliates may in the future engage in investment banking and other commercial dealings in the ordinary course of business with us and our affiliates, for which they may in the future receive customary fees, commissions and expenses.

In addition, in the ordinary course of their business activities, the underwriters and their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers.

Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The underwriters and their affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Selling Restrictions

Notice to Prospective Investors in the European Economic Area

In relation to each Member State of the European Economic Area, or a Member State, no securities have been offered or will be offered pursuant to the offering to the public in that Member State prior to the publication of a prospectus in relation to the securities which has been approved by the competent authority in that Member State or, where appropriate, approved in another Member State and notified to the competent authority in that Member State, all in accordance with the Prospectus Regulation, except that offers of securities may be made to the public in that Member State at any time under the following exemptions under the Prospectus Regulation:

A. to any legal entity which is a qualified investor as defined under the Prospectus Regulation;

B. to fewer than 150 natural or legal persons (other than qualified investors as defined under the Prospectus Regulation), subject to obtaining the prior consent of the underwriters; or

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

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

In the case of any securities being offered to a financial intermediary as that term is used in Prospectus Regulation, each such financial intermediary will be deemed to have represented, acknowledged and agreed that

the securities acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer of any securities to the public other than their offer or resale in a Member State to qualified investors as so defined or in circumstances in which the prior consent of the underwriters have been obtained to each such proposed offer or resale.

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

Notice to Prospective Investors in the United Kingdom

In addition, in the United Kingdom, this document is being distributed only to, and is directed only at, and any offer subsequently made may only be directed at persons who are "qualified investors" (as defined in the Prospectus Regulation) (i) who have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended, or the Order, and/or (ii) who are high net worth companies (or persons to whom it may otherwise be lawfully communicated) falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as "relevant persons") or otherwise in circumstances which have not resulted and will not result in an offer to the public of the securities in the United Kingdom within the meaning of the Financial Services and Markets Act 2000.

Any person in the United Kingdom that is not a relevant person should not act or rely on the information included in this document or use it as basis for taking any action. In the United Kingdom, any investment or investment activity that this document relates to may be made or taken exclusively by relevant persons.

Notice to Prospective Investors in Canada

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

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

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

Notice to Prospective Investors in Switzerland

The securities may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange, or SIX, or on any other stock exchange or regulated trading facility in Switzerland. This document does not constitute a prospectus within the meaning of, and has been prepared without regard to the disclosure standards

for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the securities or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, the Company or the securities have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of securities will not be supervised by, the Swiss Financial Market Supervisory Authority, and the offer of securities has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes, or CISA. The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of securities.

LEGAL MATTERS

The validity of the securities being offered in this prospectus will be passed upon for us by Troutman Pepper Hamilton Sanders LLP. Certain legal matters will be passed upon for the underwriters by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.

EXPERTS

The financial statements incorporated in this prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2021 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus supplement and the accompanying prospectus form part of a registration statement on Form S-3 filed with the SEC under the Securities Act. This prospectus supplement and the accompanying prospectus do not contain all the information set forth in the registration statement and the exhibits to the registration statement or the documents incorporated by reference herein and therein. For further information with respect to us and the securities that we are offering under this prospectus supplement and accompanying prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement and the documents incorporated by reference herein and therein.

We are currently subject to the reporting requirements of the Exchange Act, and in accordance therewith file periodic reports, proxy statements and other information with the SEC. Our SEC filings are available to you on the SEC's website at http://www.sec.gov and in the "Investors" section of our website at www.larimartx.com. Our website and the information contained on that site, or connected to that site, are not incorporated into and are not a part of this prospectus supplement or the accompanying prospectus.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

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

- Our Annual Report on Form 10-K for the year ended December 31, 2021, filed with the SEC on March 25, 2022;
- Our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2022 and June 30, 2022, filed with the SEC on May 12, 2022 and August 11, 2022, respectively;
- The information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2021 from our Definitive Proxy Statement on Schedule 14A, filed on April 12, 2022;

- Our Current Reports on Form 8-K, filed with the SEC on February 14, 2022, February 28, 2022, March 25, 2022, April 11, 2022, May 12, 2022 (both filings), August 11, 2022 and September 14, 2022 (other than any portions thereof deemed furnished and not filed); and
- The description of our common stock contained in our registration statement on Form 8-A (File No. 001-36510) filed with the SEC on June 18, 2014, under the Exchange Act, including any amendment or report filed for the purpose of updating such description, including Exhibit 4.2 to our Annual Report on Form 10-K for the year ended December 31, 2021.

In addition, all documents that we file with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus supplement and before the termination of the offering of our securities shall be deemed incorporated by reference into this prospectus supplement and accompanying prospectus and to be a part of this prospectus supplement and the accompanying prospectus from the respective dates of filing such documents. We are not, however, incorporating by reference any documents or portions thereof, whether specifically listed above or filed in the future, that are not deemed "filed" with the SEC, including any information furnished pursuant to items 2.02 or 7.01 of Form 8-K or related exhibits furnished pursuant to Item 9.01 of Form 8-K.

Any statement contained in a document incorporated by reference in this prospectus supplement and the accompanying prospectus shall be deemed to be modified or superseded for purposes of this prospectus supplement and the accompanying prospectus to the extent that a statement contained in this prospectus supplement or in any other subsequently filed document that also is or is deemed to be incorporated by reference in this prospectus supplement modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus supplement or the accompanying prospectus.

You may obtain copies of any of these filings by contacting us at the address and telephone number indicated below. Documents incorporated by reference are available from us without charge, excluding all exhibits unless an exhibit has been specifically incorporated by reference into this prospectus supplement and the accompanying prospectus, by requesting them in writing or by telephone at:

Larimar Therapeutics, Inc.
Three Bala Plaza East, Suite 506
Bala Cynwyd, PA 19004
(844) 511-9056
Attention: Chief Financial Officer

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PROSPECTUS

$200,000,000

Common Stock
Preferred Stock
Debt Securities
Warrants
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Subscription Rights

We may offer and sell up to $200,000,000 in the aggregate of the securities identified above from time to time in one or more offerings. This prospectus provides you with a general description of the securities.

Each time we offer and sell securities, we will provide a supplement to this prospectus that contains specific information about the offering and the amounts, prices and terms of the securities. The supplement may also add, update or change information contained in this prospectus with respect to that offering. You should carefully read this prospectus and the applicable prospectus supplement before you invest in any of our securities.

We may offer and sell the securities described in this prospectus and any prospectus supplement to or through one or more underwriters, dealers and agents, or directly to purchasers, or through a combination of these methods. If any underwriters, dealers or agents are involved in the sale of any of the securities, their names and any applicable purchase price, fee, commission or discount arrangement between or among them will be set forth, or will be calculable from the information set forth, in the applicable prospectus supplement. See the sections of this prospectus entitled “About this Prospectus” and “Plan of Distribution” for more information. No securities may be sold without delivery of this prospectus and the applicable prospectus supplement describing the method and terms of the offering of such securities.

INVESTING IN OUR SECURITIES INVOLVES RISKS. SEE THE “RISK FACTORS” ON PAGE 7 OF THIS PROSPECTUS AND ANY SIMILAR SECTION CONTAINED IN THE APPLICABLE PROSPECTUS SUPPLEMENT CONCERNING FACTORS YOU SHOULD CONSIDER BEFORE INVESTING IN OUR SECURITIES.

Our common stock is listed on the Nasdaq Global Market under the symbol “LRMR.” On August 13, 2020, the last reported sale price of our common stock on the Nasdaq Global Market was $11.89 per share.

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

The date of this prospectus is September 1, 2020.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the U.S. Securities and Exchange Commission, or the SEC, using a "shelf" registration process. By using a shelf registration statement, we may sell securities from time to time and in one or more offerings up to a total dollar amount of $200,000,000 as described in this prospectus.

This prospectus provides you only with a general description of the securities that we may offer. Each time that we offer and sell securities, we will provide a prospectus supplement to this prospectus that contains specific information about the securities being offered and sold and the specific terms of that offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. The prospectus supplement or free writing prospectus may also add, update or change information contained in this prospectus with respect to that offering. If there is any inconsistency between the information in this prospectus and the applicable prospectus supplement or free writing prospectus, you should rely on the prospectus supplement or free writing prospectus, as applicable. Before purchasing any securities, you should carefully read both this prospectus and the applicable prospectus supplement (and any applicable free writing prospectuses), together with the additional information described under the heading "Where You Can Find More Information."

We have not authorized anyone to provide you with any information or to make any representations other than those contained in, or incorporated by reference in, this prospectus, any applicable prospectus supplement or any free writing prospectuses prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We will not make an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus and the applicable prospectus supplement to this prospectus is accurate only as of the date on its respective cover, that the information appearing in any applicable free writing prospectus is accurate only as of the date of that free writing prospectus, and that any information incorporated by reference is accurate only as of the date of the document incorporated by reference, unless we indicate otherwise. Our business, financial condition, results of operations and prospects may have changed since those dates.

When we refer to "Larimar," "we," "our," "us" and the "Company" in this prospectus, we mean Larimar Therapeutics, Inc., and its subsidiaries unless otherwise specified. When we refer to "you," we mean the potential holders of the applicable series of securities.

Solely for convenience, tradenames referred to in this prospectus appear without the ® and ™ symbols, but those references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights, or that the applicable owner will not assert its rights, to these tradenames.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of the registration statement on Form S-3 filed with the SEC under the Securities Act and does not contain all the information set forth in the registration statement. Whenever a reference is made in this prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated herein by reference for a copy of such contract, agreement or other document.

We are currently subject to the reporting requirements of the Exchange Act, and in accordance therewith files periodic reports, proxy statements and other information with the SEC. Our SEC filings are available to you on the SEC's website at http://www.sec.gov and in the "Investor Relations" section of our website at www.larimartx.com. Our website and the information contained on that site, or connected to that site, are not incorporated into and are not a part of this prospectus.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

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

- Our Annual Report on Form 10-K for the year ended December 31, 2019 filed with the SEC on March 5, 2020;
- Our Quarterly Reports on Form 10-Q for the quarter ended March 31, 2020, filed with the SEC on May 7, 2020 and for the quarter ended June 30, 2020, filed with the SEC on August 14, 2020;
- The information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2019 from our Definitive Proxy Statement on Form DEFM 14-A, filed on April 29, 2020;
- Our Current Reports on Form 8-K and 8-K/A filed with the SEC on August 14, 2020, August 6, 2020, June 26, 2020, June 2, 2020, April 24, 2020, March 9, 2020 and January 13, 2020 (in each case other than any portions thereof deemed furnished and not filed); and
- The description of our common stock contained in our registration statement on Form 8-A (File No. 001-36510) filed with the SEC on June 18, 2014, under the Exchange Act, including any amendment or report filed for the purpose of updating such description.

We also incorporate by reference any future filings (other than any filings or portions of such reports that are not deemed "filed" under the Exchange Act in accordance with the Exchange Act and applicable SEC rules, including current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits furnished on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the registration statement of which this prospectus is a part and prior to the effectiveness of the registration statement, until we file a post-effective amendment that indicates the termination of the offering of the securities made by this prospectus and will become a part of this prospectus from the date that such documents are filed with the SEC. Information in such future filings updates and supplements the information provided in this prospectus. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements.

Documents that are incorporated by reference in this prospectus but were filed under the Exchange Act before May 28, 2020 do not reflect the Merger or the resulting change in our name or capital structure. We describe these matters below under the section entitled "About Larimar."

We additionally incorporate by reference to the Company's Definitive Proxy Statement on Form DEFM 14-A, filed on April 29, 2020 and prepared in connection with the solicitation of the proxies from the Company's stockholders to approve the Merger, the description of the business of Chondrial Therapeutics, Inc., or Chondrial, contained under the heading "Chondrial's Business," and the description of management of the Company contained under the heading "Executive Officers and Directors Following the Merger."

We will furnish without charge to you, upon written or oral request, a copy of any or all of the documents incorporated by reference, including exhibits to these documents by writing or telephoning us at the following address or phone number below. You may also access this information on our website at www.larimartx.com by viewing the "Financials & Filings" subsection of the "Investors" menu. No additional information is deemed to be part of or incorporated by reference into this prospectus.

Larimar Therapeutics, Inc.
Three Bala Plaza East, Suite 506
Bala Cynwyd, PA 19004
(844) 511-9056
Attention: Vice President of Regulatory Affairs and Counsel

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, any applicable prospectus supplement and the documents incorporated by reference may contain forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act, about us and our subsidiaries. These forward-looking statements are intended to be covered by the safe harbor for forward-looking statements provided by the Private Securities Litigation Reform Act of 1995. Forward-looking statements are not statements of historical fact, and can be identified by the use of forward-looking terminology such as "believes," "expects," "may," "will," "could," "should," "projects," "plans," "goal," "targets," "potential," "estimates," "pro forma," "seeks," "intends" or "anticipates" or the negative thereof or comparable terminology. Forward-looking statements include, but are not limited to, statements concerning:

- our estimates regarding future results of operations, financial position, research and development costs, capital requirements and our needs for additional financing;
- how long we can continue to fund our operations with our existing cash, cash equivalents and marketable debt securities;
- our ability to optimize and scale CTI-1601 or any other product candidate's manufacturing process and to manufacture sufficient quantities of clinical and, if approved, commercial supplies of CTI-1601;
- our ability to realize any value from CTI-1601 and any other product candidate we may develop in the future and nonclinical programs being developed and anticipated to be developed in light of inherent risks and difficulties involved in successfully bringing product candidates to market and the risk that products will not achieve broad market acceptance;
- delays in our anticipated clinical timelines, patient recruitment and milestones for CTI-1601, including those associated with COVID-19;
- uncertainties in obtaining successful clinical results for CTI-1601 or any other product candidate that we may develop in the future and unexpected costs that may result therefrom;
- our ability to comply with regulatory requirements applicable to our business and other regulatory developments in the United States and foreign countries;
- the uncertainties associated with the clinical development and regulatory approval for CTI-1601 or any other product candidate that we may develop in the future, including potential delays in the commencement, enrollment and completion of clinical trials;
- the difficulties and expenses associated with obtaining and maintaining regulatory approval for CTI-1601 or any other product candidate we may develop in the future, and the indication and labeling under any such approval;
- the size and growth of the potential markets for CTI-1601 or any other product candidate that we may develop in the future, the rate and degree of market acceptance of CTI-1601 or any other product candidate that we may develop in the future and our ability to serve those markets;
- the success of competing therapies and products that are or become available;
- our ability to obtain and maintain patent protection and defend our intellectual property rights against third-parties;
- the performance of third-parties upon which we depend, including third-party contract research organizations, or CROs, and third-party suppliers, manufacturers, group purchasing organizations, distributors and logistics providers;
- our ability to maintain our relationships, profitability and contracts with our key commercial partners;
- our ability to recruit or retain key scientific, technical, commercial, and management personnel or to retain our executive officers;

- our ability to comply with stringent U.S. and foreign government regulations in the manufacturing of pharmaceutical products, including good manufacturing practice compliance and other relevant regulatory authorities;
- our ability to maintain proper functionality and security of our internal computer and information systems and prevent or avoid cyber-attacks, malicious intrusion, breakdown, destruction, loss of data privacy or other significant disruption; and
- the extent to which health epidemics and other outbreaks of communicable diseases, including the recent outbreak of COVID-19, disrupt our operations, the operations of third parties on which we rely or the operations of regulatory agencies we interact with in the development of CTI-1601.

You should read this prospectus and the documents incorporated by reference completely and with the understanding that our actual future results may be materially different from what we currently expect. Our business and operations are and will be subject to a variety of risks, uncertainties and other factors. Consequently, actual results and experience may materially differ from those contained in any forward-looking statements. Such risks, uncertainties and other factors that could cause actual results and experience to differ from those projected include, but are not limited to, the risk factors discussed under the heading “Risk Factors” contained in this prospectus, any applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus.

You should assume that the information appearing in this prospectus, any accompanying prospectus supplement or related free writing prospectus and any document incorporated herein by reference is accurate as of its date only. Because the risk factors referred to above could cause actual results or outcomes to differ materially from those expressed in any forward-looking statements made by us or on our behalf, you should not place undue reliance on any forward-looking statements. Further, any forward-looking statement speaks only as of the date on which it is made. New factors emerge from time to time, and it is not possible for us to predict which factors will arise. In addition, we cannot assess the impact of each factor on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. Unless legally required, we do not undertake any obligation to release publicly any revisions to such forward-looking statements to reflect events or circumstances after the date of this prospectus or to reflect the occurrence of unanticipated events.

ABOUT LARIMAR

We are a clinical-stage biotechnology company focused on developing treatments for patients suffering from complex rare diseases using our novel cell penetrating peptide technology platform. Our lead product candidate, CTI-1601, is a subcutaneously administered, recombinant fusion protein intended to deliver human frataxin, or FXN, an essential protein, to the mitochondria of patients with Friedreich's Ataxia. Friedreich's Ataxia is a rare, progressive and fatal disease in which patients are unable to produce enough FXN due to a genetic abnormality. There is currently no effective therapy for Friedreich's Ataxia. CTI-1601 is currently being evaluated in Phase 1 clinical trials in patients with Friedreich's Ataxia. We have received orphan drug status, fast track designation and rare pediatric disease designation, from the U.S. Food and Drug Administration, or the FDA, for CTI-1601. In addition, the European Medicines Agency, or EMA, Committee for Orphan Medicinal Products issued a positive opinion on the Company's application for orphan drug designation for CTI-1601. The receipt of such designations or positive opinions may not result in a faster development process, review or approval compared to products considered for approval under conventional FDA or EMA procedures and does not assure ultimate approval by the FDA or EMA.

Our cell penetrating peptide technology platform, which enables a therapeutic molecule to cross a cell membrane in order to reach intracellular targets, has the potential to enable the treatment of other rare and orphan diseases. We intend to use our proprietary platform to target additional orphan indications characterized by deficiencies in or alterations of intracellular content or activity.

We were founded in 2005 as a Delaware corporation under the name Zafgen, Inc. Our principal executive offices are located at Three Bala Plaza East, Suite 506, Bala Cynwyd, PA 19004, and our telephone number is (844) 511-9056. Our website address is *www.larimartx.com*. The information on, or that can be accessed through, our website is not part of this prospectus and is not incorporated by reference herein. We have included our website address as an inactive textual reference only. References in this prospectus to "we," "us," "our," "our company" or "Larimar" refer to Larimar Therapeutics, Inc. and its subsidiaries.

The Merger, Reverse Stock Split and Name Change

On May 28, 2020, we completed our business combination with Chondrial in accordance with the terms of the Agreement and Plan of Merger, or the Merger Agreement, dated as of December 17, 2019, as amended, by and among ourselves, Chondrial, Chondrial Therapeutics Holdings, LLC, and Zordich Merger Sub, or Merger Sub, pursuant to which Merger Sub merged with and into Chondrial, with Chondrial surviving as our wholly owned subsidiary. We refer to this transaction as the "Merger."

In connection with, and immediately prior to the completion of, the Merger, we effected a reverse stock split of our common shares, at a ratio of 1-for-12, or the Reverse Stock Split. Under the terms of the Merger Agreement, we issued common shares to Chondrial Therapeutics Holdings, LLC at an exchange rate of 60,912.5005 common shares, after taking into account the Reverse Stock Split, for each unit of Chondrial Therapeutics Holdings, LLC outstanding immediately prior to the Merger. Immediately after completion of the Merger, we changed our name from "Zafgen, Inc." to "Larimar Therapeutics, Inc." Chondrial was determined to be the accounting acquirer, our historical financials became those of Chondrial and the business conducted by Chondrial became our business.

RISK FACTORS

Investment in any securities offered pursuant to this prospectus and the applicable prospectus supplement involves risks. You should carefully consider the risk factors included in our most recent Annual Report on Form 10-K, our most recent Quarterly Report on Form 10-Q, our current report on Form 8-K/A filed on June 26, 2020 and any subsequent Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q or Current Reports on Form 8-K we file after the date of this prospectus, and all other information contained or incorporated by reference into this prospectus, as updated by our subsequent filings under the Exchange Act, and the risk factors and other information contained in the applicable prospectus supplement and any applicable free writing prospectus before acquiring any of such securities. The occurrence of any of these risks might cause you to lose all or part of your investment in the offered securities.

USE OF PROCEEDS

Except as set forth in any accompanying prospectus supplement, we intend to use the net proceeds from the sale of any securities offered under this prospectus for general corporate purposes unless the applicable prospectus supplement provides otherwise. General corporate purposes may include, and are not limited to research and development costs, manufacturing costs, the acquisition or licensing of other businesses, products or product candidates, working capital and capital expenditures.

We may temporarily invest the net proceeds in a variety of capital preservation instruments, including investment grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government, or may hold such proceeds as cash, until they are used for their stated purpose. We have not determined the amount of net proceeds to be used specifically for such purposes. As a result, management will retain broad discretion over the allocation of net proceeds.

DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock is not complete and may not contain all the information you should consider before investing in our capital stock. This description is summarized from, and qualified in its entirety by reference to, our certificate of incorporation, which has been publicly filed with the SEC. See "Where You Can Find More Information." For a complete description, you should refer to our amended and restated certificate of incorporation and amended and restated bylaws, copies of which are incorporated by reference as exhibits to the registration statement of which this prospectus is a part.

Common Stock

Authorized Capital Stock. Our authorized capital stock consists of (i) 115,000,000 shares of common stock, par value $0.001 per share, of which 15,356,206 shares have been issued and are outstanding as of August 13, 2020, referred to as the capitalization date, and (ii) 5,000,000 shares of preferred stock, par value $0.001 per share, of which no shares have been issued and are outstanding as of the capitalization date. We do not hold any shares of our capital stock in its treasury.

Voting Rights. Holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of stockholders. The holders of our common stock do not have any cumulative voting rights.

Dividends. Holders of our common stock are entitled to receive ratably any dividends declared by our Board of Directors, or Board, out of funds legally available for that purpose, subject to any preferential dividend rights of any outstanding preferred stock.

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

Transfer Agent and Registrar. The transfer agent and registrar for our common stock is Computershare Trust Company, N.A.

Listing. Our common stock is listed on The Nasdaq Global Market under the symbol "LRMR." On August 13, 2020, the last reported sale price of our common stock on The Nasdaq Global Market was $11.89 per share. As of August 13, 2020, we had approximately 36 stockholders of record.

Reverse Split

On May 28, 2020, we filed an amendment to our Charter in order to effect a 1-for-12 reverse stock split of our common stock effective for trading purposes on May 29, 2020. The number of authorized stock remained unchanged at 120,000,000 shares.

Preferred Stock

Our Board currently has the authority, without further action by our stockholders, to issue up to 5,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms and the number of shares constituting, or the designation of, such series, any or all of which may be greater than the rights of common stock. The issuance of preferred stock by us could adversely affect the voting power of holders of our common stock and the likelihood that such holders will receive dividend payments and payments upon a liquidation of us. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing a change in control of us or other corporate action. No shares of preferred stock are outstanding, and we have no present plans to issue any shares of preferred stock.

Registration Rights

On May 28, 2020, in connection with the merger between Chondrial Therapeutics, Inc. and a wholly-owned subsidiary of ours, or the Merger, we entered into a Registration Rights Agreement, or the Merger Registration Rights Agreement, with the members of Chondrial Therapeutics Holdings, LLC pursuant to which we agreed that promptly, but no later than June 27, 2020, we would file a registration statement with the SEC covering the shares of common stock issued to Chondrial Therapeutics Holdings, LLC in exchange for all of the shares of common stock of Chondrial Therapeutics, Inc. and subsequently distributed to its members, or the Merger Shares. In addition, the Registration Rights Agreement also provides the members of Chondrial Therapeutics Holdings, LLC with demand and "piggy-back" registration rights, subject to certain minimum requirements and customary conditions.

In connection with a private placement of shares of common stock and pre-funded warrants to the certain investors on May 28, 2020, or the Private Placement, we entered into a Registration Rights Agreement, or the Private Placement Registration Rights Agreement, and collectively with the Merger Registration Rights Agreement, the Registration Rights Agreements, with our investors pursuant to which we have agreed that promptly, but no later than June 27, 2020, we would file a registration statement with the SEC covering (a) the shares of common stock issued in the Private Placement and (b) the shares of common stock underlying the pre-funded warrants issued in the Private Placement. We refer to these shares as the "Private Placement Shares" and, together with the Merger Shares, the "Registrable Shares."

On June 26, 2020, we filed a registration statement on Form S-3 registering all of the Registrable Shares, which was declared effective by the SEC on July 14, 2020.

Provisions of Our Charter and Bylaws and Delaware Anti-Takeover Law

Certain provisions of the Delaware General Corporation Law, or DGCL, and of our Charter and Bylaws could have the effect of delaying, deferring or discouraging another party from acquiring control of us. These provisions, which are summarized below, are expected to discourage certain types of coercive takeover practices and inadequate takeover bids and, as a consequence, they might also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions are also designed in part to encourage anyone seeking to acquire control of us to first negotiate with our Board. These provisions might also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders might otherwise deem to be in their best interests. However, we believe that the advantages gained by protecting our ability to negotiate with any unsolicited and potentially unfriendly acquirer outweigh the disadvantages of discouraging such proposals, including those priced above the then-current market value of our common stock, because, among other reasons, the negotiation of such proposals could improve their terms.

Board Composition and Filling Vacancies. Our Charter provides for the division of our Board into three classes serving staggered three-year terms, with one class being elected each year. Our Charter also provides that directors may be removed only for cause and then only by the affirmative vote of the holders of 75% or more of the shares then entitled to vote at an election of directors. Furthermore, any vacancy on our Board, however occurring, including a vacancy resulting from an increase in the size of our Board, may only be filled by the affirmative vote of a majority of our directors then in office even if less than a quorum.

No Written Consent of Stockholders. Our Charter provides that all stockholder actions are required to be taken by a vote of the stockholders at an annual or special meeting, and that stockholders may not take any action by written consent in lieu of a meeting.

Meetings of Stockholders. Our Charter and Bylaws provide that only a majority of the members of our Board then in office may call special meetings of stockholders and only those matters set forth in the notice of the

special meeting may be considered or acted upon at a special meeting of stockholders. Our Bylaws limit the business that may be conducted at an annual meeting of stockholders to those matters properly brought before the meeting.

Advance Notice Requirements. Our Bylaws establish advance notice procedures with regard to stockholder proposals relating to the nomination of candidates for election as directors or new business to be brought before meetings of our stockholders. These procedures provide that notice of stockholder proposals must be timely given in writing to our corporate secretary prior to the meeting at which the action is to be taken. Generally, to be timely, notice must be received at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary date of the annual meeting for the preceding year. Our Bylaws specify the requirements as to form and content of all stockholders' notices.

Amendment to Charter and Bylaws. As required by the DGCL, any amendment of our Charter must first be approved by a majority of our Board, and if required by law or our Charter, must thereafter be approved by a majority of the outstanding shares entitled to vote on the amendment and a majority of the outstanding shares of each class entitled to vote thereon as a class, except that the amendment of the provisions relating to stockholder action, board composition, limitation of liability and the amendment of our Charter must be approved by not less than 75% of the outstanding shares entitled to vote on the amendment, and not less than 75% of the outstanding shares of each class entitled to vote thereon as a class. Our Bylaws may be amended by the affirmative vote of a majority of the directors then in office, subject to any limitations set forth in the Bylaws; and may also be amended by the affirmative vote of at least 75% of the outstanding shares entitled to vote on the amendment, or, if our Board recommends that the stockholders approve the amendment, by the affirmative vote of the majority of the outstanding shares entitled to vote on the amendment, in each case voting together as a single class.

As a Delaware corporation, we are also subject to provisions of Delaware law, including Section 203 of the DGCL. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a three-year period following the time that this stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions:

- before the stockholder became interested, the board of directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances, but not the outstanding voting stock owned by the interested stockholder; or
- at or after the time the stockholder became interested, the business combination was approved by the board of directors and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, lease, pledge or other disposition involving the interested stockholder of 10% or more of the assets of the corporation any conflicts or violations of each party's agreements as a result of the merger or the merger agreement;
- subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;

- subject to exceptions, any transaction involving the corporation that has the effect of increasing the proportionate share of the interested stockholder; and
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

Exclusive Jurisdiction of Certain Actions. Our Charter provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our Charter or our Bylaws, or (iv) any action asserting a claim against us governed by the internal affairs doctrine. This provision does not apply to claims arising under the Exchange Act or the Securities Act. Although we believe this provision benefits us by providing increased consistency in the application of Delaware law in the types of lawsuits to which it applies, the provision may have the effect of discouraging lawsuits against our directors and officers. The enforceability of similar exclusive forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could rule that this provision in our Charter is inapplicable or unenforceable.

DESCRIPTION OF DEBT SECURITIES

The following description, together with the additional information we include in any applicable prospectus supplement or free writing prospectus, summarizes certain general terms and provisions of the debt securities that we may offer under this prospectus. When we offer to sell a particular series of debt securities, we will describe the specific terms of the series in a supplement to this prospectus. We will also indicate in the supplement to what extent the general terms and provisions described in this prospectus apply to a particular series of debt securities.

We may issue debt securities either separately, or together with, or upon the conversion or exercise of or in exchange for, other securities described in this prospectus. Debt securities may be our senior, senior subordinated or subordinated obligations and, unless otherwise specified in a supplement to this prospectus, the debt securities will be our direct, unsecured obligations and may be issued in one or more series.

The debt securities will be issued under an indenture between us and a third party to be identified therein. We have summarized select portions of the indenture below. The summary is not complete. The form of the indenture has been filed as an exhibit to the registration statement and you should read the indenture for provisions that may be important to you. In the summary below, we have included references to the section numbers of the indenture so that you can easily locate these provisions. Capitalized terms used in the summary and not defined herein have the meanings specified in the indenture.

As used in this section only, “Larimar,” “we,” “our” or “us” refer to Larimar Therapeutics, Inc. excluding our subsidiaries, unless expressly stated or the context otherwise requires.

General

The terms of each series of debt securities will be established by or pursuant to a resolution of our board of directors and set forth or determined in the manner provided in a resolution of our board of directors, in an officer’s certificate or by a supplemental indenture. (Section 2.2) The particular terms of each series of debt securities will be described in a prospectus supplement relating to such series (including any pricing supplement or term sheet).

We can issue an unlimited amount of debt securities under the indenture that may be in one or more series with the same or various maturities, at par, at a premium, or at a discount. (Section 2.1) We will set forth in a prospectus supplement (including any pricing supplement or term sheet) relating to any series of debt securities being offered, the aggregate principal amount and the following terms of the debt securities, if applicable:

- the title and ranking of the debt securities (including the terms of any subordination provisions);
- the price or prices (expressed as a percentage of the principal amount) at which we will sell the debt securities;
- any limit on the aggregate principal amount of the debt securities;
- the date or dates on which the principal of the securities of the series is payable;
- the rate or rates (which may be fixed or variable) per annum or the method used to determine the rate or rates (including any commodity, commodity index, stock exchange index or financial index) at which the debt securities will bear interest, the date or dates from which interest will accrue, the date or dates on which interest will commence and be payable and any regular record date for the interest payable on any interest payment date;
- the place or places where principal of, and interest, if any, on the debt securities will be payable (and the method of such payment), where the securities of such series may be surrendered for registration of transfer or exchange, and where notices and demands to us in respect of the debt securities may be delivered;

- the period or periods within which, the price or prices at which and the terms and conditions upon which we may redeem the debt securities;
- any obligation we have to redeem or purchase the debt securities pursuant to any sinking fund or analogous provisions or at the option of a holder of debt securities and the period or periods within which, the price or prices at which and in the terms and conditions upon which securities of the series shall be redeemed or purchased, in whole or in part, pursuant to such obligation;
- the dates on which and the price or prices at which we will repurchase debt securities at the option of the holders of debt securities and other detailed terms and provisions of these repurchase obligations;
- the denominations in which the debt securities will be issued, if other than denominations of $1,000 and any integral multiple thereof;
- whether the debt securities will be issued in the form of certificated debt securities or global debt securities;
- the portion of principal amount of the debt securities payable upon declaration of acceleration of the maturity date, if other than the principal amount;
- the currency of denomination of the debt securities, which may be United States Dollars or any foreign currency, and if such currency of denomination is a composite currency, the agency or organization, if any, responsible for overseeing such composite currency;
- the designation of the currency, currencies or currency units in which payment of principal of, premium and interest on the debt securities will be made;
- if payments of principal of, premium or interest on the debt securities will be made in one or more currencies or currency units other than that or those in which the debt securities are denominated, the manner in which the exchange rate with respect to these payments will be determined;
- the manner in which the amounts of payment of principal of, premium, if any, or interest on the debt securities will be determined, if these amounts may be determined by reference to an index based on a currency or currencies or by reference to a commodity, commodity index, stock exchange index or financial index;
- any provisions relating to any security provided for the debt securities;
- any addition to, deletion of or change in the Events of Default described in this prospectus or in the indenture with respect to the debt securities and any change in the acceleration provisions described in this prospectus or in the indenture with respect to the debt securities;
- any addition to, deletion of or change in the covenants described in this prospectus or in the indenture with respect to the debt securities;
- any depositaries, interest rate calculation agents, exchange rate calculation agents or other agents with respect to the debt securities;
- the provisions, if any, relating to conversion or exchange of any debt securities of such series, including if applicable, the conversion or exchange price and period, provisions as to whether conversion or exchange will be mandatory, the events requiring an adjustment of the conversion or exchange price and provisions affecting conversion or exchange;
- any other terms of the debt securities, which may supplement, modify or delete any provision of the indenture as it applies to that series, including any terms that may be required under applicable law or regulations or advisable in connection with the marketing of the securities; and
- whether any of our direct or indirect subsidiaries will guarantee the debt securities of that series, including the terms of subordination, if any, of such guarantees. (Section 2.2)

We may issue debt securities that provide for an amount less than their stated principal amount to be due and payable upon declaration of acceleration of their maturity pursuant to the terms of the indenture. We will provide you with information on the federal income tax considerations and other special considerations applicable to any of these debt securities in the applicable prospectus supplement.

If we denominate the purchase price of any of the debt securities in a foreign currency or currencies or a foreign currency unit or units, or if the principal of and any premium and interest on any series of debt securities is payable in a foreign currency or currencies or a foreign currency unit or units, we will provide you with information on the restrictions, elections, general tax considerations, specific terms and other information with respect to that issue of debt securities and such foreign currency or currencies or foreign currency unit or units in the applicable prospectus supplement.

Transfer and Exchange

Each debt security will be represented by either one or more global securities registered in the name of The Depository Trust Company, or the Depositary, or a nominee of the Depositary (we will refer to any debt security represented by a global debt security as a "book-entry debt security"), or a certificate issued in definitive registered form (we will refer to any debt security represented by a certificated security as a "certificated debt security") as set forth in the applicable prospectus supplement. Except as set forth under the heading "Global Debt Securities and Book-Entry System" below, book-entry debt securities will not be issuable in certificated form.

Certificated Debt Securities. You may transfer or exchange certificated debt securities at any office we maintain for this purpose in accordance with the terms of the indenture. (Section 2.4) No service charge will be made for any transfer or exchange of certificated debt securities, but we may require payment of a sum sufficient to cover any tax or other governmental charge payable in connection with a transfer or exchange. (Section 2.7)

You may effect the transfer of certificated debt securities and the right to receive the principal of, premium and interest on certificated debt securities only by surrendering the certificate representing those certificated debt securities and either reissuance by us or the trustee of the certificate to the new holder or the issuance by us or the trustee of a new certificate to the new holder.

Global Debt Securities and Book-Entry System. Each global debt security representing book-entry debt securities will be deposited with, or on behalf of, the Depositary, and registered in the name of the Depositary or a nominee of the Depositary. Please see "Global Securities."

Covenants

We will set forth in the applicable prospectus supplement any restrictive covenants applicable to any issue of debt securities. (Article IV)

No Protection in the Event of a Change of Control

Unless we state otherwise in the applicable prospectus supplement, the debt securities will not contain any provisions which may afford holders of the debt securities protection in the event we have a change in control or in the event of a highly leveraged transaction (whether or not such transaction results in a change in control) which could adversely affect holders of debt securities.

Consolidation, Merger and Sale of Assets

We may not consolidate with or merge with or into, or convey, transfer or lease all or substantially all of our properties and assets to any person (a "successor person") unless:

- we are the surviving corporation or the successor person (if other than Larimar) is a corporation organized and validly existing under the laws of any U.S. domestic jurisdiction and expressly assumes our obligations on the debt securities and under the indenture; and
- immediately after giving effect to the transaction, no Default or Event of Default, shall have occurred and be continuing.

Notwithstanding the above, any of our subsidiaries may consolidate with, merge into or transfer all or part of its properties to us. (Section 5.1)

Events of Default

"Event of Default" means with respect to any series of debt securities, any of the following:

- default in the payment of any interest upon any debt security of that series when it becomes due and payable, and continuance of such default for a period of 30 days (unless the entire amount of the payment is deposited by us with the trustee or with a paying agent prior to the expiration of the 30-day period);
- default in the payment of principal of any security of that series at its maturity;
- default in the performance or breach of any other covenant or warranty by us in the indenture (other than a covenant or warranty that has been included in the indenture solely for the benefit of a series of debt securities other than that series), which default continues uncured for a period of 60 days after we receive written notice from the trustee or Larimar and the trustee receive written notice from the holders of not less than 25% in principal amount of the outstanding debt securities of that series as provided in the indenture;
- certain voluntary or involuntary events of bankruptcy, insolvency or reorganization of Larimar; and
- any other Event of Default provided with respect to debt securities of that series that is described in the applicable prospectus supplement. (Section 6.1)

No Event of Default with respect to a particular series of debt securities (except as to certain events of bankruptcy, insolvency or reorganization) necessarily constitutes an Event of Default with respect to any other series of debt securities. (Section 6.1) The occurrence of certain Events of Default or an acceleration under the indenture may constitute an event of default under certain indebtedness of ours or our subsidiaries outstanding from time to time.

We will provide the trustee written notice of any Default or Event of Default within 30 days of becoming aware of the occurrence of such Default or Event of Default, which notice will describe in reasonable detail the status of such Default or Event of Default and what action we are taking or propose to take in respect thereof. (Section 6.1)

If an Event of Default with respect to debt securities of any series at the time outstanding occurs and is continuing, then the trustee or the holders of not less than 25% in principal amount of the outstanding debt securities of that series may, by a notice in writing to us (and to the trustee if given by the holders), declare to be due and payable immediately the principal of (or, if the debt securities of that series are discount securities, that portion of the principal amount as may be specified in the terms of that series) and accrued and unpaid interest, if any, on all debt securities of that series. In the case of an Event of Default resulting from certain events of bankruptcy, insolvency or reorganization, the principal (or such specified amount) of and accrued and unpaid interest, if any, on all outstanding debt securities will become and be immediately due and payable without any

declaration or other act on the part of the trustee or any holder of outstanding debt securities. At any time after a declaration of acceleration with respect to debt securities of any series has been made, but before a judgment or decree for payment of the money due has been obtained by the trustee, the holders of a majority in principal amount of the outstanding debt securities of that series may rescind and annul the acceleration if all Events of Default, other than the non-payment of accelerated principal and interest, if any, with respect to debt securities of that series, have been cured or waived as provided in the indenture. (Section 6.2) We refer you to the prospectus supplement relating to any series of debt securities that are discount securities for the particular provisions relating to acceleration of a portion of the principal amount of such discount securities upon the occurrence of an Event of Default.

The indenture provides that the trustee may refuse to perform any duty or exercise any of its rights or powers under the indenture unless the trustee receives indemnity satisfactory to it against any cost, liability or expense which might be incurred by it in performing such duty or exercising such right or power. (Section 7.1(e)) Subject to certain rights of the trustee, the holders of a majority in principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee or exercising any trust or power conferred on the trustee with respect to the debt securities of that series. (Section 6.12)

No holder of any debt security of any series will have any right to institute any proceeding, judicial or otherwise, with respect to the indenture or for the appointment of a receiver or trustee, or for any remedy under the indenture, unless:

- that holder has previously given to the trustee written notice of a continuing Event of Default with respect to debt securities of that series; and
- the holders of not less than 25% in principal amount of the outstanding debt securities of that series have made written request, and offered indemnity or security satisfactory to the trustee, to the trustee to institute the proceeding as trustee, and the trustee has not received from the holders of not less than a majority in principal amount of the outstanding debt securities of that series a direction inconsistent with that request and has failed to institute the proceeding within 60 days. (Section 6.7)

Notwithstanding any other provision in the indenture, the holder of any debt security will have an absolute and unconditional right to receive payment of the principal of, premium and any interest on that debt security on or after the due dates expressed in that debt security and to institute suit for the enforcement of payment. (Section 6.8)

The indenture requires us, within 120 days after the end of our fiscal year, to furnish to the trustee a statement as to compliance with the indenture. (Section 4.3) If a Default or Event of Default occurs and is continuing with respect to the securities of any series and if it is known to a responsible officer of the trustee, the trustee shall mail to each securityholder of the securities of that series notice of a Default or Event of Default within 90 days after it occurs or, if later, after a responsible officer of the trustee has knowledge of such Default or Event of Default. The indenture provides that the trustee may withhold notice to the holders of debt securities of any series of any Default or Event of Default (except in payment on any debt securities of that series) with respect to debt securities of that series if the trustee determines in good faith that withholding notice is in the interest of the holders of those debt securities. (Section 7.5)

Modification and Waiver

We and the trustee may modify, amend or supplement the indenture or the debt securities of any series without the consent of any holder of any debt security:

- to cure any ambiguity, defect or inconsistency;
- to comply with covenants in the indenture described above under the heading “Consolidation, Merger and Sale of Assets”;

- to provide for uncertificated securities in addition to or in place of certificated securities;
- to add guarantees with respect to debt securities of any series or secure debt securities of any series;
- to surrender any of our rights or powers under the indenture;
- to add covenants or events of default for the benefit of the holders of debt securities of any series;
- to comply with the applicable procedures of the applicable depositary;
- to make any change that does not adversely affect the rights of any holder of debt securities;
- to provide for the issuance of and establish the form and terms and conditions of debt securities of any series as permitted by the indenture;
- to effect the appointment of a successor trustee with respect to the debt securities of any series and to add to or change any of the provisions of the indenture to provide for or facilitate administration by more than one trustee; or
- to comply with requirements of the SEC in order to effect or maintain the qualification of the indenture under the Trust Indenture Act. (Section 9.1)

We may also modify and amend the indenture with the consent of the holders of at least a majority in principal amount of the outstanding debt securities of each series affected by the modifications or amendments. We may not make any modification or amendment without the consent of the holders of each affected debt security then outstanding if that amendment will:

- reduce the amount of debt securities whose holders must consent to an amendment, supplement or waiver;
- reduce the rate of or extend the time for payment of interest (including default interest) on any debt security;
- reduce the principal of or premium on or change the fixed maturity of any debt security or reduce the amount of, or postpone the date fixed for, the payment of any sinking fund or analogous obligation with respect to any series of debt securities;
- reduce the principal amount of discount securities payable upon acceleration of maturity;
- waive a default in the payment of the principal of, premium or interest on any debt security (except a rescission of acceleration of the debt securities of any series by the holders of at least a majority in aggregate principal amount of the then outstanding debt securities of that series and a waiver of the payment default that resulted from such acceleration);
- make the principal of or premium or interest on any debt security payable in currency other than that stated in the debt security;
- make any change to certain provisions of the indenture relating to, among other things, the right of holders of debt securities to receive payment of the principal of, premium and interest on those debt securities and to institute suit for the enforcement of any such payment and to waivers or amendments; or
- waive a redemption payment with respect to any debt security. (Section 9.3)

Except for certain specified provisions, the holders of at least a majority in principal amount of the outstanding debt securities of any series may on behalf of the holders of all debt securities of that series waive our compliance with provisions of the indenture. (Section 9.2) The holders of a majority in principal amount of the outstanding debt securities of any series may on behalf of the holders of all the debt securities of such series waive any past default under the indenture with respect to that series and its consequences, except a default in the payment of the principal of, premium or any interest on any debt security of that series; provided, however, that

the holders of a majority in principal amount of the outstanding debt securities of any series may rescind an acceleration and its consequences, including any related payment default that resulted from the acceleration. (Section 6.13)

Defeasance of Debt Securities and Certain Covenants in Certain Circumstances

Legal Defeasance. The indenture provides that, unless otherwise provided by the terms of the applicable series of debt securities, we may be discharged from any and all obligations in respect of the debt securities of any series (subject to certain exceptions). We will be so discharged upon the irrevocable deposit with the trustee, in trust, of money and/or U.S. government obligations or, in the case of debt securities denominated in a single currency other than U.S. Dollars, government obligations of the government that issued or caused to be issued such currency, that, through the payment of interest and principal in accordance with their terms, will provide money or U.S. government obligations in an amount sufficient in the opinion of a nationally recognized firm of independent public accountants or investment bank to pay and discharge each installment of principal, premium and interest on and any mandatory sinking fund payments in respect of the debt securities of that series on the stated maturity of those payments in accordance with the terms of the indenture and those debt securities.

This discharge may occur only if, among other things, we have delivered to the trustee an opinion of counsel stating that we have received from, or there has been published by, the United States Internal Revenue Service a ruling or, since the date of execution of the indenture, there has been a change in the applicable United States federal income tax law, in either case to the effect that, and based thereon such opinion shall confirm that, the holders of the debt securities of that series will not recognize income, gain or loss for United States federal income tax purposes as a result of the deposit, defeasance and discharge and will be subject to United States federal income tax on the same amounts and in the same manner and at the same times as would have been the case if the deposit, defeasance and discharge had not occurred. (Section 8.3)

Defeasance of Certain Covenants. The indenture provides that, unless otherwise provided by the terms of the applicable series of debt securities, upon compliance with certain conditions:

- we may omit to comply with the covenant described under the heading “Consolidation, Merger and Sale of Assets” and certain other covenants set forth in the indenture, as well as any additional covenants which may be set forth in the applicable prospectus supplement; and
- any omission to comply with those covenants will not constitute a Default or an Event of Default with respect to the debt securities of that series (“covenant defeasance”).

The conditions include:

- depositing with the trustee money and/or U.S. government obligations or, in the case of debt securities denominated in a single currency other than U.S. Dollars, government obligations of the government that issued or caused to be issued such currency, that, through the payment of interest and principal in accordance with their terms, will provide money in an amount sufficient in the opinion of a nationally recognized firm of independent public accountants or investment bank to pay and discharge each installment of principal of, premium and interest on and any mandatory sinking fund payments in respect of the debt securities of that series on the stated maturity of those payments in accordance with the terms of the indenture and those debt securities; and
- delivering to the trustee an opinion of counsel to the effect that we have received from, or there has been published by, the United States Internal Revenue Service a ruling or, since the date of execution of the indenture, there has been a change in the applicable United States federal income tax law, in either case to the effect that, and based thereon such opinion shall confirm that, the beneficial owners of the debt securities of that series will not recognize income, gain or loss for United States federal income tax purposes as a result of the deposit and related covenant defeasance and will be subject to United States federal income tax on the same amounts and in the same manner and at the same times as would have been the case if the deposit and related covenant defeasance had not occurred. (Section 8.4)

No Personal Liability of Directors, Officers, Employees or Securityholders

None of our past, present or future directors, officers, employees or securityholders, as such, will have any liability for any of our obligations under the debt securities or the indenture or for any claim based on, or in respect or by reason of, such obligations or their creation. By accepting a debt security, each holder waives and releases all such liability. (Section 10.8)

This waiver and release is part of the consideration for the issue of the debt securities. However, this waiver and release may not be effective to waive liabilities under U.S. federal securities laws, and it is the view of the SEC that such a waiver is against public policy.

Governing Law

The indenture and the debt securities, including any claim or controversy arising out of or relating to the indenture or the securities, will be governed by the laws of the State of New York.

The indenture will provide that we, the trustee and the holders of the debt securities (by their acceptance of the debt securities) irrevocably waive, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to the indenture, the debt securities or the transactions contemplated thereby.

The indenture will provide that any legal suit, action or proceeding arising out of or based upon the indenture or the transactions contemplated thereby may be instituted in the federal courts of the United States of America located in the City of New York or the courts of the State of New York in each case located in the City of New York, and we, the trustee and the holder of the debt securities (by their acceptance of the debt securities) irrevocably submit to the non-exclusive jurisdiction of such courts in any such suit, action or proceeding. The indenture will further provide that service of any process, summons, notice or document by mail (to the extent allowed under any applicable statute or rule of court) to such party's address set forth in the indenture will be effective service of process for any suit, action or other proceeding brought in any such court. The indenture will further provide that we, the trustee and the holders of the debt securities (by their acceptance of the debt securities) irrevocably and unconditionally waive any objection to the laying of venue of any suit, action or other proceeding in the courts specified above and irrevocably and unconditionally waive and agree not to plead or claim any such suit, action or other proceeding has been brought in an inconvenient forum. (Section 10.10)

DESCRIPTION OF WARRANTS

We may issue warrants for the purchase of shares of our common stock or preferred stock or of debt securities. We may issue warrants independently or together with other securities, and the warrants may be attached to or separate from any offered securities. Each series of warrants will be issued under a separate warrant agreement to be entered into between us and the investors or a warrant agent. The following summary of material provisions of the warrants and warrant agreements are subject to, and qualified in their entirety by reference to, all the provisions of the warrant agreement and warrant certificate applicable to a particular series of warrants. The terms of any warrants offered under a prospectus supplement may differ from the terms described below. We urge you to read the applicable prospectus supplement and any related free writing prospectus, as well as the complete warrant agreements and warrant certificates that contain the terms of the warrants.

The particular terms of any issue of warrants will be described in the prospectus supplement relating to the issue. Those terms may include:

- the number of shares of common stock or preferred stock purchasable upon the exercise of warrants to purchase such shares and the price at which such number of shares may be purchased upon such exercise;
- the designation, stated value and terms (including, without limitation, liquidation, dividend, conversion and voting rights) of the series of preferred stock purchasable upon exercise of warrants to purchase preferred stock;
- the principal amount of debt securities that may be purchased upon exercise of a debt warrant and the exercise price for the warrants, which may be payable in cash, securities or other property;
- the date, if any, on and after which the warrants and the related debt securities, preferred stock or common stock will be separately transferable;
- the terms of any rights to redeem or call the warrants;
- the date on which the right to exercise the warrants will commence and the date on which the right will expire;
- United States Federal income tax consequences applicable to the warrants; and
- any additional terms of the warrants, including terms, procedures, and limitations relating to the exchange, exercise and settlement of the warrants.

Holders of equity warrants will not be entitled to:

- vote, consent or receive dividends;
- receive notice as stockholders with respect to any meeting of stockholders for the election of our directors or any other matter; or
- exercise any rights as our stockholders.

Each warrant will entitle its holder to purchase the principal amount of debt securities or the number of shares of preferred stock or common stock at the exercise price set forth in, or calculable as set forth in, the applicable prospectus supplement. Unless we otherwise specify in the applicable prospectus supplement, holders of the warrants may exercise the warrants at any time up to the specified time on the expiration date that we set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

A holder of warrant certificates may exchange them for new warrant certificates of different denominations, present them for registration of transfer and exercise them at the corporate trust office of the warrant agent or any

other office indicated in the applicable prospectus supplement. Until any warrants to purchase debt securities are exercised, the holder of the warrants will not have any rights of holders of the debt securities that can be purchased upon exercise, including any rights to receive payments of principal, premium or interest on the underlying debt securities or to enforce covenants in the applicable indenture. Until any warrants to purchase common stock or preferred stock are exercised, the holders of the warrants will not have any rights of holders of the underlying common stock or preferred stock, including any rights to receive dividends or payments upon any liquidation, dissolution or winding up on the common stock or preferred stock, if any.

DESCRIPTION OF UNITS

We may issue units consisting of any combination of the other types of securities offered under this prospectus in one or more series. We may evidence each series of units by unit certificates that we will issue under a separate agreement. We may enter into unit agreements with a unit agent. Each unit agent will be a bank or trust company that we select. We will indicate the name and address of the unit agent in the applicable prospectus supplement relating to a particular series of units.

The following description, together with the additional information included in any applicable prospectus supplement, summarizes the general features of the units that we may offer under this prospectus. You should read any prospectus supplement and any free writing prospectus that we may authorize to be provided to you related to the series of units being offered, as well as the complete unit agreements that contain the terms of the units. Specific unit agreements will contain additional important terms and provisions and we will file as an exhibit to the registration statement of which this prospectus is a part, or will incorporate by reference from another report that we file with the SEC, the form of each unit agreement relating to units offered under this prospectus.

If we offer any units, certain terms of that series of units will be described in the applicable prospectus supplement, including, without limitation, the following, as applicable:

- the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- any provisions of the governing unit agreement;
- the price or prices at which such units will be issued;
- the applicable United States federal income tax considerations relating to the units;
- any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units; and
- any other terms of the units and of the securities comprising the units.

The provisions described in this section, as well as those described under “Description of Capital Stock,” “Description of Debt Securities” and “Description of Warrants” will apply to the securities included in each unit, to the extent relevant and as may be updated in any prospectus supplements.

DESCRIPTION OF OUR SUBSCRIPTION RIGHTS

As specified in any applicable prospectus supplement, we may issue subscription rights consisting of one or more debt securities, shares of preferred stock, shares of common stock or any combination of such securities.

GLOBAL SECURITIES

Book-Entry, Delivery and Form

Unless we indicate differently in any applicable prospectus supplement, the securities initially will be issued in book-entry form and represented by one or more global notes or global securities, or, collectively, global securities. The global securities will be deposited with, or on behalf of, The Depository Trust Company, New York, New York, as depositary, or DTC, and registered in the name of Cede & Co., the nominee of DTC. Unless and until it is exchanged for individual certificates evidencing securities under the limited circumstances described below, a global security may not be transferred except as a whole by the depositary to its nominee or by the nominee to the depositary, or by the depositary or its nominee to a successor depositary or to a nominee of the successor depositary.

DTC has advised us that it is:

- a limited-purpose trust company organized under the New York Banking Law;
- a "banking organization" within the meaning of the New York Banking Law;
- a member of the Federal Reserve System;
- a "clearing corporation" within the meaning of the New York Uniform Commercial Code; and
- a "clearing agency" registered pursuant to the provisions of Section 17A of the Exchange Act.

DTC holds securities that its participants deposit with DTC. DTC also facilitates the settlement among its participants of securities transactions, such as transfers and pledges, in deposited securities through electronic computerized book-entry changes in participants' accounts, thereby eliminating the need for physical movement of securities certificates. "Direct participants" in DTC include securities brokers and dealers, including underwriters, banks, trust companies, clearing corporations and other organizations. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation, or DTCC. DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others, which we sometimes refer to as indirect participants, that clear through or maintain a custodial relationship with a direct participant, either directly or indirectly. The rules applicable to DTC and its participants are on file with the SEC.

Purchases of securities under the DTC system must be made by or through direct participants, which will receive a credit for the securities on DTC's records. The ownership interest of the actual purchaser of a security, which we sometimes refer to as a beneficial owner, is in turn recorded on the direct and indirect participants' records. Beneficial owners of securities will not receive written confirmation from DTC of their purchases. However, beneficial owners are expected to receive written confirmations providing details of their transactions, as well as periodic statements of their holdings, from the direct or indirect participants through which they purchased securities. Transfers of ownership interests in global securities are to be accomplished by entries made on the books of participants acting on behalf of beneficial owners. Beneficial owners will not receive certificates representing their ownership interests in the global securities, except under the limited circumstances described below.

To facilitate subsequent transfers, all global securities deposited by direct participants with DTC will be registered in the name of DTC's partnership nominee, Cede & Co., or such other name as may be requested by an authorized representative of DTC. The deposit of securities with DTC and their registration in the name of Cede & Co. or such other nominee will not change the beneficial ownership of the securities. DTC has no knowledge of the actual beneficial owners of the securities. DTC's records reflect only the identity of the direct participants to whose accounts the securities are credited, which may or may not be the beneficial owners. The participants are responsible for keeping account of their holdings on behalf of their customers.

So long as the securities are in book-entry form, you will receive payments and may transfer securities only through the facilities of the depositary and its direct and indirect participants. We will maintain an office or agency in the location specified in the prospectus supplement for the applicable securities, where notices and demands in respect of the securities and the indenture may be delivered to us and where certificated securities may be surrendered for payment, registration of transfer or exchange.

Conveyance of notices and other communications by DTC to direct participants, by direct participants to indirect participants and by direct participants and indirect participants to beneficial owners will be governed by arrangements among them, subject to any legal requirements in effect from time to time.

Redemption notices will be sent to DTC. If less than all of the securities of a particular series are being redeemed, DTC's practice is to determine by lot the amount of the interest of each direct participant in the securities of such series to be redeemed.

Neither DTC nor Cede & Co. (or such other DTC nominee) will consent or vote with respect to the securities. Under its usual procedures, DTC will mail an omnibus proxy to us as soon as possible after the record date. The omnibus proxy assigns the consenting or voting rights of Cede & Co. to those direct participants to whose accounts the securities of such series are credited on the record date, identified in a listing attached to the omnibus proxy.

So long as securities are in book-entry form, we will make payments on those securities to the depositary or its nominee, as the registered owner of such securities, by wire transfer of immediately available funds. If securities are issued in definitive certificated form under the limited circumstances described below and unless if otherwise provided in the description of the applicable securities herein or in the applicable prospectus supplement, we will have the option of making payments by check mailed to the addresses of the persons entitled to payment or by wire transfer to bank accounts in the United States designated in writing to the applicable trustee or other designated party at least 15 days before the applicable payment date by the persons entitled to payment, unless a shorter period is satisfactory to the applicable trustee or other designated party.

Redemption proceeds, distributions and dividend payments on the securities will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit direct participants' accounts upon DTC's receipt of funds and corresponding detail information from us on the payment date in accordance with their respective holdings shown on DTC records. Payments by participants to beneficial owners will be governed by standing instructions and customary practices, as is the case with securities held for the account of customers in bearer form or registered in "street name." Those payments will be the responsibility of participants and not of DTC or us, subject to any statutory or regulatory requirements in effect from time to time. Payment of redemption proceeds, distributions and dividend payments to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC, is our responsibility, disbursement of payments to direct participants is the responsibility of DTC, and disbursement of payments to the beneficial owners is the responsibility of direct and indirect participants.

Except under the limited circumstances described below, purchasers of securities will not be entitled to have securities registered in their names and will not receive physical delivery of securities. Accordingly, each beneficial owner must rely on the procedures of DTC and its participants to exercise any rights under the securities and the indenture.

The laws of some jurisdictions may require that some purchasers of securities take physical delivery of securities in definitive form. Those laws may impair the ability to transfer or pledge beneficial interests in securities.

DTC may discontinue providing its services as securities depositary with respect to the securities at any time by giving reasonable notice to us. Under such circumstances, in the event that a successor depositary is not obtained, securities certificates are required to be printed and delivered.

As noted above, beneficial owners of a particular series of securities generally will not receive certificates representing their ownership interests in those securities. However, if:

- DTC notifies us that it is unwilling or unable to continue as a depositary for the global security or securities representing such series of securities or if DTC ceases to be a clearing agency registered under the Exchange Act at a time when it is required to be registered and a successor depositary is not appointed within 90 days of the notification to us or of our becoming aware of DTC's ceasing to be so registered, as the case may be;
- we determine, in our sole discretion, not to have such securities represented by one or more global securities; or
- an Event of Default has occurred and is continuing with respect to such series of securities, we will prepare and deliver certificates for such securities in exchange for beneficial interests in the global securities.

Any beneficial interest in a global security that is exchangeable under the circumstances described in the preceding sentence will be exchangeable for securities in definitive certificated form registered in the names that the depositary directs. It is expected that these directions will be based upon directions received by the depositary from its participants with respect to ownership of beneficial interests in the global securities.

We have obtained the information in this section and elsewhere in this prospectus concerning DTC and DTC's book-entry system from sources that are believed to be reliable, but we take no responsibility for the accuracy of this information.

Euroclear and Clearstream

If so provided in the applicable prospectus supplement, you may hold interests in a global security through Clearstream Banking S.A., which we refer to as "Clearstream," or Euroclear Bank S.A./N.V., as operator of the Euroclear System, which we refer to as "Euroclear," either directly if you are a participant in Clearstream or Euroclear or indirectly through organizations which are participants in Clearstream or Euroclear. Clearstream and Euroclear will hold interests on behalf of their respective participants through customers' securities accounts in the names of Clearstream and Euroclear, respectively, on the books of their respective U.S. depositaries, which in turn will hold such interests in customers' securities accounts in such depositaries' names on DTC's books.

Clearstream and Euroclear are securities clearance systems in Europe. Clearstream and Euroclear hold securities for their respective participating organizations and facilitate the clearance and settlement of securities transactions between those participants through electronic book-entry changes in their accounts, thereby eliminating the need for physical movement of certificates.

Payments, deliveries, transfers, exchanges, notices and other matters relating to beneficial interests in global securities owned through Euroclear or Clearstream must comply with the rules and procedures of those systems. Transactions between participants in Euroclear or Clearstream, on one hand, and other participants in DTC, on the other hand, are also subject to DTC's rules and procedures.

Investors will be able to make and receive through Euroclear and Clearstream payments, deliveries, transfers and other transactions involving any beneficial interests in global securities held through those systems only on days when those systems are open for business. Those systems may not be open for business on days when banks, brokers and other institutions are open for business in the United States.

Cross-market transfers between participants in DTC, on the one hand, and participants in Euroclear or Clearstream, on the other hand, will be effected through DTC in accordance with the DTC's rules on behalf of Euroclear or Clearstream, as the case may be, by their respective U.S. depositaries; however, such cross-market

transactions will require delivery of instructions to Euroclear or Clearstream, as the case may be, by the counterparty in such system in accordance with the rules and procedures and within the established deadlines (European time) of such system. Euroclear or Clearstream, as the case may be, will, if the transaction meets its settlement requirements, deliver instructions to its U.S. depositary to take DTC, and making or receiving payment in accordance with normal procedures for same-day fund settlement. Participants in Euroclear or Clearstream may not deliver instructions directly to their respective U.S. depositaries.

Due to time zone differences, the securities accounts of a participant in Euroclear or Clearstream purchasing an interest in a global security from a direct participant in DTC will be credited, and any such crediting will be reported to the relevant participant in Euroclear or Clearstream, during the securities settlement processing day (which must be a business day for Euroclear or Clearstream) immediately following the settlement date of DTC. Cash received in Euroclear or Clearstream as a result of sales of interests in a global security by or through a participant in Euroclear or Clearstream to a direct participant in DTC will be received with value on the settlement date of DTC but will be available in the relevant Euroclear or Clearstream cash account only as of the business day for Euroclear or Clearstream following DTC's settlement date.

Other

The information in this section of this prospectus concerning DTC, Clearstream, Euroclear and their respective book-entry systems has been obtained from sources that we believe to be reliable, but we do not take responsibility for this information. This information has been provided solely as a matter of convenience. The rules and procedures of DTC, Clearstream and Euroclear are solely within the control of those organizations and could change at any time. Neither we nor the trustee nor any agent of ours or of the trustee has any control over those entities and none of us takes any responsibility for their activities. You are urged to contact DTC, Clearstream and Euroclear or their respective participants directly to discuss those matters. In addition, although we expect that DTC, Clearstream and Euroclear will perform the foregoing procedures, none of them is under any obligation to perform or continue to perform such procedures and such procedures may be discontinued at any time. Neither we nor any agent of ours will have any responsibility for the performance or nonperformance by DTC, Clearstream and Euroclear or their respective participants of these or any other rules or procedures governing their respective operations.

PLAN OF DISTRIBUTION

We may sell the securities from time to time pursuant to underwritten public offerings, "at the market offerings," negotiated transactions, block trades or a combination of these methods or through underwriters or dealers, through agents and/or directly to one or more purchasers. The securities may be distributed from time to time in one or more transactions:

- at a fixed price or prices, which may be changed;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices;
- in "at-the-market" offerings (as defined in Rule 415 under the Securities Act);
- at negotiated prices; or
- through any method permitted by applicable law and described in a prospectus supplement.

Each time that we sell securities covered by this prospectus, we will provide a prospectus supplement or supplements that will describe the method of distribution and set forth the terms and conditions of the offering of such securities, including the offering price of the securities and the proceeds to us, if applicable.

Offers to purchase the securities being offered by this prospectus may be solicited directly. Agents may also be designated to solicit offers to purchase the securities from time to time. Any agent involved in the offer or sale of our securities will be identified in a prospectus supplement.

If a dealer is utilized in the sale of the securities being offered by this prospectus, the securities will be sold to the dealer, as principal. The dealer may then resell the securities to the public at varying prices to be determined by the dealer at the time of resale.

If an underwriter is utilized in the sale of the securities being offered by this prospectus, an underwriting agreement will be executed with the underwriter at the time of sale and the name of any underwriter will be provided in the prospectus supplement that the underwriter will use to make resales of the securities to the public. In connection with the sale of the securities, we or the purchasers of securities for whom the underwriter may act as agent, may compensate the underwriter in the form of underwriting discounts or commissions. The underwriter may sell the securities to or through dealers, and those dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters and/or commissions from the purchasers for which they may act as agent. Unless otherwise indicated in a prospectus supplement, an agent will be acting on a best efforts basis and a dealer will purchase securities as a principal, and may then resell the securities at varying prices to be determined by the dealer.

Any compensation paid to underwriters, dealers or agents in connection with the offering of the securities, and any discounts, concessions or commissions allowed by underwriters to participating dealers will be provided in the applicable prospectus supplement. Underwriters, dealers and agents participating in the distribution of the securities may be deemed to be underwriters within the meaning of the Securities Act, and any discounts and commissions received by them and any profit realized by them on resale of the securities may be deemed to be underwriting discounts and commissions. We may enter into agreements to indemnify underwriters, dealers and agents against civil liabilities, including liabilities under the Securities Act, or to contribute to payments they may be required to make in respect thereof and to reimburse those persons for certain expenses.

Any common stock or preferred stock will be listed on the Nasdaq Global Market, but any other securities may or may not be listed on a national securities exchange.

To facilitate the offering of securities, and to the extent permitted by and in accordance with Regulation M under the Exchange Act, certain persons participating in the offering may engage in transactions that stabilize, maintain

or otherwise affect the price of the securities. This may include over-allotments or short sales of the securities, which involve the sale by persons participating in the offering of more securities than were sold to them. In these circumstances, these persons would cover such over-allotments or short positions by making purchases in the open market or by exercising their over-allotment option, if any. In addition, these persons may stabilize or maintain the price of the securities by bidding for or purchasing securities in the open market or by imposing penalty bids, whereby selling concessions allowed to dealers participating in the offering may be reclaimed if securities sold by them are repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. These transactions may be discontinued at any time.

To the extent permitted by and in accordance with Regulation M under the Exchange Act, any underwriters who are qualified market makers on Nasdaq may engage in passive market making transactions in the securities on Nasdaq during the business day prior to the pricing of an offering, before the commencement of offers or sales of the securities. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded.

If indicated in the applicable prospectus supplement, underwriters or other persons acting as agents may be authorized to solicit offers by institutions or other suitable purchasers to purchase the securities at the public offering price set forth in the prospectus supplement, pursuant to delayed delivery contracts providing for payment and delivery on the date or dates stated in the prospectus supplement. These purchasers may include, among others, commercial and savings banks, insurance companies, pension funds, investment companies and educational and charitable institutions. Delayed delivery contracts will be subject to the condition that the purchase of the securities covered by the delayed delivery contracts will not at the time of delivery be prohibited under the laws of any jurisdiction in the United States to which the purchaser is subject. The underwriters and agents will not have any responsibility with respect to the validity or performance of these contracts.

We may engage in at the market offerings into an existing trading market in accordance with Rule 415(a)(4) under the Securities Act. In addition, we may enter into derivative transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement so indicates, in connection with those derivatives, the third parties may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, the third party may use securities pledged by us or borrowed from us or others to settle those sales or to close out any related open borrowings of stock, and may use securities received from us in settlement of those derivatives to close out any related open borrowings of stock. The third party in such sale transactions will be an underwriter and, if not identified in this prospectus, will be named in the applicable prospectus supplement (or a post-effective amendment). In addition, we may otherwise loan or pledge securities to a financial institution or other third party that in turn may sell the securities short using this prospectus and an applicable prospectus supplement. Such financial institution or other third party may transfer its economic short position to investors in our securities or in connection with a concurrent offering of other securities.

The specific terms of any lock-up provisions in respect of any given offering will be described in the applicable prospectus supplement.

The underwriters, dealers and agents may engage in transactions with us, or perform services for us, in the ordinary course of business for which they receive compensation.

No securities may be sold under this prospectus without delivery, in paper format or in electronic format, or both, of the applicable prospectus supplement describing the method and terms of the offering.

LEGAL MATTERS

Troutman Pepper Sanders Hamilton LLP will pass upon certain legal matters relating to the issuance and sale of the securities offered hereby on behalf of Larimar Therapeutics, Inc. Additional legal matters may be passed upon for us or any underwriters, dealers or agents by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The financial statements incorporated in this Prospectus by reference to the Annual Report on Form 10-K of Zafgen, Inc. for the year ended December 31, 2019 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

The audited historical financial statements of Chondrial Therapeutics, Inc. included in Exhibit 99.3 of Larimar Therapeutics, Inc.'s Current Report on Form 8-K/A filed June 26, 2020 have been so incorporated in reliance on the report (which contains an explanatory paragraph describing conditions that raise substantial doubt about Chondrial Therapeutics, Inc.'s ability to continue as a going concern as described in Note 2 to the financial statements) of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

22,225,000 Shares of Common Stock

Prospectus Supplement

Guggenheim Securities

William Blair

LifeSci Capital **JMP Securities, a Citizen's Company**

September 13, 2022