

CHIMERIX INC
Form 424B5
June 11, 2015

**Filed Pursuant to Rule 424(b)(5)
Registration No. 333-204831**

***PROSPECTUS SUPPLEMENT
(To Prospectus dated June 9, 2015)***

3,775,000 Shares

COMMON STOCK

Chimerix, Inc. is offering 3,775,000 shares of its common stock. Our common stock is listed on the Nasdaq Global Market under the symbol CMRX. On June 10, 2015, the last reported sale price of our common stock on the Nasdaq Global Market was \$40.18 per share.

We are an emerging growth company as that term is used in the Jumpstart Our Business Startups Act of 2012 and, as such, have elected to comply with certain reduced public company reporting requirements for this prospectus and future filings.

Investing in our common stock involves risks. See Risk Factors beginning on page S-8, and in the documents which are incorporated by reference in this prospectus supplement and the accompanying prospectus.

PRICE \$39.75 A SHARE

	<i>Price to Public</i>	<i>Underwriting Discounts and Commissions⁽¹⁾</i>	<i>Proceeds to Company</i>
<i>Per Share</i>	\$ 39.750	2.385	\$ 37.365
<i>Total</i>	\$ 150,056,250	9,003,375	\$ 141,052,875

(1) We have agreed to reimburse the underwriters for certain FINRA-related expenses. See Underwriters.

To the extent that the underwriters sell more than 3,775,000 shares of common stock, the underwriters have the option for a period of 30 days from the date of this prospectus to purchase up to an additional 566,250 shares from Chimerix, Inc. at the public offering price less the underwriting discount.

The Securities and Exchange Commission and state securities regulators have not approved or disapproved these securities, or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The underwriters expect to deliver the shares of common stock to purchasers on June 16, 2015.

MORGAN STANLEY

J.P. MORGAN

COWEN AND COMPANY

BARCLAYS

PIPER JAFFRAY
June 10, 2015

STIFEL

WILLIAM BLAIR

TABLE OF CONTENTS

TABLE OF CONTENTS

Prospectus Supplement

	Page
<u>About this Prospectus Supplement</u>	<u>S-iii</u>
<u>Prospectus Supplement Summary</u>	<u>S-1</u>
<u>Risk Factors</u>	<u>S-8</u>
<u>Forward-Looking Statements</u>	<u>S-10</u>
<u>Use of Proceeds</u>	<u>S-12</u>
<u>Price Range of Our Common Stock</u>	<u>S-13</u>
<u>Dividend Policy</u>	<u>S-13</u>
<u>Capitalization</u>	<u>S-14</u>
<u>Dilution</u>	<u>S-15</u>
<u>Material U.S. Federal Income and Estate Tax Consequences to Non-U.S. Holders</u>	<u>S-16</u>
<u>Underwriters</u>	<u>S-20</u>
<u>Legal Matters</u>	<u>S-25</u>
<u>Experts</u>	<u>S-25</u>
<u>Where You Can Find More Information</u>	<u>S-25</u>
<u>Incorporation of Certain Information by Reference</u>	<u>S-26</u>

Prospectus

	Page
<u>About this Prospectus</u>	<u>ii</u>
<u>Summary</u>	<u>1</u>
<u>Risk Factors</u>	<u>3</u>
<u>Special Note Regarding Forward-Looking Statements</u>	<u>4</u>
<u>Use of Proceeds</u>	<u>5</u>
<u>Description of Capital Stock</u>	<u>6</u>
<u>Plan of Distribution</u>	<u>10</u>
<u>Legal Matters</u>	<u>12</u>
<u>Experts</u>	<u>12</u>
<u>Where You Can Find More Information</u>	<u>12</u>
<u>Incorporation of Certain Information by Reference</u>	<u>13</u>
<u>Disclosure of Commission Position on Indemnification For Securities Act Liability</u>	<u>13</u>

Neither we, nor any underwriter, has authorized anyone to provide you with information different from, or in addition to, that contained in or incorporated by reference in this prospectus supplement, the accompanying prospectus or in any free writing prospectus prepared by or on behalf of us or to which we may have referred you in connection with this offering. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are not, and the underwriters are not, making 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 supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and in any free writing prospectus that we have authorized for use in connection with this

S-i

TABLE OF CONTENTS

offering, is accurate only as of the date of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and any free writing prospectus that we have authorized for use in connection with this offering, in their entirety before making an investment decision. You should also read and consider the information in the documents to which we have referred you in the sections of this prospectus supplement entitled **Where You Can Find More Information** and **Incorporation of Certain Information by Reference**.

S-ii

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS SUPPLEMENT

This document is in two parts. The first part is this prospectus supplement, which describes the terms of this offering of common stock and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The second part, the accompanying prospectus dated June 9, 2015, including the documents incorporated by reference therein, provides more general information. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus or in any document incorporated by reference that was filed with the Securities and Exchange Commission, or SEC, before the date of this prospectus supplement, on the other hand, you should rely on the information in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date for example, a document incorporated by reference in the accompanying prospectus the statement in the document having the later date modifies or supersedes the earlier statement. You should assume that the information contained in this prospectus supplement is accurate as of the date on the front cover of this prospectus supplement only and that any information we have incorporated by reference or included in the accompanying prospectus is accurate only as of the date given in the document incorporated by reference or as of the date of the prospectus, as applicable, regardless of the time of delivery of this prospectus supplement or the accompanying prospectus or any sale of our common stock. Our business, financial condition, results of operations and prospects may have changed since that date.

All references in this prospectus supplement and the accompanying prospectus to Chimerix, the Company, we, us, our, or similar references refer to Chimerix, Inc.

We have obtained a registered trademark for Chimerix® in the United States. This prospectus supplement, the accompanying prospectus, and the information incorporated herein and therein by reference contain references to our trademarks and to trademarks belonging to other entities. Solely for convenience, trademarks and trade names referred to in this prospectus supplement, the accompanying prospectus, and the information incorporated herein and therein by reference, including logos, artwork and other visual displays, may appear without the ® or ™ symbols, but such 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 rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other companies trade names or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

MARKET, INDUSTRY AND OTHER DATA

The documents incorporated by reference into this prospectus supplement and the accompanying prospectus contain estimates, projections and other information concerning our industry, our business and relevant antiviral markets, including data regarding the estimated size of relevant antiviral markets, patient populations, projected diagnosis rates and the perceptions and preferences of patients and physicians regarding certain therapies, as well as data regarding market research and estimates. Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances that are assumed in this information. Unless otherwise expressly stated, we obtained this industry, business, market and other data from reports, research surveys, studies and similar data prepared by market research firms and other third parties, industry, medical and general publications, government data and similar sources that we believe to be reliable. In some cases, we do not expressly refer to the sources from which this data is derived. In that regard, when we refer to one or more sources of this type of data in any paragraph, you should assume

that other data of this type appearing in the same paragraph is derived from the same sources, unless otherwise expressly stated or the context otherwise requires.

S-iii

TABLE OF CONTENTS

PROSPECTUS SUPPLEMENT SUMMARY

*This summary highlights certain information about us, this offering and selected information contained elsewhere in or incorporated by reference into this prospectus supplement. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our common stock. For a more complete understanding of our company and this offering, we encourage you to read and consider carefully the more detailed information in this prospectus supplement and the accompanying prospectus, including the information incorporated by reference in this prospectus supplement and the accompanying prospectus, and the information included in any free writing prospectus that we have authorized for use in connection with this offering, including the information referred to under the heading *Risk Factors* in this prospectus supplement beginning on page S-8 and in the documents incorporated by reference to this prospectus supplement and the accompanying prospectus.*

Company Overview

Chimerix is a biopharmaceutical company dedicated to discovering, developing and commercializing novel, oral antivirals to address unmet medical needs. We were founded in 2000 based on the promise of our proprietary lipid conjugate technology to unlock the potential of some of the most potent broad-spectrum antivirals by enhancing their antiviral activity and safety profiles in convenient, orally administered dosing regimens. Based on our proprietary lipid conjugate technology, our lead compound, brincidofovir (BCV or CMX001), is in Phase 3 clinical development. In addition, we have an active discovery program focusing on viral targets for which limited or no therapies are currently available or where current therapies have significant liabilities.

Product Pipeline

The following chart depicts our product pipeline, including our product candidate, brincidofovir, its indications, and its current stage of development:

S-1

TABLE OF CONTENTS

Recent Developments

SUPPRESS Enrollment

We have successfully enrolled the targeted 450 patients in our SUPPRESS trial, which is our Phase 3 trial evaluating brincidofovir for the prevention of clinically significant cytomegalovirus (CMV) infection in hematopoietic cell transplant (HCT) recipients, also known as bone marrow or stem cell transplant recipients. We anticipate reporting topline data from SUPPRESS in early 2016.

Biomedical Advanced Research and Development Authority

On May 13, 2015, the Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response, Biomedical Advanced Research and Development Authority (BARDA) advised us that SIGA Technologies, Inc. had submitted a formal protest to the Government Accountability Office (GAO) with respect to BARDA's notice of intent to use other than full and open competition to award a sole source contract to us for procurement of brincidofovir for the treatment of smallpox. We have notified the GAO of our intent to intervene in the protest proceeding to protect our rights as the announced awardee under the Notice of Intent.

Research and Development Expenses

As previously announced, we plan to increase our research and development expenses for the foreseeable future as we continue development of brincidofovir for the prevention of CMV infection in HCT recipients, for the treatment of adenovirus (AdV) infections and for the prevention of CMV in renal transplant recipients, among other research and development activities. In particular, we expect our research and development expenses for 2015 to significantly exceed prior year levels as a result of:

the impact of SURPASS and SUSTAIN trial activities in 2015;
the expansion of our AdVise trial into Europe and Australia in 2015;
ongoing development and production of drug supply;
commencement of various supporting studies; and

the addition of personnel to support our Phase 3 trials, commercial drug production, and preparation of an NDA filing.

Assuming the completion and finalization of SUPPRESS, continued patient enrollment in our ongoing Phase 3 AdVise trial, the expansion of our AdVise trial into Europe, and the initiation of our SURPASS and SUSTAIN trial activities, our research and development expenses for the year ending December 31, 2015 may be as high as \$125.0 million. We are providing this forward-looking guidance with respect to 2015 research and development expenses solely in connection with the potential public offering of our common stock contemplated by this prospectus supplement, and we do not expect to provide similar forward-looking guidance on a regular basis in the future.

Corporate Information

We were incorporated in the State of Delaware in April 2000. Our corporate headquarters are located at 2505 Meridian Parkway, Suite 340, Durham, North Carolina 27713 in a facility we lease encompassing approximately 21,000 square feet of office space. The leases for this facility expire in February 2021 and February 2018. We separately lease an additional 7,925 square feet of laboratory space in Durham, North Carolina. The lease for this facility expires in June 2018.

Our corporate website address is *www.chimerix.com*. Information contained on, or accessible through, our website is not a part of this prospectus supplement or the accompanying prospectus, and the inclusion of our website address in this prospectus supplement is an inactive textual reference only.

S-2

TABLE OF CONTENTS

We are an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012. We will remain an emerging growth company until the earlier of (a) December 31, 2018, (b) the last day of the fiscal year in which we have total annual gross revenue of at least \$1.0 billion, (c) the last day of the fiscal year in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds \$700.0 million as of the prior June 30th, and (d) the date on which we have issued more than \$1.0 billion in non-convertible debt during the prior three-year period. We refer to the Jumpstart Our Business Startups Act of 2012 in this prospectus supplement as the JOBS Act, and references in this prospectus supplement to emerging growth company shall have the meaning associated with it in the JOBS Act.

S-3

TABLE OF CONTENTS

THE OFFERING

Issuer

Chimerix, Inc., a Delaware corporation

Common stock offered by us

3,775,000 shares

Common stock to be outstanding immediately after this offering

45,085,063 shares

Option to purchase additional shares

We have granted the underwriters an option to purchase up to 566,250 additional shares of our common stock. This option is exercisable, in whole or in part, for a period of 30 days from the date of this prospectus supplement.

Use of proceeds

We estimate that we will receive net proceeds of approximately \$140.6 million (or approximately \$161.8 million if the underwriters' option to purchase additional shares is exercised in full) from the sale of the shares of common stock offered by us in this offering, and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. We intend to use approximately \$83 million to fund the solid organ brincidofovir clinical trials in North America, Europe and Australia, as well as expansion of our brincidofovir commercial manufacturing and approximately \$30 million to fund additional pre-launch commercial activities as we continue to plan for the launch of brincidofovir for prevention of CMV infection in HCT recipients and for the treatment of AdV infections. We intend to use the remainder of the net proceeds of this offering for other working capital purposes, including our general operating expenses, commercial pre-launch readiness and progression of our research and development pipeline.

Risk factors

You should read the "Risk Factors" section of this prospectus supplement and in our Annual Report on Form 10-K for the year ended December 31, 2014, as amended, and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2015, which are incorporated by reference in this prospectus supplement and the accompanying prospectus, for a discussion of certain of the factors to consider carefully before deciding to purchase any shares of our common stock.

Nasdaq Global Market symbol

CMRX

Outstanding Shares

The number of shares of our common stock to be outstanding immediately after this offering is based on 41,310,063 shares outstanding as of March 31, 2015, and excludes:

2,522,799 shares of common stock issuable upon the exercise of outstanding stock options as of March 31, 2015, at a weighted-average exercise price of \$23.58 per share;

588,857 shares of common stock issuable upon the exercise of outstanding warrants as of March 31, 2015, at a weighted-average exercise price of \$7.26 per share;

1,329,277 shares of common stock reserved for future issuance under our 2013 employee stock purchase plan; and

S-4

TABLE OF CONTENTS

2,011,058 shares of common stock reserved for future issuance under our 2013 equity incentive plan.
Unless otherwise indicated, all information contained in this prospectus supplement assumes no exercise by the underwriters of their option to purchase up to an additional 566,250 shares of our common stock.

S-5

TABLE OF CONTENTS**SUMMARY FINANCIAL DATA**

The following summary financial data should be read together with our consolidated financial statements and related notes, and with Management's Discussion and Analysis of Financial Condition and Results of Operations, included in our Annual Report on Form 10-K for the year ended December 31, 2014 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2015, which are incorporated by reference in this prospectus supplement and the accompanying prospectus. Our historical results are not necessarily indicative of the results that may be expected in the future and results of interim periods are not necessarily indicative of the results for the entire year.

We derived the following summary consolidated statement of operations data for the years ended December 31, 2012, 2013 and 2014 and consolidated balance sheet data as of December 31, 2013 and 2014 from our audited consolidated financial statements and related notes incorporated by reference in this prospectus supplement and the accompanying prospectus. We derived the summary consolidated statement of operations data for the three months ended March 31, 2014 and 2015 and consolidated balance sheet data as of March 31, 2015 from our unaudited consolidated financial statements included in our Quarterly Report on Form 10-Q for the quarter ended March 31, 2015 incorporated by reference in this prospectus supplement and the accompanying prospectus, which have been prepared on the same basis as our audited consolidated financial statements and include all adjustments, consisting of normal recurring adjustments necessary for the fair presentation of the financial position and results of operations for these periods.

Consolidated Statement of Operations Data:	Year Ended December 31,			Three Months Ended March 31,	
	2012	2013	2014	2014	2015
	(in thousands, except share and per share data)				
	(unaudited)				
Revenues:					
Collaboration and licensing	\$17,445	\$	\$	\$	\$
Contract	16,275	4,370	4,040	780	1,238
Total revenue	33,720	4,370	4,040	780	1,238
Operating expenses:					
Research and development	30,106	24,662	45,379	8,292	17,444
General and administrative	6,397	8,327	17,527	2,672	6,123
Total operating expenses	36,503	32,989	62,906	10,964	23,567
Loss from operations	(2,783)	(28,619)	(58,866)	(10,184)	(22,329)
Interest (expense) income, net	(776)	(1,232)	(445)	(196)	63
Fair value adjustment to warrant liability	(847)	(6,590)			
Loss on disposition of assets		(4)	(1)		
Net loss	\$(4,406)	\$(36,445)	\$(59,312)	\$(10,380)	\$(22,266)
Accretion of redeemable convertible preferred stock	(4,357)	(34,108)			
Net loss attributable to common stockholders	\$(8,763)	\$(70,553)	\$(59,312)	\$(10,380)	\$(22,266)
Basic and diluted net loss per common share ⁽¹⁾	\$(5.75)	\$(3.65)	\$(1.80)	\$(0.39)	\$(0.54)
Shares used to calculate net loss per common share ⁽¹⁾	1,524,628	19,307,422	33,003,714	26,762,264	41,220,989

See Note 1 to our consolidated financial statements incorporated by reference in this prospectus supplement for an (1) explanation of the method used to calculate the basic and diluted net loss per common share and the number of shares used in the computation of the per share amounts.

S-6

TABLE OF CONTENTS

	As of December 31, 2013	December 31, 2014	March 31, 2015 (unaudited)
	(in thousands)		
Consolidated Balance Sheet Data:			
Cash and cash equivalents	\$ 109,976	\$ 128,462	\$ 55,605
Short-term investments, available-for-sale ⁽²⁾		106,114	118,898
Working capital	102,802	220,390	160,818
Long-term investments ⁽²⁾		52,973	95,239
Total assets	113,387	291,878	274,125
Loan payable ⁽³⁾	9,867	4,296	2,892
Total stockholders' equity	98,539	274,636	257,522

(2) See Note 1 to our consolidated financial statements incorporated by reference in this prospectus supplement for further details of investments.

(3) Loan payable includes the current and long-term portion of our debt, net of debt discount.

S-7

TABLE OF CONTENTS

RISK FACTORS

An investment in our common stock involves a high degree of risk. Before deciding whether to invest in our common stock, you should consider carefully the risks described below and discussed under the section captioned Risk Factors contained in our Annual Report on Form 10-K for the year ended December 31, 2014, as amended, and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2015, which are incorporated by reference in this prospectus supplement and the accompanying prospectus in their entirety, together with other information in this prospectus supplement, the accompanying prospectus, the information and documents incorporated herein and therein by reference, and in any free writing prospectus that we have authorized for use in connection with this offering. If any of these risks actually occurs, our business, financial condition, results of operations or cash flow could be seriously harmed. This could cause the trading price of our common stock to decline, resulting in a loss of all or part of your investment.

Risks Related to This Offering

We have broad discretion in the use of the net proceeds we receive from this offering and may not use them effectively.

Our management will have broad discretion in the application of the net proceeds we receive in this offering, including for any of the purposes described in the section entitled Use of Proceeds, and you will not have the opportunity as part of your investment decision to assess whether our management are using the net proceeds appropriately. Because of the number and variability of factors that will determine our use of our net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. The failure by our management to apply these funds effectively could result in financial losses that could have a material adverse effect on our business, cause the price of our common stock to decline and delay the development of our product candidates, including the development of brincidofovir. Pending their use, we plan to invest the net proceeds from this offering in short- and intermediate-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government. These investments may not yield a favorable return to our stockholders.

If you purchase our common stock in this offering, you will experience immediate and substantial dilution in the net tangible book value per share of the common stock you purchase.

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. Based on the public offering price of \$39.75 per share and our net tangible book value as of March 31, 2015 of \$6.23 per share, if you purchase shares of common stock in this offering, you will suffer immediate and substantial dilution of \$30.92 per share with respect to the net tangible book value of the common stock. See the section entitled Dilution below for a more detailed discussion of the dilution you will incur if you purchase common stock in this offering. As a result of the dilution to investors purchasing shares in this offering, if you purchase our common stock in this offering, you may receive significantly less than the purchase price paid in this offering, if anything, in the event of our liquidation.

You may experience future dilution as a result of future equity offerings and other issuances of our common stock or other securities. In addition, this offering and future equity offerings and other issuances of our common stock or other securities may adversely affect our common stock price.

In order to raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the price per share in this offering. We cannot assure you that we will be able to sell shares or other securities in any other offering at a price per share that is equal to or greater than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock or securities convertible into common stock in future transactions may be higher or lower than the price per share in this offering. You will incur dilution upon any such sale of additional shares if the price at which such shares are sold is higher than the net tangible book value per share of our common stock at the time of such sale.

TABLE OF CONTENTS

As of March 31, 2015, 2,522,799 shares of common stock were reserved for issuance upon the exercise of outstanding options at a weighted-average exercise price of \$23.58 per share, warrants to purchase 588,857 shares of common stock at a weighted-average exercise price of \$7.26 were outstanding, and 3,340,335 shares of common stock were reserved for future issuance under our stock incentive plans. You will incur dilution upon exercise of any outstanding stock options, upon the exercise of outstanding warrants or upon the issuance of shares of common stock under our stock incentive plans.

In addition, the sale of shares in this offering and any future sales of a substantial number of shares of our common stock in the public market, or the perception that such sales may occur, could adversely affect the price of our common stock. We cannot predict the effect, if any, that market sales of those shares of common stock or the availability of those shares of common stock for sale will have on the market price of our common stock.

S-9

TABLE OF CONTENTS

FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus, the documents we have filed with the SEC that are incorporated by reference in this prospectus supplement and the accompanying prospectus, and any free writing prospectus that we have authorized for use in connection with this offering contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the Securities Act), and Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act). These statements relate to future events or to our future operating or financial performance and involve known and unknown risks, uncertainties and other factors which may cause our actual results, performance or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements. Forward-looking statements may include, but are not limited to, statements about:

- the success, cost and timing of our product development activities and clinical trials;
- our ability to obtain and maintain regulatory approval of our product candidates, and any related restrictions, limitations, and/or warnings in the label of an approved product candidate;
- our ability to obtain funding for our operations, including funding necessary to complete the Phase 3 clinical trials required to file our new drug application for brincidofovir;
 - our plans to research, develop and commercialize our product candidates;
 - our ability to attract collaborators with development, regulatory and commercialization expertise;
- the size and growth potential of the markets for our product candidates, and our ability to serve those markets;
 - our ability to successfully commercialize our product candidates;
 - the rate and degree of market acceptance of our product candidates;
- our ability to develop sales and marketing capabilities, whether alone or with potential future collaborators;
 - regulatory developments in the United States and foreign countries;
 - the performance of our third-party suppliers and manufacturers;
 - the success of competing therapies that are or may become available;
 - the loss of key scientific or management personnel;
- our expectations regarding the period during which we qualify as an emerging growth company under the JOBS Act;
 - our use of the proceeds from this offering;
- the accuracy of our estimates regarding expenses, future revenues, capital requirements and needs for additional financing; and
- our expectations regarding our ability to obtain and maintain intellectual property protection for our product candidates.

In some cases, you can identify forward-looking statements by terms such as may, will, should, could, would, plans, anticipates, believes, estimates, projects, predicts, potential and similar expressions intended to forward-looking statements. These statements reflect our current views with respect to future events and are based on assumptions and subject to risks and uncertainties. Given these uncertainties, you should not place undue reliance on these forward-looking statements. We discuss many of these risks in greater detail under the heading Risk Factors beginning on page S-8 of this prospectus supplement and in our Annual Report on Form 10-K for the year ended December 31, 2014, as amended, and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2015, which are incorporated by reference in this prospectus supplement and the accompanying prospectus.

TABLE OF CONTENTS

Also, these forward-looking statements represent our estimates and assumptions only as of the date of the document containing the applicable statement.

You should read this prospectus supplement, the accompanying prospectus, the documents we have filed with the SEC that are incorporated by reference and any free writing prospectus that we have authorized for use in connection with this offering completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements in the foregoing documents by these cautionary statements.

Neither we, nor any underwriter, has authorized anyone to provide you with information different from, or in addition to, that contained in or incorporated by reference in this prospectus supplement, the accompanying prospectus or in any free writing prospectus prepared by or on behalf of us or to which we may have referred you in connection with this offering. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you.

We are not, and the underwriters are not, making 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 supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and in any free writing prospectus that we have authorized for use in connection with this offering, is accurate only as of the date of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. Unless required by law, we undertake no obligation to update or revise any forward-looking statements to reflect new information or future events or developments. Thus, you should not assume that our silence over time means that actual events are bearing out as expressed or implied in such forward-looking statements.

S-11

TABLE OF CONTENTS

USE OF PROCEEDS

We estimate that the net proceeds from the sale of the 3,775,000 shares of common stock that we are offering will be approximately \$140.6 million (or approximately \$161.8 million if the underwriters exercise in full their option to purchase 566,250 additional shares of common stock), after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

The principal purpose of this offering is to obtain additional capital to support our operations. We anticipate that we will use the net proceeds of this offering as follows:

approximately \$83 million to fund the solid organ brincidofovir clinical trials in North America, Europe and Australia, as well as expansion of our brincidofovir commercial manufacturing;
approximately \$30 million to fund additional pre-launch commercial activities as we continue to plan for the launch of brincidofovir for prevention of CMV infection in HCT recipients and for the treatment of AdV infections; and the remainder for other working capital purposes, including our general operating expenses, commercial pre-launch readiness and progression of our research and development pipeline.
We may also use a portion of the remaining net proceeds to in-license, acquire or invest in complementary businesses, technologies, products or assets. However, we have no current commitments or obligations to do so.

The amount and timing of our actual expenditures will depend upon numerous factors, including the ongoing status and results of our Phase 3 clinical trials for brincidofovir. Furthermore, we anticipate that we will need to secure additional funding for the further development of brincidofovir for other indications, and for the development of any of our other product candidates.

Our expected use of net proceeds from this offering represents our current intentions based upon our present plans and business condition. As of the date of this prospectus supplement, we cannot predict with certainty all of the particular uses for the net proceeds to be received upon the completion of this offering, or the amounts that we will actually spend on the uses set forth above. The amounts and timing of our actual use of the net proceeds will vary depending on numerous factors, including our ability to obtain additional financing, the relative success and cost of our research, preclinical and clinical development programs, whether we are able to enter into future licensing arrangements, and whether we are able to further extend our agreement with the BARDA. As a result, our management will have broad discretion in the application of the net proceeds, and investors will be relying on our judgment regarding the application of the net proceeds of this offering. In addition, we might decide to postpone or not pursue clinical trials or preclinical activities (including our Phase 3 clinical trials for brincidofovir) if the net proceeds from this offering and the other sources of cash are less than expected.

Pending their use, we plan to invest the net proceeds from this offering in short- and intermediate-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.

S-12

TABLE OF CONTENTS**PRICE RANGE OF OUR COMMON STOCK**

Our common stock has been listed on the Nasdaq Global Market since April 11, 2013 under the symbol CMRX. Prior to that date, there was no public market for our common stock. Shares sold in our IPO on April 11, 2013 were priced at \$14.00 per share.

On June 10, 2015, the closing price for our common stock as reported on the Nasdaq Global Market was \$40.18 per share. The following table sets forth the ranges of high and low sales prices per share of our common stock as reported on the Nasdaq Global Market for the periods indicated. Such quotations represent inter-dealer prices without retail markup, markdown or commission and may not necessarily represent actual transactions.

	High	Low
Year Ended December 31, 2013		
Second Quarter (beginning April 11, 2013)	\$ 25.10	\$ 15.11
Third Quarter	\$ 27.00	\$ 15.31
Fourth Quarter	\$ 22.50	\$ 12.96
Year Ending December 31, 2014		
First Quarter	\$ 27.69	\$ 14.65
Second Quarter	\$ 23.72	\$ 14.02
Third Quarter	\$ 30.99	\$ 19.06
Fourth Quarter	\$ 41.89	\$ 27.45
Year Ending December 31, 2015		
First Quarter	\$ 43.41	\$ 34.51
Second Quarter (through June 10, 2015)	\$ 43.42	\$ 33.37

As of March 31, 2015, there were 34 stockholders of record of our common stock, which excludes stockholders whose shares were held in nominee or street name by brokers. The actual number of common stockholders is greater than the number of record holders, and includes stockholders who are beneficial owners, but whose shares are held in street name by brokers and other nominees. This number of holders of record also does not include stockholders whose shares may be held in trust by other entities.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our capital stock. We currently intend to retain all available funds and any future earnings to support our operations and finance the growth and development of our business. We do not intend to pay cash dividends on our common stock for the foreseeable future. Any future determination related to our dividend policy will be made at the discretion of our board of directors and will depend upon, among other factors, our results of operations, financial condition, capital requirements, contractual restrictions, business prospects and other factors our board of directors may deem relevant.

TABLE OF CONTENTS**CAPITALIZATION**

The following table sets forth our cash and cash equivalents, and our capitalization as of March 31, 2015:

on an actual basis;

on an as adjusted basis, giving effect to the sale by us of 3,775,000 shares of our common stock at the public offering price, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. You should read this table together with our financial statements and related notes, and with Management's Discussion and Analysis of Financial Condition and Results of Operations, included in our Annual Report on Form 10-K for the year ended December 31, 2014, as amended, and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2015, which are incorporated by reference in this prospectus supplement and the accompanying prospectus.

	As of March 31, 2015	
	Actual	As Adjusted
	(unaudited)	
	(in thousands, except share amounts)	
Cash, cash equivalents and short-term investments	\$174,503	\$315,106
Stockholders' equity:		
Preferred stock, \$0.001 par value; 10,000,000 shares authorized, no shares issued and outstanding		
Common stock, \$0.001 par value; 200,000,000 shares authorized, 41,310,063 shares issued and outstanding, actual; 200,000,000 shares authorized, 45,085,063 shares issued and outstanding, as adjusted	41	45
Additional paid-in capital	501,130	641,729
Accumulated other comprehensive gain, net	659	659
Accumulated deficit	(244,308)	(244,308)
Total stockholders' equity	257,522	398,125
Total capitalization	\$257,522	\$398,125

The table above is based on 41,310,063 shares outstanding as of March 31, 2015, and excludes:

2,522,799 shares of common stock issuable upon the exercise of outstanding stock options as of March 31, 2015, at a weighted-average exercise price of \$23.58 per share;

588,857 shares of common stock issuable upon the exercise of outstanding warrants as of March 31, 2015, at a weighted-average exercise price of \$7.26 per share;

1,329,277 shares of common stock reserved for future issuance under our 2013 employee stock purchase plan; and

2,011,058 shares of common stock reserved for future issuance under our 2013 equity incentive plan.

S-14

TABLE OF CONTENTS**DILUTION**

If you invest in our common stock in this offering, your ownership interest will be immediately diluted to the extent of the difference between the public offering price per share of our common stock listed on the cover page of this prospectus supplement and the net tangible book value per share of our common stock after this offering.

Our net tangible book value as of March 31, 2015 was approximately \$257.5 million, or \$6.23 per share. Net tangible book value per share is determined by dividing our total tangible assets, less total liabilities, by the number of shares of our common stock outstanding as of March 31, 2015. Dilution in net tangible book value per share represents the difference between (i) the amount per share paid by purchasers of shares of common stock in this offering and (ii) the net tangible book value per share of our common stock immediately after this offering.

After giving effect to the sale of 3,775,000 shares of our common stock in this offering at the public offering price of \$39.75 per share and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, our as adjusted net tangible book value as of March 31, 2015 would have been approximately \$398.1 million, or \$8.83 per share. This represents an immediate increase in net tangible book value of \$2.60 per share to existing stockholders and immediate dilution in net tangible book value of \$30.92 per share to investors purchasing our common stock in this offering at the public offering price. The following table illustrates this dilution on a per share basis:

Public offering price per share		\$ 39.75
Net tangible book value per share as of March 31, 2015	\$ 6.23	
Increase per share attributable to investors purchasing our common stock in this offering	\$ 2.60	
As adjusted net tangible book value per share as of March 31, 2015 after giving effect to this offering		\$ 8.83
Dilution per share to new investors purchasing our common stock in this offering		\$ 30.92

If the underwriters exercise in full their option to purchase 566,250 additional shares of common stock at the public offering price of \$39.75 per share, the as adjusted net tangible book value as of March 31, 2015 would have been approximately \$9.18 per share, representing an increase in net tangible book value of approximately \$2.95 per share to existing stockholders and immediate dilution in net tangible book value of \$30.57 per share to investors purchasing our common stock in this offering at the public offering price.

The above discussion and table are based on 41,310,063 shares outstanding as of March 31, 2015, and exclude:

2,522,799 shares of common stock issuable upon the exercise of outstanding stock options as of March 31, 2015, at a weighted-average exercise price of \$23.58 per share;

588,857 shares of common stock issuable upon the exercise of outstanding warrants as of March 31, 2015, at a weighted-average exercise price of \$7.26 per share;

1,329,277 shares of common stock reserved for future issuance under our 2013 employee stock purchase plan; and
2,011,058 shares of common stock reserved for future issuance under our 2013 equity incentive plan.

To the extent that outstanding options or warrants are exercised, investors purchasing our common stock in this offering will 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 convertible debt securities, the

issuance of these securities could result in further dilution to our stockholders.

S-15

TABLE OF CONTENTS

MATERIAL U.S. FEDERAL INCOME AND ESTATE TAX CONSEQUENCES TO NON-U.S. HOLDERS

The following discussion describes the material U.S. federal income and estate tax consequences of the acquisition, ownership and disposition of our common stock acquired in this offering by Non-U.S. Holders (as defined below).

This discussion does not address all aspects of U.S. federal income and estate taxes, does not discuss the potential application of the alternative minimum or Medicare Contribution tax, and does not deal with state, local or non-U.S. tax consequences that may be relevant to Non-U.S. Holders in light of their particular circumstances, nor does it address U.S. federal tax consequences other than income and estate taxes. Rules different from those described below may apply to certain Non-U.S. Holders that are subject to special treatment under the Internal Revenue Code of 1986, as amended, or the Code, such as financial institutions, insurance companies, tax-exempt organizations, foreign governments, international organizations, broker-dealers and traders in securities, U.S. expatriates, controlled foreign corporations, passive foreign investment companies, corporations that accumulate earnings to avoid U.S. federal income tax, persons that hold our common stock as part of a straddle, conversion transaction, or other risk reduction strategy, partnerships and other pass-through entities, and investors in such pass-through entities or entities that are treated as disregarded entities for U.S. federal income tax purposes (regardless of their places of organization or formation). Such Non-U.S. Holders are urged to consult their own tax advisors to determine the U.S. federal, state, local and other tax consequences that may be relevant to them. Furthermore, the discussion below is based upon the provisions of the Code, and Treasury regulations, rulings and judicial decisions thereunder as of the date hereof, and such authorities may be repealed, revoked or modified, perhaps retroactively, so as to result in U.S. federal income or estate tax consequences different from those discussed below. We have not requested a ruling from the IRS with respect to the statements made and the conclusions reached in the following summary. This discussion assumes that the Non-U.S. Holder holds our common stock as a capital asset within the meaning of Section 1221 of the Code (generally, property held for investment).

The following discussion is for general information only and is not tax advice for Non-U.S. Holders under their particular circumstances. Persons considering the purchase of our common stock pursuant to this offering should consult their own tax advisors concerning the U.S. federal income and estate tax consequences of acquiring, owning and disposing of our common stock in light of their particular situations as well as any consequences arising under the laws of any other taxing jurisdiction, including any state, local and non-U.S. tax consequences and any U.S. federal non-income tax consequences.

For the purposes of this discussion, a Non-U.S. Holder is, for U.S. federal income tax purposes, a beneficial owner of common stock that is not a U.S. Holder. A U.S. Holder means a beneficial owner of our common stock that is for U.S. federal income tax purposes (a) an individual who is a citizen or resident of the United States, (b) a corporation or other entity treated as a corporation created or organized in or under the laws of the United States, any state thereof or the District of Columbia, (c) an estate the income of which is subject to U.S. federal income taxation regardless of its source or (d) a trust if it (1) is subject to the primary supervision of a court within the United States and one or more U.S. persons have the authority to control all substantial decisions of the trust or (2) has a valid election in effect under applicable U.S. Treasury regulations to be treated as a U.S. person. Also, partnerships, or other entities that are treated as partnerships for U.S. federal income tax purposes (regardless of their place of organization or formation) and entities that are treated as disregarded entities for U.S. federal income tax purposes (regardless of their place of organization or formation) are not addressed by this discussion and are, therefore, not considered to be Non-U.S. Holders for the purposes of this discussion.

Distributions

Subject to the discussion below, distributions, if any, made on our common stock to a Non-U.S. Holder of our common stock generally will constitute dividends for U.S. tax purposes to the extent made out of our current or accumulated earnings and profits (as determined under U.S. federal income tax principles) and will be subject to withholding tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty. To obtain a reduced rate of withholding under a treaty, a Non-U.S. Holder generally will be required to provide us with a properly executed IRS Form W-8BEN, W-BEN-E or other appropriate form, certifying the Non-U.S. Holder's entitlement to benefits under that treaty. In the case of a Non-U.S. Holder that is an entity, Treasury Regulations and the relevant tax treaty provide rules to determine whether, for

S-16

TABLE OF CONTENTS

purposes of determining the applicability of a tax treaty, dividends will be treated as paid to the entity or to those holding an interest in that entity. If a Non-U.S. Holder holds stock through a financial institution or other agent acting on the holder's behalf, the holder will be required to provide appropriate documentation to such agent. The holder's agent may then be required to provide certification to us or our paying agent, either directly or through other intermediaries. If you are eligible for a reduced rate of U.S. federal withholding tax under an income tax treaty, you should consult with your own tax advisor to determine if you are able to obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim for a refund with the IRS.

Withholding tax is generally not imposed on dividends paid to a Non-U.S. Holder that are effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, are attributable to a permanent establishment that such holder maintains in the United States) if a properly executed IRS Form W-8ECI, stating that the dividends are so connected, is furnished to us (or, if stock is held through a financial institution or other agent, to such agent). In general, such effectively connected dividends will be subject to U.S. federal income tax, on a net income basis at the regular graduated rates, unless a specific treaty exemption applies. A Non-U.S. Holder that is a corporation for U.S. federal income tax purposes that receives effectively connected dividends may also be subject to an additional branch profits tax, which is imposed, under certain circumstances, at a rate of 30% (or such lower rate as may be specified by an applicable treaty) on the corporate Non-U.S. Holder's effectively connected earnings and profits, subject to certain adjustments.

To the extent distributions on our common stock, if any, exceed our current and accumulated earnings and profits, they will first reduce your adjusted basis in our common stock as a non-taxable return of capital, but not below zero, and then any excess will be treated as gain and taxed in the same manner as gain realized from a sale or other disposition of common stock as described in the next section.

Gain on Disposition of Our Common Stock

Subject to the discussion below regarding backup withholding and foreign accounts, a Non-U.S. Holder generally will not be subject to U.S. federal income tax with respect to gain realized on a sale or other disposition of our common stock unless (a) the gain is effectively connected with a trade or business of such holder in the United States (and, if required by an applicable income tax treaty, is attributable to a permanent establishment that such holder maintains in the United States), (b) the Non-U.S. Holder is a nonresident alien individual and is present in the United States for 183 or more days in the taxable year of the disposition and certain other conditions are met, or (c) we are or have been a United States real property holding corporation within the meaning of Code Section 897(c)(2) at any time within the shorter of the five-year period preceding such disposition or such holder's holding period.

If you are a Non-U.S. Holder described in (a) above, you will be required to pay tax on the net gain derived from the sale at regular graduated U.S. federal income tax rates, unless a specific treaty exemption applies, and corporate Non-U.S. Holders described in (a) above may be subject to the additional branch profits tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty. If you are an individual Non-U.S. Holder described in (b) above, you will be required to pay a flat 30% tax on the gain derived from the sale, which gain may be offset by U.S. source capital losses (even though you are not considered a resident of the United States). With respect to (c) above, in general, we would be a United States real property holding corporation if interests in U.S. real estate constituted (by fair market value) at least half of our total worldwide real property interests plus business assets. We believe that we are not, and do not anticipate becoming, a United States real property holding corporation; however, there can be no assurance that we will not become a U.S. real property holding corporation in the future. Even if we are treated as a U.S. real property holding corporation, such treatment will not cause gain realized by a Non-U.S. Holder on a disposition of our common stock to be subject to U.S. federal income tax so long as (1) the Non-U.S.

Holder owned, directly, indirectly and constructively, no more than five percent of our common stock at all times within the shorter of (i) the five-year period preceding the disposition or (ii) the holder's holding period and (2) our common stock is regularly traded on an established securities market. There can be no assurance that our common stock will continue to qualify as regularly traded on an established securities market.

S-17

TABLE OF CONTENTS

Information Reporting Requirements and Backup Withholding

Generally, we or certain financial middlemen must report information to the IRS with respect to any dividends we pay on our common stock including the amount of any such dividends, the name and address of the recipient, and the amount, if any, of tax withheld. A similar report is sent to the holder to whom any such dividends are paid. Pursuant to tax treaties or certain other agreements, the IRS may make its reports available to tax authorities in the recipient's country of residence.

Dividends paid by us (or certain financial middlemen) to a Non-U.S. Holder may also be subject to U.S. backup withholding. U.S. backup withholding generally will not apply to a Non-U.S. Holder who provides a properly executed appropriate IRS Form W-8 or otherwise establishes an exemption.

Under current U.S. federal income tax law, U.S. information reporting and backup withholding requirements generally will apply to the proceeds of a disposition of our common stock effected by or through a U.S. office of any broker, U.S. or non-U.S., unless the holder provides a properly executed IRS Form W-8BEN or IRS Form W-8BEN-E, as applicable, or otherwise establishes an exemption. Generally, U.S. information reporting and backup withholding requirements will not apply to a payment of disposition proceeds to a Non-U.S. Holder where the transaction is considered effected outside the United States through a non-U.S. office of a non-U.S. broker. Information reporting and backup withholding requirements may, however, apply to a payment of disposition proceeds if the broker has actual knowledge, or reason to know, that the holder is, in fact, a U.S. person. For information reporting purposes, certain brokers with substantial U.S. ownership or operations will generally be treated in a manner similar to U.S. brokers.

If backup withholding is applied to you, you should consult with your own tax advisor to determine if you are able to obtain a tax refund or credit with respect to the amount withheld.

Foreign Accounts

A U.S. federal withholding tax of 30% may apply to dividends and the gross proceeds of a disposition of our common stock paid to a foreign financial institution (as specifically defined by applicable rules), including when the foreign financial institution holds our common stock on behalf of a Non-U.S. Holder, unless such institution enters into an agreement with the U.S. government to withhold on certain payments and to collect and provide to the U.S. tax authorities substantial information regarding U.S. account holders of such institution (which includes certain equity holders of such institution, as well as certain account holders that are foreign entities with U.S. owners). This U.S. federal withholding tax of 30% will also apply to dividends and the gross proceeds of a disposition of our common stock paid to a non-financial foreign entity unless such entity provides the withholding agent with either a certification that it does not have any substantial direct or indirect U.S. owners or provides information regarding direct and indirect U.S. owners of the entity. The withholding tax described above will not apply if the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from the rules. An intergovernmental agreement between the United States and an applicable foreign country may modify these requirements. Under certain circumstances, a Non-U.S. Holder might be eligible for refunds or credits of such taxes. Holders are encouraged to consult with their own tax advisors regarding the possible implications of this withholding tax on their investment in our common stock.

In general, the withholding provisions described above currently apply to payments of dividends and will apply to payments of gross proceeds from a sale or other disposition of common stock on or after January 1, 2017.

Federal Estate Tax

An individual who at the time of death is not a citizen or resident of the United States and who is treated as the owner of, or has made certain lifetime transfers of, an interest in our common stock will be required to include the value thereof in his or her taxable estate for U.S. federal estate tax purposes, and may be subject to U.S. federal estate tax unless an applicable estate tax treaty provides otherwise. The test for whether an individual is a resident of the United States for federal estate tax purposes differs from the test used for U.S. federal income tax purposes. Some individuals, therefore, may be Non-U.S. Holders for U.S. federal income tax purposes, but not for U.S. federal estate tax purposes, and vice versa.

S-18

TABLE OF CONTENTS

EACH PROSPECTIVE INVESTOR SHOULD CONSULT HIS, HER OR ITS OWN TAX ADVISOR REGARDING THE TAX CONSEQUENCES OF PURCHASING, HOLDING AND DISPOSING OF OUR COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY PROPOSED CHANGE IN APPLICABLE LAW, AS WELL AS TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL, NON-U.S. OR U.S. FEDERAL NON-INCOME TAX LAWS.

S-19

TABLE OF CONTENTS**UNDERWRITERS**

Under the terms and subject to the conditions in an underwriting agreement dated the date of this prospectus supplement, the underwriters named below, for whom Morgan Stanley & Co. LLC and J.P. Morgan Securities LLC are acting as representatives, have severally agreed to purchase, and we have agreed to sell to them, severally, the number of shares indicated below:

Name	Number of Shares
Morgan Stanley & Co. LLC	1,226,875
J.P. Morgan Securities LLC	1,226,875
Cowen and Company, LLC	264,250
Barclays Capital Inc.	264,250
Piper Jaffray & Co.	264,250
Stifel, Nicolaus & Company, Incorporated	264,250
William Blair & Company, L.L.C.	264,250
Total	3,775,000

The underwriters and the representatives are collectively referred to as the underwriters and the representatives, respectively. The underwriters are offering the shares of common stock subject to their acceptance of the shares from us and subject to prior sale. The underwriting agreement provides that the obligations of the several underwriters to pay for and accept delivery of the shares of common stock offered by this prospectus supplement are subject to the approval of certain legal matters by their counsel and to certain other conditions. The underwriters are obligated to take and pay for all of the shares of common stock offered by this prospectus supplement if any such shares are taken.

However, the underwriters are not required to take or pay for the shares covered by the underwriters' option to purchase additional shares described below.

The underwriters initially propose to offer part of the shares of common stock directly to the public at the offering price listed on the cover page of this prospectus supplement and part to certain dealers at a price that represents a concession not in excess of \$1.431 a share under the public offering price. After the initial offering of the shares of common stock, the offering price and other selling terms may from time to time be varied by the representatives. Sales of shares made outside of the United States may be made by affiliates of the underwriters.

We have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus supplement, to purchase up to 566,250 additional shares of common stock at the public offering price listed on the cover page of this prospectus supplement, less underwriting discounts and commissions. To the extent the option is exercised, each underwriter will become obligated, subject to certain conditions, to purchase about the same percentage of the additional shares of common stock as the number listed next to the underwriter's name in the preceding table bears to the total number of shares of common stock listed next to the names of all underwriters in the preceding table.

The following table shows the per share and total public offering price, underwriting discounts and commissions, and proceeds before expenses to us. These amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase up to an additional 566,250 shares of common stock.

Total

Edgar Filing: CHIMERIX INC - Form 424B5

	Per Share	No Exercise	Full Exercise
Public offering price	\$ 39.750	\$ 150,056,250	\$ 172,564,688
Underwriting discounts and commissions to be paid by us	\$ 2.385	\$ 9,003,375	\$ 10,353,881
Proceeds, before expenses, to us	\$ 37.365	\$ 141,052,875	\$ 162,210,807

The estimated offering expenses payable by us, exclusive of the underwriting discounts and commissions, are approximately \$450,000. We have agreed to reimburse the underwriters for expenses relating to clearance of this offering with the Financial Industry Regulatory Authority, Inc. up to \$55,000.

Our common stock is listed on the Nasdaq Global Market under the trading symbol CMRX.

S-20

TABLE OF CONTENTS

We, all of our directors and officers, certain of our existing stockholders have agreed that, without the prior written consent of the representatives on behalf of the underwriters, we and they will not, during the period ending 90 days after the date of this prospectus supplement (the restricted period):

offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend or otherwise transfer or dispose of, directly or indirectly, any shares of common stock or any securities convertible into or exercisable or exchangeable for shares of common stock; or enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the common stock, whether any such transaction described above is to be settled by delivery of common stock or such other securities, in cash or otherwise. In addition, we have agreed that, without the prior written consent of the representatives on behalf of the underwriters, we will not, during the restricted period, file any registration statement with the SEC relating to the offering of any shares of common stock or any security convertible into or exercisable or exchangeable for common stock (other than on Form S-8 with respect to our equity incentive plans described in this prospectus supplement) or in any documents incorporated by reference in this prospectus supplement, and such other person have agreed that they will not, during the restricted period, make any demand for, or exercise any right with respect to, the registration of, any shares of common stock or any security convertible into or exercisable or exchangeable for common stock.

The restrictions described in the immediately preceding paragraph to do not apply to:

the sale of the shares to the underwriters;

the issuance by us of shares of our common stock or other securities convertible into or exercisable for shares of our common stock upon the exercise of an option or warrant or the conversion of a security outstanding on the date of this prospectus supplement;

the issuance by us of shares of our common stock or other securities convertible into or exercisable for shares of our common stock pursuant to our equity incentive plans described in this prospectus supplement; provided that, prior to the issuance of any such shares of common stock or other securities where the shares of common stock or other securities vest within the restricted period, we cause each recipient of such shares or other securities to sign and deliver a lock-up letter substantially to the effect of the restrictions described in this and the immediately preceding paragraph;

(i) the entry into an agreement providing for the issuance by us of shares of our common stock or any security convertible into or exercisable for shares of our common stock in connection with the acquisition by us or any of our subsidiaries of the securities, business, or other assets of another person or entity or pursuant to an employee benefit plan assumed by us in connection with such acquisition, and the issuance of any such securities pursuant to any such agreement, and (ii) the entry into an agreement providing for the issuance of shares of common stock or any security convertible into or exercisable for shares of our common stock in connection with joint ventures, commercial relationships or other strategic transactions, and the issuance of any such securities pursuant to any such agreement; provided that the aggregate number of shares of common stock that we may sell or issue or agree to sell or issue, or that may be issuable upon conversion or exercise of all other securities that we may sell or issue or agree to sell or issue, pursuant to this bullet point shall not exceed 5% of the total number of shares of our common stock issued and outstanding immediately following the completion of this offering; and provided further, that each recipient of shares or other securities issued pursuant to this bullet point shall sign and deliver a lock-up letter substantially to the effect of the restrictions described in this and the immediately preceding paragraph, and we shall enter stop transfer instructions with our transfer agent and registrar on such shares or other securities, which we agree we will not waive or amend without the prior written consent of the representatives;

S-21

TABLE OF CONTENTS

transfers by a director, officer or stockholder of shares of common stock or any security convertible into common stock as a bona fide gift, by will or intestate succession, or to any trust for the direct or indirect benefit of such director, officer or stockholder and/or their immediate family, or certain distributions by a stockholder of shares of common stock or any security convertible into common stock to partners, members, stockholders or holders of similar equity interests in such stockholder; provided that in the case of any such transfer or distribution, (i) each donee, transferee or distributee shall sign and deliver a lock-up letter substantially to the effect of the restrictions described in this and the immediately preceding paragraph, and (ii) no filing under Section 16(a) of the Exchange Act, reporting a reduction in beneficial ownership of shares of common stock, shall be required or shall be voluntarily made during the restricted period;

transactions by a director, officer or stockholder relating to shares of our common stock acquired in open market transactions after the completion of this offering; provided that no filing under Section 16(a) of the Exchange Act shall be required or shall be voluntarily made in connection with subsequent dispositions of our common stock acquired in such open market transactions during the restricted period;

the establishment by a director, officer or stockholder of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of shares of our common stock; provided that such plan does not provide for the transfer of shares of our common stock during the restricted period and no public announcement or filing under the Exchange Act regarding the establishment of such plan shall be required or shall be voluntarily made by or on behalf of such director, officer or stockholder or us during the restricted period;

transactions by an officer relating to shares of our common stock executed under a trading plan pursuant to Rule 10b5-1 under the Exchange Act in existence as of the date of this prospectus supplement providing for the transfer of shares of our common stock; provided that any filing under Section 16(a) of the Exchange Act that is made in connection with any such transaction during the restricted period shall state that such transaction has been executed under a trading plan pursuant to Rule 10b5-1 under the Exchange Act, and shall also state the date such trading plan was adopted;

transfers by a director, officer or stockholder to us of shares of our common stock or other securities convertible into or exercisable or exchangeable for our common stock (i) upon a vesting event of our securities or the exercise of options issued pursuant to our equity incentive plans in full or partial payment of taxes or tax withholding obligations required to be paid or satisfied upon such vesting or exercise, or (ii) in exercise of our right to repurchase or reacquire the securities of such director, officer or stockholder pursuant to agreements that permit us to repurchase or reacquire such securities upon termination of the services of such director, officer or stockholder; provided that in the case of any transfer pursuant to this bullet point, no filing under Section 16(a) of the Exchange Act, reporting a reduction in beneficial ownership of shares of our common stock, shall be required or shall be voluntarily made during the restricted period; or

transfers of up to an aggregate of 500,000 shares of common stock in one or more transactions by certain of our existing stockholders.

The representatives, in their sole discretion, may release the common stock and other securities subject to the lock-up agreements described above in whole or in part at any time.

In order to facilitate the offering of the common stock, the underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of the common stock. Specifically, the underwriters may sell more shares than they are obligated to purchase under the underwriting agreement, creating a short position. A short sale is covered if the short position is no greater than the number of shares available for purchase by the underwriters under the option to purchase additional shares. The underwriters can close out a covered short sale by exercising the option or purchasing shares in the open market. In determining the source of shares to close out a covered short sale, the underwriters will consider, among other things, the open market price of shares compared to the price available under the option. The underwriters may also sell shares in excess of the option, creating a naked short position. The underwriters must close out any naked short position by

TABLE OF CONTENTS

purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market after pricing that could adversely affect investors who purchase in this offering. As an additional means of facilitating this offering, the underwriters may bid for, and purchase, shares of common stock in the open market to stabilize the price of the common stock. These activities may raise or maintain the market price of the common stock above independent market levels or prevent or retard a decline in the market price of the common stock. The underwriters are not required to engage in these activities and may end any of these activities at any time.

In addition, in connection with this offering certain of the underwriters (and selling group members) may engage in passive market making transactions in our common stock on The Nasdaq Stock Market prior to the pricing and completion of this offering. Passive market making consists of displaying bids on The Nasdaq Stock Market no higher than the bid prices of independent market makers and making purchases at prices no higher than these independent bids and effected in response to order flow. Net purchases by a passive market maker on each day are generally limited to a specified percentage of the passive market maker's average daily trading volume in the common stock during a specified period and must be discontinued when such limit is reached. Passive market making may cause the price of our common stock to be higher than the price that otherwise would exist in the open market in the absence of these transactions. If passive market making is commenced, it may be discontinued at any time.

We and the underwriters have agreed to indemnify each other against certain liabilities, including liabilities under the Securities Act.

A prospectus in electronic format may be made available on websites maintained by one or more underwriters, or selling group members, if any, participating in this offering. The representatives may agree to allocate a number of shares of common stock to underwriters for sale to their online brokerage account holders. Internet distributions will be allocated by the representatives to underwriters that may make Internet distributions on the same basis as other allocations.

Other Relationships

The underwriters and their respective 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. Certain of the underwriters and their respective affiliates have, from time to time, performed, and may in the future perform, various financial advisory and investment banking services for us, for which they received or will receive customary fees and expenses.

In addition, in the ordinary course of their various business activities, the underwriters and their respective 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 and may at any time hold long and short positions in such securities and instruments. Such investment and securities activities may involve our securities and instruments. The underwriters and their respective affiliates may also make investment recommendations or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long or short positions in such securities and instruments.

Selling Restrictions

European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a Relevant Member State) an offer to the public of any shares of our common stock may not be made in that Relevant Member State, except that an offer to the public in that Relevant Member State of any shares of our common stock may be made at any time under the following exemptions under the Prospectus Directive, if they have been implemented in that Relevant Member State:

- a) to any legal entity which is a qualified investor as defined in the Prospectus Directive;

S-23

TABLE OF CONTENTS

to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the representatives for any such offer; or

in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of shares of our common stock shall result in a requirement for the publication by us or any underwriter of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an offer to the public in relation to any shares of our common stock in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares of our common stock to be offered so as to enable an investor to decide to purchase any shares of our common stock, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State, the expression Prospectus Directive means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State), and includes any relevant implementing measure in the Relevant Member State, and the expression 2010 PD Amending Directive means Directive 2010/73/EU.

United Kingdom

Each underwriter:

may only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the Financial Services and Markets Act 2000 (the FSMA)) received by it in connection with the issue or sale of the shares of our common stock in circumstances in which Section 21(1) of the FSMA does not apply to us; and

is required to comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the shares of our common stock in, from or otherwise involving the United Kingdom.

S-24

TABLE OF CONTENTS

LEGAL MATTERS

The validity of the common stock offered by this prospectus supplement and the accompanying prospectus will be passed upon for us by Cooley LLP, San Diego, California. The underwriters are being represented by Davis Polk & Wardwell LLP, New York, New York.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2014, as set forth in their report, which is incorporated by reference in this prospectus supplement and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus supplement and the accompanying prospectus are part of the registration statement on Form S-3 we filed with the SEC under the Securities Act and do not contain all the information set forth in the registration statement. Whenever a reference is made in this prospectus supplement or the accompanying 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 by reference in this prospectus supplement and the accompanying prospectus for a copy of such contract, agreement or other document. Because we are subject to the information and reporting requirements of the Exchange Act, we file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. You may also read and copy any document we file at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room.

We maintain a website at www.chimerix.com. Information contained in or accessible through our website does not constitute a part of this prospectus supplement or the accompanying prospectus.

S-25

TABLE OF CONTENTS

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference information from other documents that we file with them, 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 and the accompanying prospectus. Information contained in this prospectus supplement and the accompanying prospectus and information that we file with the SEC in the future and incorporate by reference in this prospectus supplement and the accompanying prospectus will automatically update and supersede this information. We incorporate by reference the documents listed below and any future filings (other than Current Reports on Form 8-K furnished under Item 2.02 or Item 7.01 and exhibits furnished along with such form that are related to such items) we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of the prospectus supplement and before the sale of all the securities covered by this prospectus supplement:

our Annual Report on Form 10-K for the year ended December 31, 2014, filed with the SEC on March 6, 2015, and amended on March 27, 2015;

our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2015, filed with the SEC on May 11, 2015;

our Current Reports on Form 8-K (other than information furnished rather than filed) filed with the SEC on February 2, 2015 and June 9, 2015;

the information specifically incorporated by reference into our Annual Report on Form 10-K for the fiscal year ended December 31, 2014 from our definitive proxy statement on Schedule 14A (other than information furnished rather than filed) filed with the SEC on April 29, 2015;

the description of our common stock, which is registered under Section 12 of the Exchange Act, in our registration statement on Form 8-A, filed with the SEC on April 5, 2013, including any amendments or reports filed for the purpose of updating such description; and

all filings we make with the SEC pursuant to the Exchange Act after the date of this prospectus supplement and before termination of this offering.

You can request a copy of these filings, at no cost, by writing or telephoning us at the following address or telephone number:

Chimerix, Inc.
2505 Meridian Parkway, Suite 340
Durham, NC 27713
(919) 806-1074
Attn: Investor Relations

TABLE OF CONTENTS

PROSPECTUS

\$250,000,000

Common Stock

From time to time, we may offer up to \$250,000,000 of common stock in amounts, at prices and on terms described in one or more supplements to this prospectus.

This prospectus provides a general description of the terms that may apply to an offering of our common stock. Each time we offer shares of our common stock, we will provide specific terms of the offering in a supplement to this prospectus. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. The prospectus supplement and any related free writing prospectus may also add, update or change information contained in this prospectus. You should carefully read this prospectus, the applicable prospectus supplement and any related free writing prospectus, as well as any documents incorporated by reference, before you invest in our common stock.

This prospectus may not be used to consummate a sale of our common stock unless accompanied by a prospectus supplement.

Our common stock is traded on the Nasdaq Global Market under the symbol CMRX. On June 8, 2015, the last reported sales price of our common stock was \$42.53 per share.

We will sell shares of our common stock directly to investors, through agents designated from time to time or to or through underwriters or dealers, on a continuous or delayed basis. For additional information on the methods of sale, you should refer to the section entitled Plan of Distribution in this prospectus. If any agents or underwriters are involved in the sale of any shares of common stock with respect to which this prospectus is being delivered, the names of such agents or underwriters and any applicable fees, commissions, discounts or over-allotment options will be set forth in a prospectus supplement. The price to the public of our common stock and the net proceeds we expect to receive from such sale will also be set forth in a prospectus supplement.

Investing in our common stock involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading Risk Factors contained in the 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.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR DETERMINED IF THIS PROSPECTUS IS TRUTHFUL OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS

A CRIMINAL OFFENSE.

The date of this prospectus is June 9, 2015.

TABLE OF CONTENTS

TABLE OF CONTENTS

<u>ABOUT THIS PROSPECTUS</u>	ii
<u>SUMMARY</u>	1
<u>RISK FACTORS</u>	3
<u>SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS</u>	4
<u>USE OF PROCEEDS</u>	5
<u>DESCRIPTION OF CAPITAL STOCK</u>	6
<u>PLAN OF DISTRIBUTION</u>	10
<u>LEGAL MATTERS</u>	12
<u>EXPERTS</u>	12
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	12
<u>INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</u>	13
<u>DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES</u>	13
<u>ACT LIABILITY</u>	13

i

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS

This prospectus is a 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 as a well-known seasoned issuer, as defined in Rule 405 under the Securities Act of 1933, as amended, or the Securities Act. Under this shelf registration process, we may offer and sell from time to time in one or more offerings the common stock described in this prospectus, up to a total aggregate offering price of \$250,000,000. This prospectus provides you with a general description of our common stock.

Each time we sell shares of our common stock under this prospectus, we will provide a prospectus supplement that will contain specific information about the 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 and any related free writing prospectus that we may authorize to be provided to you may also add, update or change information contained in this prospectus or in any documents that we have incorporated by reference into this prospectus. You should read this prospectus, any applicable prospectus supplement and any related free writing prospectus, together with the information incorporated herein by reference as described under the heading **Incorporation of Certain Information By Reference**, before investing in our common stock.

THIS PROSPECTUS MAY NOT BE USED TO CONSUMMATE A SALE OF COMMON STOCK UNLESS IT IS ACCOMPANIED BY A PROSPECTUS SUPPLEMENT.

Neither we, nor any agent, underwriter or dealer has authorized any person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus, any applicable prospectus supplement or any related free writing prospectus prepared by or on behalf of us or to which we have referred you. This prospectus, any applicable supplement to this prospectus or 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, any applicable supplement to this prospectus or any related free writing prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction.

You should not assume that the information contained in this prospectus, any applicable prospectus supplement 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 is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus, any applicable prospectus supplement or any related free writing prospectus is delivered, or securities are sold, on a later date.

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

TABLE OF CONTENTS

SUMMARY

This summary highlights selected information from this prospectus and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus, the applicable prospectus supplement and any related free writing prospectus, including the risks of investing in our common stock discussed under the heading Risk Factors contained in the 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 also carefully read the information incorporated by reference into this prospectus, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part.

Unless the context indicates otherwise, as used in this prospectus, the terms Chimerix, the Company, we, us and refer to Chimerix, Inc., a Delaware corporation. We have obtained a registered trademark for Chimerix® in the United States. All other trademarks or trade names referred to in this prospectus are the property of their respective owners.

Company Overview

Chimerix is a biopharmaceutical company dedicated to discovering, developing and commercializing novel, oral antivirals to address unmet medical needs. We were founded in 2000 based on the promise of our proprietary lipid conjugate technology to unlock the potential of some of the most potent broad-spectrum antivirals by enhancing their antiviral activity and safety profiles in convenient, orally administered dosing regimens. Based on our proprietary lipid conjugate technology, our lead compound, brincidofovir (BCV or CMX001), is in Phase 3 clinical development. In addition, we have an active discovery program focusing on viral targets for which limited or no therapies are currently available or where current therapies have significant liabilities.

Corporate Information

We were incorporated in Delaware in April 2000. Our principal executive offices are located at 2505 Meridian Parkway, Suite 340, Durham, North Carolina 27713, and our telephone number is (919) 806-1074. Our corporate website address is www.chimerix.com. We do not incorporate by reference into this prospectus the information on, or accessible through, our website, and you should not consider it as part of this prospectus.

We are an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012. We will remain an emerging growth company until the earlier of (a) December 31, 2018, (b) the last day of the fiscal year in which we have total annual gross revenue of at least \$1.0 billion, (c) the last day of the fiscal year in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds \$700.0 million as of the prior June 30th, and (d) the date on which we have issued more than \$1.0 billion in non-convertible debt during the prior three-year period.

The Securities We May Offer

We may offer shares of our common stock from time to time in one or more offerings, up to a total aggregate offering price of \$250,000,000 under this prospectus. The 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 and do not have cumulative voting rights. Subject to preferences that may be applicable to any outstanding shares of preferred stock, the holders of our common stock are

entitled to receive ratably such dividends as may be declared by our board of directors out of legally available funds. Upon our liquidation, dissolution or winding up, holders of our common stock are entitled to share ratably in all assets remaining after payment of liabilities and the liquidation preferences of any then outstanding shares of preferred stock. Our common stock does not carry any preemptive rights enabling a holder to subscribe for, or receive shares of, any class of our common stock or any other securities convertible into shares of any class of our common stock, or any redemption rights.

1

TABLE OF CONTENTS

Each time we offer our common stock under this prospectus, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the offering. The prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change information contained in this prospectus or in documents we have incorporated by reference. However, no prospectus supplement or free writing prospectus will offer a security other than our common stock.

This prospectus may not be used to consummate a sale of our common stock unless it is accompanied by a prospectus supplement.

We may sell our common stock directly to investors or through underwriters, dealers or agents. We, and our underwriters or agents, reserve the right to accept or reject all or part of any proposed purchase of our common stock. If we do offer securities through underwriters or agents, we will include in the applicable prospectus supplement:

the names of those underwriters or agents;
applicable fees, discounts and commissions to be paid to them;
details regarding over-allotment options, if any; and
the estimated net proceeds to us.

2

TABLE OF CONTENTS

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully review the risks and uncertainties described under the heading "Risk Factors" contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in our Annual Report on Form 10-K for the year ended December 31, 2014, as amended, and our quarterly report on Form 10-Q for the quarter ended March 31, 2015, as updated by our annual, quarterly and other reports and documents that are incorporated by reference into this prospectus, before deciding whether to purchase the common stock being registered pursuant to the registration statement of which this prospectus is a part. Each of the risk factors could adversely affect our business, operating results and financial condition, as well as adversely affect the value of an investment in our common stock, and the occurrence of any of these risks might cause you to lose all or part of your investment. Additional risks not presently known to us or that we currently believe are immaterial may also significantly impair our business operations.

TABLE OF CONTENTS

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, each prospectus supplement and the information incorporated by reference in this prospectus and each prospectus supplement contain forward-looking statements within the meaning of Section 27A of the Securities Act, and Section 21E of the Exchange Act that involve a number of risks and uncertainties. Although our forward-looking statements reflect the good faith judgment of our management, these statements can only be based on facts and factors currently known by us. Consequently, these forward-looking statements are inherently subject to risks and uncertainties, and actual results and outcomes may differ materially from results and outcomes discussed in the forward-looking statements.

Forward-looking statements can be identified by the use of forward-looking words such as believes, expects, hopes, may, will, plan, intends, estimates, could, should, would, continue, seeks, pro forma, or and words (including their use in the negative), or by discussions of future matters such as the development of new products, technology enhancements, possible collaborations, possible changes in legislation and other statements that are not historical. These statements include but are not limited to statements under the captions Business, Risk Factors and Management's Discussion and Analysis of Financial Condition and Results of Operations and in other sections incorporated by reference from our Annual Report on Form 10-K and Quarterly Reports on Form 10-Q, as applicable, as well as our other filings with the SEC. You should be aware that the occurrence of any of the events discussed under the heading Risk Factors in any applicable prospectus supplement and any documents incorporated by reference herein or therein could substantially harm our business, operating results and financial condition and that if any of these events occurs, it could adversely affect the value of an investment in our common stock.

The cautionary statements made in this prospectus are intended to be applicable to all related forward-looking statements wherever they may appear in this prospectus or in any prospectus supplement or any documents incorporated by reference herein or therein. We urge you not to place undue reliance on these forward-looking statements, which speak only as of the date they are made. Except as required by law, we assume no obligation to update our forward-looking statements, even if new information becomes available in the future.

TABLE OF CONTENTS

USE OF PROCEEDS

We will retain broad discretion over the use of the net proceeds from the sale of our common stock hereby. Unless otherwise indicated in any prospectus supplement or in any related free writing prospectus that we may authorize to be provided to you, we intend to use the net proceeds from the sale of our common stock under this prospectus for general corporate purposes, which may include clinical trial and other research and development expenses, capital expenditures, working capital and general and administrative expenses, and potential acquisitions of or investments in businesses, products and technologies that complement our business, although we have no present commitments or agreements to make any such acquisitions or investments. We will set forth in the applicable prospectus supplement or free writing prospectus our intended use for the net proceeds received from the sale of our common stock sold pursuant to the prospectus supplement or free writing prospectus. Pending these uses, we intend to invest the net proceeds in short- and intermediate-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.

5

TABLE OF CONTENTS

DESCRIPTION OF CAPITAL STOCK

As of the date of this prospectus, our amended and restated certificate of incorporation authorizes us to issue 200,000,000 shares of common stock, par value \$0.001 per share, and 10,000,000 shares of preferred stock, par value \$0.001 per share. As of June 5, 2015, 41,491,917 shares of common stock were outstanding and no shares of preferred stock were outstanding.

The following summary description of our capital stock is based on the provisions of our amended and restated certificate of incorporation, as well as our amended and restated bylaws and the applicable provisions of the Delaware General Corporation Law. This information is qualified entirely by reference to the applicable provisions of our amended and restated certificate of incorporation, amended and restated bylaws and the Delaware General Corporation Law. For information on how to obtain copies of our amended and restated certificate of incorporation and amended and restated bylaws, which are exhibits to the registration statement of which this prospectus is a part, see [Where You Can Find More Information](#).

Common Stock

Our common stock is entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, including the election of directors, and does not have cumulative voting rights. Subject to preferences that may be applicable to any then outstanding preferred stock, the holders of common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors out of legally available funds. In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities, subject to the satisfaction of any liquidation preference granted to the holders of any outstanding shares of preferred stock.

Holders of our common stock have no preemptive, conversion or subscription rights, and there are no redemption or sinking fund provisions applicable to our common stock. The rights, preferences and privileges of the holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of our preferred stock that we may designate and issue in the future.

All of our outstanding shares of common stock are fully paid and nonassessable.

Preferred Stock

Pursuant to our amended and restated certificate of incorporation our board of directors has the authority, without further action by the stockholders (unless such stockholder action is required by applicable law or stock exchange listing rules), to designate and issue up to 10,000,000 shares of preferred stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the designations, powers, preferences, privileges and relative participating, optional or special rights and the qualifications, limitations or restrictions thereof, including dividend rights, conversion rights, voting rights, terms of redemption and liquidation preferences, any or all of which may be greater than the rights of the common stock, and to increase or decrease the number of shares of any such series, but not below the number of shares of such series then outstanding.

The board of directors, without stockholder approval, can issue preferred stock with voting, conversion or other rights that could adversely affect the voting power and other rights of the holders of common stock. Preferred stock could be

issued quickly with terms designed to delay or prevent a change in control of our company or make removal of management more difficult. Additionally, the issuance of preferred stock may have the effect of decreasing the market price of the common stock and may adversely affect the voting power of holders of common stock and reduce the likelihood that common stockholders will receive dividend payments and payments upon liquidation.

Our board of directors will fix the designations, voting powers, preferences and rights of each series, as well as the qualifications, limitations or restrictions thereof, of the preferred stock, including the following:

the title and stated value;
the number of shares;
the liquidation preference per share;

6

TABLE OF CONTENTS

the purchase price per share;

the dividend rate per share, dividend period and payment dates and method of calculation for dividends;
whether dividends will be cumulative or non-cumulative and, if cumulative, the date from which dividends will accumulate;

our right, if any, to defer payment of dividends and the maximum length of any such deferral period;

the procedures for any auction and remarketing, if any;

the provisions for a sinking fund, if any;

the provisions for redemption or repurchase, if applicable, and any restrictions on our ability to exercise those redemption and repurchase rights;

any listing of the preferred stock on any securities exchange or market;

whether the preferred stock will be convertible into our common stock or other securities of ours, including depositary shares and warrants, and, if applicable, the conversion period, the conversion price, or how it will be calculated, and under what circumstances it may be adjusted;

whether the preferred stock will be exchangeable into debt securities, and, if applicable, the exchange period, the exchange price, or how it will be calculated, and under what circumstances it may be adjusted;

voting rights, if any;

preemption rights, if any;

restrictions on transfer, sale or other assignment, if any;

whether interests in the preferred stock will be represented by depositary shares;

a discussion of any material or special United States federal income tax considerations applicable to the preferred stock;

the relative ranking and preferences of the preferred stock as to dividend rights and rights if we liquidate, dissolve or wind up our affairs;

any limitations on issuances of any class or series of preferred stock ranking senior to or on a parity with the series of preferred stock being issued as to dividend rights and rights if we liquidate, dissolve or wind up our affairs; and

any other specific terms, rights, preferences, privileges, qualifications or restrictions of the preferred stock.

The General Corporation Law of the State of Delaware, the state of our incorporation, provides that the holders of preferred stock will have the right to vote separately as a class (or, in some cases, as a series) on an amendment to our amended and restated certificate of incorporation if the amendment would change the par value or, unless the amended and restated certificate of incorporation provided otherwise, the number of authorized shares of the class or change the powers, preferences or special rights of the class or series so as to adversely affect the class or series, as the case may be. This right is in addition to any voting rights that may be provided for in the applicable certificate of designation.

TABLE OF CONTENTS

Anti-takeover Effects of Provisions of Delaware Law and Charter Documents

Delaware Anti-Takeover Law

We are subject to Section 203 of the Delaware General Corporation Law, or Section 203. Section 203 generally prohibits a public Delaware corporation from engaging in a business combination with an interested stockholder for a period of three years after the date of the transaction in which the person became an interested stockholder, unless:

prior to the date of the transaction, the board of directors of the corporation approved either the business combination or 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 upon consummation of the transaction, excluding for purposes of determining the number of shares outstanding (a) shares owned by persons who are directors and also officers and (b) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

on or subsequent to the consummation of the transaction, the business combination is approved by the board and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% 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, pledge or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;

subject to exceptions, any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder;

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; 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.

Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws

Provisions of our amended and restated certificate of incorporation and amended and restated bylaws may delay or discourage transactions involving an actual or potential change in our control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our common stock. Among other things, our amended and restated certificate of incorporation and amended and restated bylaws:

permit our board of directors to issue up to 10,000,000 shares of preferred stock, with any rights, preferences and privileges as they may designate (including the right to approve an acquisition or other change in our control);

provide that the authorized number of directors may be changed only by resolution adopted by a majority of the board of directors;

TABLE OF CONTENTS

provide that the board of directors or any individual director may only be removed with cause and the affirmative vote of the holders of at least 66 2/3% of the voting power of all of our then outstanding common stock;

provide that all vacancies, including newly created directorships, may, except as otherwise required by law or subject to the rights of holders of preferred stock as designated from time to time, be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum;

divide our board of directors into three classes;

require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and not be taken by written consent;

provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide notice in writing in a timely manner and also specify requirements as to the form and content of a stockholder's notice;

do not provide for cumulative voting rights (therefore allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election, if they should so choose);

provide that special meetings of our stockholders may be called only by the chairman of the board, our Chief Executive Officer or by the board of directors pursuant to a resolution adopted by a majority of the total number of authorized directors (whether or not there exists any vacancies); and

provide that the Court of Chancery of the State of Delaware will 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 or officers to us or our stockholders, (iii) any action asserting a claim against us arising pursuant to any provision of the DGCL or our certificate of incorporation or bylaws, or (iv) any action asserting a claim against us governed by the internal affairs doctrine.

The amendment of any of these provisions, with the exception of the ability of our board of directors to issue shares of preferred stock and designate any rights, preferences and privileges thereto, would require the affirmative vote of the holders of at least 66 2/3% of the voting power of all of our then outstanding common stock.

Transfer Agent And Registrar

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A. The transfer agent and registrar's address is P.O. Box 43078, Providence, Rhode Island 02940. The transfer agent for any series of preferred stock that we may offer under this prospectus will be named and described in the prospectus supplement for that series.

Listing on the Nasdaq Global Market

Our common stock is listed on the Nasdaq Global Market under the symbol CMRX.

TABLE OF CONTENTS

PLAN OF DISTRIBUTION

We may sell shares of our common stock from time to time pursuant to underwritten public offerings, negotiated transactions, block trades or a combination of these methods. We may sell shares of our common stock to or through underwriters or dealers, through agents, or directly to one or more purchasers. We may distribute shares of our common stock 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; or
at negotiated prices.

We may also sell shares of our common stock covered by this registration statement in an at the market offering as defined in Rule 415 under the Securities Act. Such offering may be made into an existing trading market for such securities in transactions at other than a fixed price, either:

on or through the facilities of the Nasdaq Global Market or any other securities exchange or quotation or trading service on which such securities may be listed, quoted or traded at the time of sale; and/or
to or through a market maker otherwise than on the Nasdaq Global Market or such other securities exchanges or quotation or trading services.

Such at-the-market offerings, if any, may be conducted by underwriters acting as principal or agent.

A prospectus supplement or supplements (and any related free writing prospectus that we may authorize to be provided to you) will describe the terms of the offering of our common stock, including, to the extent applicable:

the name or names of any underwriters, dealers or agents, if any;
the purchase price of the common stock and the proceeds we will receive from the sale;
any over-allotment options under which underwriters may purchase additional shares of common stock from us;
any agency fees or underwriting discounts and other items constituting agents or underwriters compensation;
any public offering price;
any discounts or concessions allowed or reallocated or paid to dealers; and
any securities exchange or market on which our common stock may be listed.

Only underwriters named in the prospectus supplement are underwriters of the common stock offered by the prospectus supplement.

If underwriters are used in the sale, they will acquire the common stock for their own account and may resell our common stock from time to time in one or more transactions at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to purchase our common stock will be subject to the conditions set forth in the applicable underwriting agreement. We may offer shares of our common stock to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Subject to certain conditions, the underwriters will be obligated to purchase all of our common stock offered by the prospectus supplement. Any public offering price and any discounts or concessions allowed or reallocated or paid to dealers may change from time to time. We may use underwriters with whom we have a material relationship. We will describe in the prospectus supplement, naming the underwriter, the nature of any such relationship.

TABLE OF CONTENTS

We may sell shares of our common stock directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of our common stock, and we will describe any commissions we will pay the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, our agent will act on a best-efforts basis for the period of its appointment.

We may authorize agents or underwriters to solicit offers by certain types of institutional investors to purchase shares of our common stock from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. We will describe the conditions to these contracts and the commissions we must pay for solicitation of these contracts in the prospectus supplement.

We may provide agents and underwriters with indemnification against civil liabilities related to this offering, including liabilities under the Securities Act, or contribution with respect to payments that the agents or underwriters may make with respect to these liabilities. Agents and underwriters may engage in transactions with, or perform services for, us in the ordinary course of business.

Any underwriter may engage in overallotment, stabilizing transactions, short covering transactions and penalty bids.

Overallotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Short covering transactions involve purchases of the securities in the open market after the distribution is completed to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a stabilizing or covering transaction to cover short positions.

Those activities may cause the price of the securities to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time. These transactions may be effected on any exchange or over-the-counter market or otherwise.

Any underwriters who are qualified market makers on the Nasdaq Global Market may engage in passive market making transactions in our common stock 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 our common stock. 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 our common stock; 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 our common stock at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

TABLE OF CONTENTS

LEGAL MATTERS

Unless otherwise indicated in the applicable prospectus supplement, certain legal matters in connection with the offering and the validity of the common stock offered by this prospectus, and any supplement thereto, will be passed upon by Cooley LLP.

EXPERTS

The financial statements of Chimerix, Inc. appearing in Chimerix, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2014 have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon, included therein, and are incorporated by reference in this prospectus. Such financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of a registration statement we filed with the SEC. This prospectus does not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information with respect to us and the common stock we are offering under this prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. Neither we nor any agent, underwriter or dealer has authorized any person to provide you with different information. We are not making an offer of our common stock in any state where the offer is not permitted. You should not assume that the information in this prospectus is accurate as of any date other than the date on the front page of this prospectus, regardless of the time of delivery of this prospectus or any sale of the common stock offered by this prospectus.

We file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy the registration statement, as well as any other document filed by us with the SEC, at the SEC's Public Reference Room at 100 F Street NE, Washington, D.C. 20549. You can also request copies of these documents by writing to the SEC and paying a fee for the copying cost. You may obtain information on the operation of the Public Reference Room by calling the SEC at (800) SEC-0330. The SEC maintains a website that contains reports, proxy statements and other information regarding issuers that file electronically with the SEC, including Chimerix. The address of the SEC website is www.sec.gov.

We maintain a website at www.chimerix.com. Information contained in or accessible through our website does not constitute a part of this prospectus.

TABLE OF CONTENTS

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference information into this prospectus, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The SEC file number for the documents incorporated by reference in this prospectus is 001-35867. The documents incorporated by reference into this prospectus contain important information that you should read about us.

The following documents are incorporated by reference into this document:

our Annual Report on Form 10-K for the year ended December 31, 2014, filed with the SEC on March 6, 2015, and amended on March 27, 2015;

our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2015, filed with the SEC on May 11, 2015;

the information specifically incorporated by reference into our Annual Report on Form 10-K for the fiscal year ended December 31, 2014 from our definitive proxy statement on Schedule 14A (other than information furnished rather than filed) filed with the SEC on April 29, 2015;

our Current Reports on Form 8-K (other than information furnished rather than filed) filed with the SEC on February 2, 2015 and June 9, 2015; and

the description of our common stock, which is registered under Section 12 of the Exchange Act, in our registration statement on Form 8-A, filed with the SEC on April 5, 2013, including any amendments or reports filed for the purpose of updating such description.

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

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, without charge upon written or oral request, a copy of any or all of the documents that are incorporated by reference into this prospectus but not delivered with the prospectus, including exhibits which are specifically incorporated by reference into such documents. You should direct any requests for documents by writing us at 2505 Meridian Parkway, Suite 340, Durham, North Carolina 27713 or telephoning us at (919) 806-1074.

Any statement contained herein or in a document incorporated or deemed to be incorporated by reference into this document will be deemed to be modified or superseded for purposes of the document to the extent that a statement contained in this document or any other subsequently filed document that is deemed to be incorporated by reference into this document modifies or supersedes the statement.

DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITY

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling the registrant pursuant to the foregoing provisions, the registrant has been informed that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable.

TABLE OF CONTENTS