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VIA EDGAR AND FEDEX

March 8, 2013

United States Securities and Exchange Commission
Division of Corporate Finance
Mail Stop 6010
100 F Street, N.E.
Washington, D.C. 20549
Attn: Jeffrey Riedler
Austin Stephenson

Re: Chimerix, Inc.
Confidential Draft Registration Statement on Form S-1
Submitted January 30, 2013
CIK No. 0001117480

Dear Mr. Riedler:

Enclosed for electronic filing via EDGAR pursuant to the Securities Act of 1933, as amended, on behalf of our client, Chimerix, Inc. (the ***"Company"***), is a registration statement on Form S-1 (***"Registration Statement"***). The Registration Statement updates the Company's confidential draft registration statement on Form S-1 (the ***"Confidential Draft Registration Statement"***) submitted confidentially to the Securities and Exchange Commission (the ***"Commission"***) on January 30, 2013. The copy of the Registration Statement that is enclosed with the paper copy of this letter is marked to show changes from the Confidential Draft Registration Statement.

The Registration Statement is being submitted in response to comments received from the staff of the Commission (the ***"Staff"***) by letter dated February 26, 2013 with respect to the Confidential Draft Registration Statement (the ***"Comment Letter"***). The numbering of the paragraphs below corresponds to the numbering in the Comment Letter, the text of which we have incorporated into this response letter for convenience. Except where otherwise indicated, page references in the text of the responses below correspond to the page numbers of the Registration Statement.

Staff Comments and Company Responses

General

1. *Please submit all outstanding exhibits as soon as practicable. We may have further comments upon examination of these exhibits.*

Response: The Company acknowledges the Staff's comment, has filed certain outstanding exhibits with the Registration Statement, and will file the remaining exhibits as promptly as possible.

2. *Please provide us proofs of all graphic, visual or photographic information you will provide in the printed prospectus prior to its use, for example in a preliminary prospectus. Please note that we may have comments regarding this material.*

Response: The Company respectfully advises the Staff that it does not currently intend to include any additional graphic, visual or photographic material in the printed prospectus other than the Company's logo which currently appears on the front and back cover pages of the Registration Statement and the other graphics that are presently included in Registration Statement. If, following the date of this letter, the Company determines to include additional graphic, visual or photographic material in the printed prospectus, it will provide proofs of such material to the Staff prior to its use.

3. *Please supplementally provide us with copies of all written communications, as defined in Rule 405 under the Securities Act, that you, or anyone authorized to do so on your behalf, present to potential investors in reliance on Section 5(d) of the Securities Act, whether or not they retain copies of the communications. Similarly, please supplementally provide us with any research reports about you that are published or distributed in reliance upon Section 2(a)(3) of the Securities Act of 1933 added by Section 105(a) of the Jumpstart Our Business Startups Act by any broker or dealer that is participating or will participate in your offering.*

Response: The Company is supplementally providing the staff with copies of written communications of the type referenced in the first sentence of the Staff's comment. The Company respectfully advises the Staff that at present there are no research reports of the type referenced in the second sentence of the Staff's comment. If, following the date of this letter, any such reports are published or distributed, the Company will supplementally provide such communications to the Staff.

4. *We will deliver comments to your confidential treatment request under separate cover.*

Response: The Company acknowledges the Staff's comment.

Prospectus Summary, page 1

5. *Please define the term "oral nucleotide analog lipid-conjugate" as used in the second paragraph of the overview. Please further revise the description of CMX001 in this paragraph to explain in plain English the compound's method of action. For guidance on the use of plain English in your prospectus summary, please reference Rule 421(d) of Regulation C.*

Response: In response to the Staff's comment, the Company has revised the disclosure on pages 1 and 71 of the Registration Statement as requested.

Risk Factors, page 9
"If we are unable to establish sales and marketing capabilities…," page 22

6. *Given your lack of experience in commercializing products, please expand your discussion of the risk factor on this page to include more details about the specific challenges you will face in developing an internal sales force for marketing CMX001 domestically.*

Response: In response to the Staff's comment, the Company has revised the disclosure on page 23 of the Registration Statement as requested.

Use of Proceeds, page 40

7. *If you plan to use a material portion of proceeds to discharge debt under your loan agreements with Silicon Valley and MidCap Financial, please disclose that fact here along with the interest rate and maturity of the indebtedness. Please also describe any use of the proceeds from these loans other than use for regular working capital.*

Response: The Company would like to clarify for the Staff that the reference to "debt service payments" on page 40 of the Confidential Draft Registration Statement contemplated only regular, ordinary course payments of principal and interest as required by the terms of the Company's Loan and Security Agreement, dated January 27, 2012, with Silicon Valley Bank and MidCap Financial SBIC, LP, and that the Company has no present intention of using the net proceeds from this offering to accelerate the repayment of any outstanding indebtedness. The Company has revised the disclosure on page 42 of the Registration Statement to provide greater clarity regarding this use of proceeds.

Research and Development Expenses, page 51

8. *Please revise your disclosure of your CMX001 research and development expenses to include costs incurred to date on this project.*

Response: In response to the Staff's comment, the Company has revised the disclosure on page 53 of the Registration Statement as requested.

Valuation of Stock-Based Compensation, page 54

9. *Please update the table and related disclosure on pages 55-56 and 56-58 to include the 2012 option grants you disclose in number 7 to Item 15 on page II-3. To the extent you grant additional options prior to the completion of this offering, please update the table for those future grants.*

Response: In response to the Staff's comment, the Company has revised the disclosure on pages 60, 61 and 62 of the Registration Statement as requested. The Company confirms that to the extent it grants additional options prior to the completion of this offering, it will update the table for those future grants.

Common Stock Fair Value, page 56

10. *We may have additional comments on your accounting for stock compensation and related disclosure once you have disclosed an estimated offering price. Please provide quantitative and qualitative disclosures explaining the difference between the estimated offering price and the fair value of each equity issuance.*

Response: The Company acknowledges the Staff's comment and will provide the requested disclosures once it has disclosed an estimated offering price.

Business, page 70

11. *Please disclose whether you or a third party has filed investigational new drug applications (INDs) for the following: CMX001 for treatment of CMV infection in HSCT patients; CMX001 for treatment of AdV infection; and CMX157 for treatment of HIV infection. If INDs for these compounds and for the corresponding treatments indicated have been filed, please disclose the identity of the filers and the dates the applications were filed. Alternately, if no INDs have been filed for these formulations, please explain why.*

Response: In response to the Staff's comment, the Company has revised the disclosure on pages 87 and 94 of the Registration Statement as requested.

Development Strategy for CMX001, page 75

12. *We note your discussion of a Safety Monitoring and Management Plan on pages 70-71 developed to address the adverse effect of diarrhea experienced by patients in Phase 2 clinical trials of CMX001. Please expand on your discussion of the development strategy to include the provisions of this plan and how it will impact the upcoming Phase 3 SUPPRESS trials.*

Response: In response to the Staff's comment, the Company has revised the disclosure on page 76 of the Registration Statement as requested.

Clinical Development Program for CMX001, page 85

13. *Please clarify in this section whether you intend to obtain a Special Protocol Assessment (SPA) from the FDA prior to engaging in the Phase 3 SUPPRESS trials. If so, please discuss the current status of that process.*

Response: In response to the Staff's comment, the Company has clarified the disclosure on page 87 of the Registration Statement as requested.

Commercial Agreements, page 92
BARDA, pages 92-93

14. *We note that you are eligible to receive a total of $81.1 million in expense reimbursement and fees under the BARDA contract. Please separately disclose the amount that is attributable to reimbursement for work under the contract and the amount attributable to fixed fees earned for performance.*

Response: In response to the Staff's comment, the Company has revised the disclosure on pages 52 and 96 of the Registration Statement as requested.

15. *We note that the base performance period under the contract has ended and that BARDA must notify you of its decision to exercise the first option segment. Please update your disclosure to reflect whether BARDA has opted to extend the agreement.*

Response: In response to the Staff's comment, the Company has updated the disclosure on pages 95 and F-28 of the Registration Statement as requested.

16. *On page 93, you disclose that "the U.S. government retains a nonexclusive, nontransferable, irrevocable, paid up license to any invention made in the performance of our work under the contract." Please explain whether the registrant or any party other than the U.S. government retains licensure rights to inventions arising from the BARDA contract and describe those rights. If not, please clarify the meaning of "nonexclusive" as used to describe the U.S. government's licensure rights.*

Response: In response to the Staff's comment, the Company has revised the disclosure on page 96 of the Registration Statement as requested.

Technology Licenses
The Regents of the University of California, page 98

17. *Please disclose the aggregate potential milestone payments you could pay to The Regents of the University of California in this section.*

Response: The Company respectfully advises the Staff that the terms of the License Agreement, by and between the Company and The Regents of the University of California (***"UC"***), dated May 13, 2002, as amended (the ***"UC License Agreement"***), provide for an indeterminable aggregate amount of potential milestone payments that the Company could be required to pay to UC. Specifically, several of the milestone payments are triggered upon the achievement of specified development and commercialization milestones with respect to each product developed by the Company utilizing the patent rights licensed to the Company under the UC License Agreement. Therefore, because the Company could develop an unlimited number of products utilizing the patent rights licensed to the Company under the UC License Agreement, the aggregate amount of potential milestone payments that the Company could be required to pay to UC is indeterminable. However, in response to the Staff's comment, the Company has revised the disclosure on page 101 of the Registration Statement to specify the aggregate milestone payments that the Company could be required to pay to UC under the UC License Agreement with respect to CMX001 and CMX157, the Company's product candidates that are currently in development.

Executive and Director Compensation, page 121

18. *We note that your CEO was granted stock options awards in 2010 that would vest upon achievement of "certain corporate performance goals that never occurred." Please discuss the specific unmet performance goals tied to the cancelled stock option awards in the 2010 agreement with your CEO.*

Response: In response to the Staff's comment, the Company has revised the disclosure on page 124 of the Registration Statement as requested.

Shares Eligible for Future Sale, page 147

19. *Once available, please file the form of lock-up agreement as an exhibit to your registration statement.*

Response: The Company acknowledges the Staff's comment and respectfully advises the Staff that it will file the form of lock-up agreement as an exhibit to a future amendment to the Registration Statement.

Index to Financial Statements, page F-1

20. *Please provide updated financial statements and financial information throughout the filing pursuant to Rule 8-08 of Regulation S-X.*

Response: In response to the Staff's comment, the Company has revised the Registration Statement to update its financial statements and financial schedules to include audited financial statements for the year ended December 31, 2012.

Note 2. Significant Accounting Policies
Accrued Liabilities, page F-12

21. *Please tell us why you have no accrued development expenses as of September 30, 2012.*

Response: The Company respectfully informs the Staff that at December 31, 2011 there were several developmental and clinical projects accrued which were completed as of September 30, 2012. The developmental and clinical projects ongoing as of September 30, 2012 were in a net prepaid position due to the timing of payments related to such projects, and therefore the Company had no accrued development expenses as of September 30, 2012.

Revenue Recognition, page F-12

22. *You disclose that you recognize contract and grant revenue as qualifying research activities are conducted based on invoices received from the Company's vendors. Please revise your disclosure to clarify whether you have any continuing performance obligations related to the receipt of the grants and whether there are any refund obligations. If so, please disclose those obligations and their impact on your accounting.*

Response: The Company respectfully informs the Staff that it does not have any continuing performance obligations related to the receipt of such grants and there are no related refund obligations. In response to the Staff's comment, the Company has revised the disclosure on page F-13 of the Registration Statement.

Note 11. Significant Agreements, page F-27
The Regents of the University of California, page F-27

23. *Please revise your filing to disclose the aggregate amount of future milestone payments you could pay to The Regents of the University of California under your license agreement. In addition please reflect such amount in your note related to this agreement under Contractual Obligations and Commitments on page 67.*

Response: The Company respectfully advises the Staff that the terms of the UC License Agreement provide for an indeterminable aggregate amount of potential milestone payments that the Company could be required to pay to UC. Specifically, several of the milestone payments are triggered upon the achievement of specified development and commercialization milestones with respect to each product developed by the Company utilizing the patent rights licensed to the Company under the UC License Agreement. Therefore, because the Company could develop an unlimited number of products utilizing the patent rights licensed to the Company under the UC License Agreement, the aggregate amount of potential milestone payments that the Company could be required to pay to UC is indeterminable. However, in response to the Staff's comment, the Company has revised the disclosure on pages 67 and F-28 of the Registration Statement to specify the aggregate milestone payments that the Company could be required to pay to UC under the UC License Agreement with respect to CMX001 and CMX157, the Company's product candidates that are currently in development.

Exhibits, page II-4

24. *Please file material agreements with your suppliers and manufacturers as exhibits in accordance with Item 601(b)(10) of Regulation S-K. You should also identify these agreements and their material terms in your prospectus in accordance with Item 101(c) of Regulation S-K. Alternately, if you do not believe you are substantially dependent on any these agreements, please advise us as to the basis of your conclusions.*

Response: The Company respectfully advises the Staff that none of the Company's agreements with suppliers or manufacturers are material agreements. The Company's conclusion that none of its agreements with suppliers or manufacturers are material agreements is based on the Company's determination that (a) the terms of each of these agreements is such as ordinarily accompanies the kind of business conducted by the Company, (b) the processes used by such third parties to manufacture the Company's drug substance and drug product are not unique or proprietary to such third parties, (c) the Company could replace any of its current suppliers or manufacturers on a timely basis without a material impact on its business and (d) the Company has enough supply of each of its drug candidates on hand to complete its planned clinical trials. As a result, the Company's business is not substantially dependent on any of these agreements, and the Company does not believe that any termination or transition of its suppliers or manufacturers would materially impact the development schedule that is set forth in the Registration Statement. In fact, the Company is currently transitioning its commercial drug substance manufacturing to a new manufacturer, and does not expect such transition to delay the Company's planned clinical trials or otherwise materially impact its business.

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The Company respectfully requests the Staff's assistance in completing the review of the Registration Statement as soon as possible. Please advise us if we can provide any further information or assistance to facilitate your review. Please direct any further comments or questions regarding the Registration Statement or this response letter to me at (858) 550-6044.

Sincerely,

Cooley LLP

/s/ Jason Kent

Jason L. Kent, Esq.

cc: Kenneth I. Moch, Chimerix, Inc.
Timothy W. Trost, Chimerix, Inc.
Michael Alrutz, Chimerix, Inc.
Richard D. Truesdell, Jr., Davis Polk & Wardwell LLP