

June 30, 2015

VIA EDGAR & FEDEX

United States Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549
Attention: Jeffrey P. Riedler, Assistant Director

**Re: Targacept, Inc.
Registration Statement on Form S-4
Filed May 22, 2015 File No. 333-204423**

We are submitting this letter on behalf of Targacept, Inc. (the “**Company**”) in response to comments from the staff (the “**Staff**”) of the Securities and Exchange Commission (the “**Commission**”) received by letter dated June 22, 2015 (the “**Comment Letter**”) from Jeffrey P. Riedler, Assistant Director, to Dr. Stephen A. Hill, the Company’s Chief Executive Officer, relating to the above-referenced registration statement on Form S-4 of the Company, filed with the Commission on May 22, 2015. In conjunction with this letter, the Company is filing Amendment No. 1 to the registration statement (“**Amendment No. 1**”) and, as amended, the “**Registration Statement**”).

For convenient reference, we have set forth below in italics each of the Staff’s comments set forth in the Comment Letter and have keyed the Company’s responses to the numbering of the comments and the headings used in the Comment Letter. All of the responses are based on information provided to Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. by representatives of the Company or Catalyst Biosciences, Inc. Where appropriate, the Company has responded to the Staff’s comments by making changes to the disclosure in the Registration Statement as set forth in Amendment No. 1. Page numbers referred to in the responses reference the applicable pages of Amendment No. 1.

Questions and Answers about The Merger, page i

1. *We note that you are not soliciting a vote of the Targacept shareholders to approve the Merger Agreement, only the issuance of common shares and redeemable convertible notes as contemplated by the Agreement along with several other ancillary matters. Please provide us with an analysis explaining the basis for your apparent belief that shareholder approval of the Merger Agreement itself is not required.*

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Response: In response to the Staff's comment, the Company confirms that it will solicit a vote of the Company's shareholders to approve the Merger Agreement and has revised the disclosure on page i, and elsewhere in the Registration Statement, to include shareholder approval of the Merger Agreement.

2. *Where you discuss the Pre-Closing Dividend on pages iv-v, please clarify whether the redemption and conversion of the notes will be at your option or that of the noteholder. Please similarly clarify the disclosure on this point in the prospectus summary and throughout the forepart of your prospectus.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page v, and elsewhere, of the Registration Statement to clarify that the redemption and conversion of the notes will be at the noteholder's option.

3. *On page v, and throughout your filing, you refer to the redemption of the convertible notes at \$1.313 per share as a conversion price. Please revise all such references to avoid the impression that noteholders will be required to pay cash to obtain the underlying common shares.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on pages v, and elsewhere, of the Registration Statement to clarify that noteholders will not be required to pay cash to obtain the underlying common shares.

4. *Where you discuss the material U.S. federal income tax consequences of the Pre-Closing Dividend on page vi, please explain how your current and accumulated tax earnings and profits could impact the tax effects of the receipt of the Pre-Closing Dividend by your shareholders. Please provide similar disclosure in the prospectus summary.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page vi of the Registration Statement to explain how the Company's current and accumulated tax earnings and profits could impact the tax effects of the receipt of the Pre-Closing Dividend by the Company's shareholders.

[Prospectus Summary](#)
[The Companies, page 1](#)

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5. *In your description of Catalyst Biosciences, Inc. please remove the phrase “advanced lead stage of development” that you use to describe the Factor Xa variant, particularly since this variant has not yet progressed to even a preclinical stage.*

Response: In response to the Staff’s comment, the Company advises the Staff that it has revised the disclosure on pages 1, 220 and 258 of the Registration Statement to remove the phrase “advanced lead stage of development.”

6. *Please note here that Pfizer, Inc. has terminated its collaboration agreement with Catalyst effective June 1, 2015.*

Response: In response to the Staff’s comment, the Company advises the Staff that it has revised the disclosure on page 1 of the Registration Statement to note when Pfizer terminated its collaboration agreement with Catalyst.

Reasons for the Merger, page 2

7. *In the first bullet point on page 3, and throughout your filing, please remove the word “successfully” from your descriptions of the completed Phase 1 trial for CB 813d/PF-05280602, as this term implies that the testing was done to measure efficacy and that you achieved certain endpoints.*

Response: In response to the Staff’s comment, the Company advises the Staff that it has revised the disclosure on page 3 of the Registration Statement to clarify what was evaluated in the Phase 1 trial.

8. *In the third bullet on page 3 and elsewhere, you refer to “value inflection opportunities”. Similarly, in the cover page of your filing and on page iii you refer to “multiple future value inflection points.” Please replace these phrases with plain English disclosure that will convey the same information and be easily understood by the lay reader.*

Response: In response to the Staff’s comment, the Company advises the Staff that it has revised the disclosure on page 3, and elsewhere, of the Registration Statement to remove or replace the references to “value inflection opportunities” and “multiple future value inflection points,” as applicable.

Risk Factors

Risks Related to the Merger

“Targacept, Catalyst and the combined company will incur substantial transaction-related costs in connection with the merger,” page 21

9. *Please amend this risk factor to include an estimate of the merger-related costs you expect to incur.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 21 of the Registration Statement to include an estimate of the merger-related costs that the Company and Catalyst expect to incur.

Risks Related to Targacept

"Targacept may not be able to complete the merger....," page 22

10. *Please amend this risk factor to identify the closing conditions that you believe may affect your ability to complete the Merger and to briefly describe the termination rights included in the Merger Agreement.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 22 of the Registration Statement to identify the closing conditions that the Company believes may affect its ability to complete the Merger and to briefly describe the termination rights included in the Merger Agreement.

"A small number of Targacept's stockholders beneficially own a substantial amount of Targacept's common stock....," page 23

11. *Please amend this risk factor to include the total percentage of ownership that is concentrated in a small number of stockholders.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 23 of the Registration Statement to include the total percentage of ownership that is concentrated in a small number of stockholders.

Risks Related to Catalyst

"Catalyst must transition manufacturing and clinical activities related to CB 813d/PF-05280602 from Pfizer....," page 29

12. *Here, in the Background of the Merger section and in your discussion of Catalyst's Business, please state the reason(s) to your knowledge that Pfizer terminated its research and license agreement with Catalyst. To the extent that it may be relevant to this discussion, please include the period of time during which Pfizer gathered safety and/or efficacy data from the Phase 1 trial for CB 813d/PF-05280602 and how soon after they had gathered such data they notified Catalyst of their intention to terminate. Please also disclose what the data revealed about safety and preliminary efficacy.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 29 of the Registration Statement to state the reason Catalyst believes Pfizer terminated its research and license agreement with Catalyst. In addition, please note that additional disclosure regarding the safety and preliminary efficacy findings from the referenced trial have been added to the disclosure on page 222 of the Registration Statement in response to comment 31.

"If Targacept's stockholders sell a substantial number of shares of its common stock in the public market..." page 50

13. *Please expand the disclosure to note that the conversion of the notes could lead to further declines in the market price of the Targacept common stock.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 51 of the Registration Statement to note that the conversion of the notes could lead to further declines in the market price of the Company's common stock.

The Merger

Background of the Merger, page 59

14. *Please describe the process of identifying and evaluating strategic combinations you initiated in 2014. Disclose whether you initiated contact with each of Companies A-D and any other companies with which you discussed strategic alternatives prior to the retention of Stifel. If any of these companies initiated contact with you, please state this in your disclosure.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on pages 59-60 of the Registration Statement to note whether the Company initiated contact with each of Companies A-D and any other companies with which the Company discussed strategic alternatives prior to the retention of Stifel.

15. *Please identify the members of the executive management committee and the development planning committee who met in 2014 to assess potential strategic transactions.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 60 of the Registration Statement to note the members of these committees.

16. *You disclose that by September 18, 2014 you had entered into confidential disclosure agreements with three of your major shareholders to evaluate strategic opportunities but you only discuss one such agreement that was entered into on August 27. Please indicate when the other two agreements were executed and any material information about them, including the identities of the stockholders.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 60, and elsewhere, of the Registration Statement to provide further details regarding the Company's major shareholders' involvement in the process.

17. *Please identify at what point prior to September 22, 2014 EcoR1 Capital, LLC became a significant stockholder.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 61 of the Registration Statement to provide further details regarding its assumptions as to EcoR1's holdings.

18. *Where you reference New Enterprise Associates, Inc. please state that it is one of your significant stockholders and explain why they were specifically contacted to discuss Catalyst's interest and selected to receive Catalyst's corporate presentation.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 60 of the Registration Statement to provide further details regarding NEA.

19. *Please state, if true, that the Special Committee and the full Board of Directors determined that the stock-for-stock transaction proposed by Catalyst was the most desirable bid because of the value premium over your stock price, the Pre-Closing Dividend and the amount of cash Catalyst would combine with your own. If there were any other factors that led the committee to prefer the Catalyst bid, please identify them in this discussion.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 67 of the Registration Statement to provide further details regarding the factors that led the Special Committee and the full Board of Directors to prefer the Catalyst bid.

20. *Please describe the changes to the Catalyst business brought about by the termination of the Research and License Agreement with Pfizer reflected in the updated operating plan presented on April 19, 2015, as well as the further updates described on April 28, 2015.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on pages 70 and 71 of the Registration Statement to provide further details regarding the changes to the Catalyst business brought about by the termination of the Research and License Agreement with Pfizer.

21. *Please describe the changes to the merger agreement resulting from the communications and meetings that took place on May 4 and May 5, 2015 that were then reflected in the amendment agreed to on May 13 and executed on May 14.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on pages 71 and 72 of the Registration Statement to describe the changes to the merger agreement resulting from the communications and meetings that took place on May 4 and May 5, 2015 that were then reflected in the amendment executed on May 13 and announced on May 14.

Opinion of the Targacept Financial Advisor, page 76

22. *Please state here that Stifel has expressly consented to the inclusion of this opinion in your filing.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the above-referenced disclosure on page 78 of the Registration Statement.

23. *Here, and in the actual opinion included in Annex B, it is stated that Stifel did not assume responsibility for the accuracy or completeness of the assumptions and estimates that were used in its opinion. While it is acceptable to use qualifying language concerning the subjective analyses performed in connection with this opinion, as you have done, it is not appropriate for a financial advisor to disclaim responsibility for the estimates it used in preparing the opinions you have included in your disclosure. Please amend this discussion and the Stifel opinion accordingly.*

Response: In response to the Staff's comment and as discussed with the Staff, the Company supplementally confirms to the Staff that the projected information refers to the projections which were provided to Stifel by Targacept.

24. *In the fourth bullet point on page 77, you state that certain internal financial analyses, financial projections, reports and other information concerning Catalyst and prepared by its management were provided by you to Stifel. Please amend your disclosure to include these analyses and projections.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on pages 86 and 87 of the Registration Statement to include these analyses and projections.

25. *Please supplementally provide us with copies of any materials prepared by Stifel in connection with its fairness opinion, including, among other things, any "board books," draft of its fairness opinion provided to the board of directors, and any summaries of presentations made to the board of directors. We may have further comments on your disclosure once we have had the opportunity to review these materials.*

Response: In response to the Staff's comment, the written, confidential materials (including the board books) prepared by Stifel, Nicolaus & Company, Incorporated ("Stifel") in connection with its opinion and presented to the board of Targacept at its meeting described in the Registration Statement is being provided to the Staff by McGuireWoods LLP, as counsel to Stifel, under separate cover on a confidential and supplemental basis pursuant to Rule 418 of the Securities Act of 1933, as amended, and Rule 12b-4 under the Securities Exchange Act of 1934, as amended. In accordance with such Rules, such materials are being provided together with a request that these materials be returned promptly following completion of the Staff's review thereof. Such materials are not, and will not be, filed with or deemed to be part of the Registration Statement, including any amendments thereto. By separate letter, a request for confidential treatment of these materials pursuant to the provisions of 17 C.F.R. § 200.83 has been made.

26. *Please explain why the Selected Publicly Traded Companies Analysis, the Selected Precedent Acquisitions Analysis and the Selected Precedent IPO Analysis all employed Phase II and/or Phase III or Phase III-ready life sciences companies when Catalyst has only one product candidate that has completed a Phase I trial and does not plan to initiate a Phase II trial until 2016.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the above-referenced disclosure on page 81 of the Registration Statement.

27. *In the Selected Publicly Traded Companies Analysis and the Selected Precedent IPO Analysis, you state that "other factors" were used in your analyses. Please describe those other factors in your disclosure, particularly in light of the equity and enterprise values or the pre-money equity values, as applicable, calculated being greater than the current market price of your shares.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the above-referenced disclosure on page 82, and elsewhere, of the Registration Statement.

28. *Similarly, in the Selected Precedent Acquisitions Analysis, please describe the qualitative judgments Stifel made, as the equity and enterprise value ranges identified in this analysis are also greater than your current market price.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the above-referenced disclosure on page 84 of the Registration Statement.

Tax Treatment of the Merger, page 97

29. *It is unclear whether you intend to file opinions and related consents concerning the tax treatment of your shareholders with respect to the Pre-Closing Dividend and of the Catalyst shareholders with regard to the Merger. Please amend your filing to include these opinions. The opinion relating to your shareholders should address the alternate tax effects resulting from your current and accumulated tax earnings and profits as well as the issuance of both the cash and notes components of the Pre-Closing Dividend, original issue discount, and the conversion of the notes.*

Response: In response to the Staff's comment, the Company advises the Staff that it has filed the opinions and related consents of this firm, and Morrison & Foerster as counsel to Catalyst, as exhibits to the Registration Statement.

Catalyst Business

Catalyst's Product Candidate Pipeline, page 218

30. *Please remove the FXa variant and the Anti-C3 Ophthalmic therapeutic from the product portfolio table, since neither has yet reached the preclinical stage and are therefore not yet advanced enough to be included.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 221 of the Registration Statement to remove the FXa variant and the Anti-C3 Ophthalmic therapeutic from the product portfolio table.

Hemostasis & Hemophilia, page 219

31. *Please discuss the findings that were presented at the ISTH meeting from June 20-June 25, 2015, including the safety, tolerability, pharmacokinetics and clot-forming activity of CB 813d/PF-05280602.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 222 of the Registration Statement to discuss the findings that were presented at the ISTH meeting from June 20-June 25, 2015, including the safety, tolerability, pharmacokinetics and clot-forming activity of CB 813d/PF-05280602.

32. *Please indicate approximately when Catalyst filed an Investigational New Drug Application (IND) for CB 813d/PF-05280602 with the Food and Drug Administration and the specific indications included in it.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 222 of the Registration Statement to indicate that Pfizer filed an IND with the FDA in August of 2011.

Intellectual Property, page 225

33. *Please indicate whether Catalyst developed its intellectual property portfolio or whether it acquired it from a third-party. If the latter, please state whether the portfolio is subject to any licensing agreements. Please file any such license agreements as exhibits and disclose their material terms.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 229 of the Registration Statement to confirm that its intellectual property portfolio is substantially internally developed. Further, the Company advises the Staff that Catalyst's business is not substantially dependent on the patents that it had licensed in relation to a screening and scaffolding technology, and as such, it does not believe that such license agreements constitute material agreements that should be filed as exhibits to, and described in, the Registration Statement.

Catalyst Management's Discussion and Analysis of Financial Condition and Results of Operations Research and Development Expenses, page 262

34. *Please disclose the costs incurred during each period presented and to date for your most advanced program Factor VIIa variant that successfully completed a Phase I clinical trial, separately. If you do not maintain research and development costs by project, disclose that fact and explain why management does not maintain and evaluate research and development costs by project.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 261 of the Registration Statement to clarify that Catalyst's internal resources, employees and infrastructure are not directly tied to individual product candidates or development programs, and that as such, it does not maintain and evaluate research and development costs by project.

Contractual Obligations, page 266

35. *Please revise your disclosure to include the amount of potential milestone payments to ISU Abxis disclosed on page 225 as well as any other potential future milestone payments.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 270 of the Registration Statement to clarify that Catalyst may be obligated to pay ISU Abxis up to \$2.0 million in potential milestone payments.

36. *Please revise your disclosure to include the amount of unrecognized tax benefits disclosed on page F-59.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 270 of the Registration Statement to clarify that Catalyst had unrecognized tax benefits in the amount of \$2.6 million as of December 31, 2014 related to uncertain tax positions.

Catalyst Biosciences Inc. Financial Statements

Notes to Financial Statements

3. Commitments and Other Accrued Liabilities

License Agreement Obligations, page F-51

37. *Please disclose the total amount of the potential development milestone payments in connection with the license agreements.*

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Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page F-51 of the Registration Statement to clarify that Catalyst may be obligated to pay ISU Abxis up to \$2.0 million in potential milestone payments.

* * * * *

The Company acknowledges that (i) the Company is responsible for the adequacy and accuracy of the disclosure in the filing, (ii) Staff comments or changes to disclosure in response to Staff comments do not foreclose the Commission from taking any action with respect to the filing and (iii) the Company may not assert Staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

When appropriate, the Company will provide a written request for acceleration of the effective date of the Registration Statement and will include the requested "Tandy" language therein. The Company and the Underwriters are aware of their respective obligations under Rules 460 and 461 regarding requesting acceleration of the effectiveness of the Registration Statement.

We hope that the above responses and the related revisions to the Registration Statement will be acceptable to the Staff. Please do not hesitate to call the undersigned at (617) 542-6000 with any comments or questions regarding the Registration Statement and this letter. We thank you for your time and attention.

Sincerely,

/s/ Megan N. Gates

Megan N. Gates

cc: Securities and Exchange Commission

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