

July 17, 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.
Amendment No. 1 to Registration Statement on Form S-4
Filed July 1, 2015
File No. 333-204423

Dear Mr. Riedler:

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 July 14, 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 amendment to the registration statement on Form S-4 of the Company, filed with the Commission on July 1, 2015. In conjunction with this letter, the Company is filing Amendment No. 2 to the registration statement (“**Amendment No. 2**” 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. 2. Page numbers referred to in the responses reference the applicable pages of Amendment No. 2.

Material U.S. Federal Income Tax Consequences of the Merger to Holders of Catalyst Common Stock, page 100.

1. *We note that in the penultimate paragraph on page 100 the registrant includes four bulleted material tax consequences of the merger to Catalyst shareholders assuming that the merger will be treated for U.S. federal income tax purposes as a reorganization. It is inappropriate to assume any legal conclusion underlying the tax opinion and it is not sufficient to disclose that Targacept and Catalyst intend the tax consequences set forth in*

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.

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Jeffrey P. Riedler
Assistant Director
July 17, 2015
Page 2

this paragraph. Please replace this language by identifying tax counsel who has rendered its opinion that the merger will be treated as a reorganization and that the corresponding material tax effects of the merger to Catalyst shareholders will occur.

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 100 of the Registration Statement to identify the tax counsel who has rendered its opinion that the merger will be treated as a reorganization and that the corresponding material tax effects of the merger to Catalyst shareholders will occur, subject to certain qualifications contained in the tax opinion and the disclosure.

Tax Consequences of the Pre-Closing Dividend, page 103

Treatment of the Pre-Closing Dividend and the Reverse Stock Split as a Single Recapitalization, page 103-104

Material U.S. Federal Income Tax Consequences of the Ownership of the Redeemable Convertible Preferred Notes pages 107-111

Material U.S. Federal Income Tax Consequences of the Reverse Stock Split, pages 180-182

2. *Please identify counsel who has rendered its opinion as to the material tax consequences disclosed in each section referenced above and indicate in each of these sections that the accompanying discussion of material tax consequences constitutes the opinion of counsel.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on pages 102, 108 and 182 of the Registration Statement to identify the tax counsel who has rendered its opinion as to the material tax consequences disclosed in each section referenced above and indicate that the accompanying discussions of material tax consequences constitutes the opinion of counsel.

Principal Effects of the Reverse Stock Split, pages 178-179

3. *Please clarify whether the reverse stock split will be necessary in order to effect the merger and issue the Convertible Notes that are a component of the Pre-Closing Dividend.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 178 of the Registration Statement to clarify that the Company and Catalyst intend to effectuate the reverse stock split prior to the merger in order to maintain the listing of the combined company's common stock on the NASDAQ Global Select Market following the merger, but that the reverse stock split is not necessary in order to issue the Convertible Notes that are a component of the Pre-Closing Dividend.

Jeffrey P. Riedler
Assistant Director
July 17, 2015
Page 3

4. *Please expand this section to state whether the authorized common stock will be reduced in proportion to the reverse stock split. If not, disclose that one of the effects of the reverse stock split will be to increase the number of authorized unissued shares and that these shares will be available for issuance without further shareholder approval unless required by law. Please disclose assuming the ratio is 2 and the ratio is 10 the following:*
- *the number of authorized shares;*
 - *the number of shares that will be issued after the merger is completed;*
 - *the number of shares that will be reserved under the terms of the all convertibles including the Convertible Notes, warrants, options or other contractual obligations; and*
 - *the number of authorized shares that will unreserved and available for issuance.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 179 of the Registration Statement to clarify that the authorized common stock will not be reduced in proportion to the reverse stock split and to disclose that one of the effects of the reverse stock split will be to increase the number of authorized unissued shares and that such shares will be available for issuance without further shareholder approval unless required by law. The Company further advises the Staff that its Board has decided to fix the ratio for the reverse stock split at 7:1, and as such it has revised the vote for which it is seeking shareholder approval to reflect that shareholder approval is being sought for a stock split using that specific ratio and not a range of potential stock splits. The Company has revised the disclosure on page 179 to include a table which sets forth the anticipated effects of the reverse stock split using this ratio.

5. *Also, indicate whether the registrant has any additional plans, arrangements or understandings to issue shares that will be available and unreserved after the completion of the transactions described in the prospectus. If so, please provide appropriate disclosure.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 179 of the Registration Statement to clarify that the Company has no current plans, arrangements or understandings to issue shares that will be available and unreserved after the completion of the merger and other transactions described in the Registration Statement other than in connection with the merger and to satisfy obligations under the combined company's warrants and employee stock options from time to time as such warrants and options are exercised.

Jeffrey P. Riedler
Assistant Director
July 17, 2015
Page 4

Exhibit 8.1

6. *Please expand the text of the opinion to identify the two additional sections referenced in the previous comment (i.e. Treatment of the Pre-Closing Dividend and the Reverse Stock Split as a Single Recapitalization on page 103-104 and Material U.S. Federal Income Tax Consequences of the Reverse Stock Split, pages 180-182).*

Response: In response to the Staff's comment, the Company advises the Staff that it has expanded the text of the opinion of this firm to identify the two additional sections referenced in comment 2 of this letter and has filed the revised opinion and related consent of this firm as exhibits to the Registration Statement.

7. *Tax counsel should expand the last paragraph of the opinion to provide its consent to each reference to its name in the prospectus regarding the material tax effects of the transaction to shareholders of Targacept and to the inclusion of its tax opinion in the prospectus disclosure.*

Response: In response to the Staff's comment, the Company advises the Staff that it has expanded the last paragraph of the opinion of this firm to cover each reference to its name in the Registration Statement regarding the material tax effects of the transaction to shareholders of Targacept and to the inclusion of this firm's tax opinion in the disclosure and has filed the revised opinion and related consent of this firm as exhibits to the Registration Statement.

Exhibit 8.2

8. *Tax counsel should eliminate the penultimate paragraph of the tax opinion. The shareholders of Catalyst are entitled to rely upon the opinion and disclosure attributable to tax counsel in the prospectus.*

Response: In response to the Staff's comment, the Company advises the Staff that Morrison & Foerster, as tax counsel to Catalyst, has eliminated the penultimate paragraph of its tax opinion such that the shareholders of Catalyst are entitled to rely upon the opinion and disclosure attributable to tax counsel in the Registration Statement and filed the revised opinion and related consent of Morrison & Foerster as exhibits to the Registration Statement.

Jeffrey P. Riedler
Assistant Director
July 17, 2015
Page 5

9. *Tax counsel should expand the last paragraph of the opinion to provide its consent to each reference to its name in the prospectus regarding the material tax effects of the transaction to shareholders of Catalyst and to the inclusion of its tax opinion in the prospectus disclosure.*

Response: In response to the Staff's comment, the Company advises the Staff that Morrison & Foerster, as tax counsel to Catalyst, has expanded the last paragraph of its opinion to provide its consent to each reference to its name in the Registration Statement regarding the material tax effects of the transaction to shareholders of Catalyst and to the inclusion of its tax opinion in the disclosure and filed the revised opinion and related consent of Morrison & Foerster as exhibits to the Registration Statement.

Very truly yours,

/s/ Megan N. Gates

cc: Securities and Exchange Commission
Scot Foley, Esq.

Targacept, Inc.
Stephen A. Hill, M.D.
Patrick Rock, Esq.

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.
Marc Mantell, Esq.

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Stephen B. Thau, Esq.
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