

January 8, 2008

Via EDGAR Submission

Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549

Attention: Jim B. Rosenberg, Senior Assistant Chief Accountant

Re: Targacept, Inc.
Oral Comment Received January 4, 2008 with respect to:
Form 10-K for the Year Ended December 31, 2006
Filed March 22, 2007
Form 10-Q for the Quarterly Period Ended September 30, 2007
Filed November 9, 2007
File No. 000-51173

Ladies and Gentlemen:

This letter is submitted in response to the comment of Ms. Keira Ino of the Staff (the "Staff") of the Securities and Exchange Commission (the "Commission") received via telephone on January 4, 2008 and confirmed via telephone on January 7, 2008, following receipt of the undersigned's letter dated December 11, 2007 submitted on behalf of Targacept, Inc. (the "Company"). The Company's December 11, 2007 letter was in response to the letter dated November 28, 2007 from Jim B. Rosenberg of the Staff to Donald deBethizy, Chief Executive Officer and President of the Company, regarding the Company's Form 10-K for the fiscal year ended December 31, 2006 (the "Form 10-K") and the Company's Form 10-Q for the quarterly period ended September 30, 2007.

In the Form 10-K, the Company disclosed the aggregate amount of milestone payments for which the Company is eligible with respect to its product candidate AZD3480 (TC-1734) under its collaborative research and license agreement with AstraZeneca entered into in December 2005. The amount is disclosed in:

- Item 1. Business (page 2, under "Overview – Cognitive Impairment," 2nd paragraph; and page 17, under "Strategic Collaborations – AstraZeneca AB," 2nd paragraph);
- Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations (page 61, under "Financial Operations Overview – Revenue," 1st paragraph); and

- Item 8. Financial Statements (page 101, under “Notes to Financial Statements – 15. Collaborative Research and License Agreements – AstraZeneca AB,” 5th paragraph).

As noted in the Company’s December 11, 2007 letter to the Staff, the Company was made aware by its independent registered public accounting firm that the disclosed amount had not been audited because the disclosure was forward looking and subject to future contingencies and, as such, the Company’s independent registered public accounting firm advised it to identify the amount as unaudited where disclosed in the notes to its audited financial statements. The Staff has requested orally that the Company (1) request that its independent registered public accounting firm audit the amount if it is included in the notes to audited financial statements included in future filings and (2) not include the amount in the notes to audited financial statements included in future filings if it is not audited. The Company will comply with the Staff’s request.

* * *

The Company acknowledges that it is the view of the Commission that: (i) the Company is responsible for the adequacy and accuracy of the disclosure in the above-referenced filings; (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 above-referenced filings; 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.

We hope that our response will be acceptable to the Staff. If you have any questions regarding the foregoing, please do not hesitate to call me at 336.480.2115. Thank you for your time and attention.

Sincerely,

/s/ Peter A. Zorn

Peter A. Zorn

Vice President, Legal Affairs and General Counsel

cc: *Securities and Exchange Commission*

Ms. Keira Ino

Mr. Jim Atkinson

Targacept, Inc.

J. Donald deBethizy, Ph.D.