

[Letterhead of Targacept, Inc.]

October 6, 2010

**Via EDGAR Submission**

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

Attention: Mr. Jeffrey Riedler, Assistant Director

Re: Targacept, Inc.  
Form 10-K for the Fiscal Year Ended December 31, 2009  
Filed March 11, 2010  
File No. 000-51173  
Definitive Proxy Statement  
Filed April 16, 2010

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Ladies and Gentlemen:

This letter is submitted in response to the comment contained in the letter dated September 24, 2010 from Jeffrey Riedler of the Staff (the "Staff") of the Securities and Exchange Commission (the "Commission") to J. Donald deBethizy, Chief Executive Officer and President of Targacept, Inc. (the "Company"), regarding the Company's Definitive Proxy Statement filed on April 16, 2010 (the "2010 Proxy Statement").

The comment and response set forth below are keyed to the numbering of the comment and the headings used in the Staff's September 24, 2010 letter. Page numbers referred to in the response below reference the applicable pages of the 2010 Proxy Statement. Capitalized terms used but not otherwise defined herein have the meanings given them in the 2010 Proxy Statement.

**Definitive Proxy Statement**

Cash Incentive Bonus, page 27

**Comment 1:** *We note your response to comment four. Unless you can provide an unqualified representation that you will disclose the individual percentage weightings for each of your performance objectives, please provide a detailed competitive harm analysis in support of the omission of individual percentage weightings under Instruction 4 to Item 402(b) of Regulation S-K. Your analysis should identify the competitively harmful information and demonstrate how the information could be harmful to your company. To avoid the disclosure of the sensitive information in your analysis when our comment letters are released publicly, you should submit a confidential treatment request pursuant to Rule 83.*

**Response 1:** The Company does not anticipate that disclosure in its proxy statement in connection with its 2011 annual meeting of stockholders (the “2011 Proxy Statement”) (or, to the extent the Company’s Form 10-K for the fiscal year ending December 31, 2010 (the “2010 Form 10-K”) does not incorporate information by reference to the 2011 Proxy Statement, the 2010 Form 10-K) of the respective weights assigned to the Company’s 2010 performance objectives that the Compensation Committee of its Board of Directors will have used in early 2011 to determine the amount of the annual cash incentive bonus paid to the Company’s named executive officers for 2010 would cause the Company competitive harm. Accordingly, the Company expects to disclose the respective weights assigned to its 2010 performance objectives in its 2011 Proxy Statement.

Although the Company does not foresee a change of circumstances that would result in a conclusion regarding competitive harm at the time disclosure is required in 2011 that is different from the above conclusion, the Company cannot definitively rule out the possibility that such a change of circumstances could occur. Accordingly, the Company respectfully reserves its rights to re-visit the question of competitive harm caused by disclosure of specific weights assigned to its performance objectives in connection with the filing of the 2011 Proxy Statement (or 2010 Form 10-K, as the case may be) and, in the unexpected event that the Company concludes from its then-current analysis that one or more of the respective weights for its 2010 performance objectives meet the standard for exclusion from disclosure set forth in Instruction 4 to Item 402(b) of Regulation S-K, (1) not to disclose such weight(s) and (2) not to disclose any other weight, or to combine one or more of the other weights on any reasonable basis, as the Company determines to be necessary in order to maintain the confidentiality of the weight(s) that the Company has determined would cause it competitive harm. If the Company does not disclose in one of the 2011 Proxy Statement or the 2010 Form 10-K any of the weights assigned to its 2010 performance objectives in reliance on Instruction 4, the Company undertakes to provide the undisclosed weight(s) and a competitive harm analysis to the Staff supplementally upon request.

In addition, the Company’s annual incentive award program contemplates that the performance objectives will likely change from year to year. The Company’s competitive harm analysis regarding disclosure of the respective weights assigned to its performance objectives for 2010 has no bearing on, and may lead to a different conclusion than, its competitive harm analysis regarding disclosure of the respective weights assigned to its performance objectives for any other year. Accordingly, the Company respectfully reserves its rights described in the preceding paragraph with respect to disclosure of the respective weights assigned to its performance objectives for any year after 2010 if any of such weights meets the standard for exclusion from disclosure set forth in Instruction 4 to Item 402(b) of Regulation S-K.

**Closing**

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 the above 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.

Sincerely,

/s/ Peter A. Zorn  
Senior Vice President, Legal Affairs and General Counsel

cc: *Securities and Exchange Commission*  
Mr. Bryan Pitko  
Ms. Suzanne Hayes

*Targacept, Inc.*  
J. Donald deBethizy, Ph.D.