

Mail Stop 6010

August 2, 2006

Michael C. Venuti, Ph.D.
Acting Chief Executive Officer
Discovery Partners International, Inc.
9640 Towne Centre Drive
San Diego, California 92121

**Re: Discovery Partners International, Inc.
Draft Amendment No. 2 to Registration Statement on Form S-4,
file no. 333-134438
Received August 1, 2006**

Dear Dr. Venuti:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with supplemental information so we may better understand your disclosure. After reviewing this information, we may or may not raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Infinity's Business, pages 129-149

Strategic Alliances, pages 140-142

1. We note your response to our prior comment 14 and reissue that comment. Please revise your disclosure to disclose the aggregate potential milestone payments under each of the Amgen and Novartis alliances.

* * * * *

Michael C. Venuti, Ph.D.
Discovery Partners International, Inc.
August 2, 2006
Page 2

As appropriate, please amend your filing in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested supplemental information. Detailed cover letters greatly facilitate our review. Please file your cover letter on EDGAR under the form type label CORRESP. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

You may contact Sasha Parikh at (202) 551-3627 or Mary Mast at (202) 551-3613 if you have questions regarding comments on the financial statements and related matters. Please contact Sonia Barros at (202) 551-3655 or me at (202) 551-3715 with any other questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director

cc: L. Kay Chandler, Esq.
Matthew T. Browne, Esq.
Cooley Godward LLP
4401 Eastgate Mall
San Diego, CA 92121