

Mail Stop 6010

January 4, 2008

William M. Pinon
President and Chief Executive Officer
Bioheart, Inc.
13794 NW 4th Street, Suite 212
Sunrise, Florida 33325

**Re: Bioheart, Inc.
Registration Statement on Form S-1,
Post Effective Amendment No. 3
Filed December 21, 2007
File No. 333-140672**

Dear Mr. Pinon:

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 information so we may better understand your disclosure. After reviewing this information, we may 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 any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

FORM S-1

General

1. The staff notes that subsequent to the filing of post-effective amendment # 3 the registrant's fiscal year ended. Accordingly, prior to requesting effectiveness you should file another post-effective amendment that includes updated executive compensation information for the year ended on December 31, 2007. The

summary compensation table should include fiscal 2006 as well as fiscal 2007 information.

We have licensed and therefore do not own the intellectual property, Page 25

2. Please expand this disclosure to describe the certain obligations of Dr. Law and Cell Transplants International to the registrant that the company will assert Dr. Law and Cell Transplants International have failed to honor. Indicate, if applicable, how the failure to honor these obligations places the registrant in further risk.

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As appropriate, please amend your registration statement 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 information. Detailed cover letters greatly facilitate our review. 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 Jim Peklenk at (202) 551-3661 or Jim Atkinson at (202) 551-3674 if you have questions regarding comments on the financial statements and related matters. Please contact me at (202) 551-3715 with any other questions.

Sincerely,

Jeffrey Riedler
Assistant Director

cc: David E. Wells, Esq.
Hunton & Williams LLP
1111 Brickell Avenue, Suite 2500
Miami, Florida 33131