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May 30, 2013

VIA EDGAR

United States Securities
and Exchange Commission
100 F Street, NE
Mail Stop 4720
Washington, D.C. 20549
Attention: Jeffrey P. Riedler
Assistant Director

Re: Heat Biologics, Inc.
Registration Statement on Form S-1
Filed May 6, 2013
File No. 333-188365

Dear Mr. Riedler:

Thank you for your May 15, 2013 letter regarding Heat Biologics, Inc. ("Heat"). In order to assist you in your review of Heat's Form S-1, we hereby submit a letter responding to the comments and Amendment No. 1 to Form S-1 marked to show changes. For your convenience, we have set forth below the staff's numbered comments in their entirety followed by our responses thereto.

General

1. Please note that when you file a pre-effective amendment containing pricing-related information, we may have additional comments. As you are likely aware, you must file this amendment prior to circulating the prospectus. Please note that when you file a pre-effective amendment that includes your price range, it must be bone fide. We interpret this to mean that your range may not exceed $2 if you price up to $10 and 20% if you price above $10.

Response: We have included a bone fide price range of $10-$12 throughout the amendment.

Prospectus Summary, page 1
Overview, page 1

2. Please revise your chart on page 2 to indicate for each of your product candidates other than HS-110 for NSCLC that the Phase of Development is preclinical.

Response: We have revised the chart accordingly.

Capitalization, page 30

3. Please revise the first sentence to state that the table sets forth your cash and cash equivalents as well as your capitalization.

Response: We have revised the first sentence to state that the table sets forth cash and cash equivalents.

4. Please revise your table to include parentheses around the $516,749 total capitalization.

Response: The capitalization table has been updated as of March 31, 2013.

Management's Discussion and Analysis of Financial Condition
and Results of Operations, page 34

Critical Accounting Policies
Stock Based Compensation, page 35

5. In the previous amendment you disclosed that there were no material changes in factors impacting the common stock per share value from March 31, 2012 to November 30, 2012. Therefore please revise your disclosures to clarify the business conditions that changed and significant events that occurred that resulted in the change of the fair value of the options granted on November 8, 2012 from $0.33 to $0.97.

Response: We have added the appropriate disclosure.

Results of Operations
For the Years Ended December 31, 2012 and 2011
Operating Expenses, page 40

6. Please refer to your response to comment 8. It appears that you have only included the costs incurred for lung cancer and ovarian cancer separately for the twelve months ended December 31, 2012. Therefore please revise your disclosures to include costs incurred for lung cancer and ovarian cancer separately for each period presented on the statement of operations including the costs incurred from inception to date.

Response: We have included costs incurred for bladder and lung cancer for each period presented on the statement of operations. Please note that there were no costs incurred separately for ovarian cancer for each period.

License and Contractual Obligations, page 43

7. Please include your convertible notes payable and related interest in the table of contractual payments under your notes payable agreements.

Response: We have included the convertible notes payable and related interest in the table of contractual payments under the notes payable agreements.

Business, page 44

8. Your disclosure remains unclear with respect to the nature of your operations and expenditures and the overall relationship between you, the primary inventor of the technology that you license and grant funding. For example, you state on page 46 that "We have an ongoing advanced study in non-human primates with a therapeutic and prophylactic vaccine for the treatment and prevention of HIV," however on page 53 your disclosure makes clear that the HIV studies were fully funded by NIH with grants to the primary inventor, initiated and conducted by the primary inventor, you have no funding obligation for these trials and the primary inventor is responsible for future development and research. Your disclosure, from the outset, should indicate how the use of "we" with respect to clinical trials and studies being conducted by the primary inventor is appropriate. To the extent that the terms of your license agreements with the University of Miami form the basis for this, please describe the terms and the mechanisms therein which translate trials, studies, grant funds and research expenses to the company. To the extent that it is appropriate to differentiate the company's activities from the primary inventor's activities, please do so. Please add corresponding disclosure to your prospectus summary. Further, in your response letter, please detail your additional disclosure and identify the page numbers where the additional responsive disclosure has been added.

Response: We have added language to the disclosure regarding the Phase I clinical trial for non- small cell lung cancer that was already conducted and the HIV studies being conducted to differentiate them from the other clinical trials to be conducted in the future as the non-small cell lung cancer Phase I clinical trial was and the HIV study is conducted by the primary inventor of the technology that the Company licenses. Please note that the Phase II clinical trial for non small cell lung cancer, the bladder cancer Phase I clinical trial and the ovarian and breast cancer clinical trials are intended to be conducted by the Company and funded by the Company through money raised in its recent private placement, its initial public offering and grant funding that the Company may receive. You can find said changes on page 1 – "Prospectus Summary HS-110", page 2 – "Additional Indications" , page 3 – "Impact Therapy-Novel Pan –Antigen Immune Activation", page 10 – "Risk factor-We have a limited operating history upon which to evaluate our ability to commercialize our products", pages 12-13 – "Our product candidates are in early stages of development", Page 36 – "MD&A Overview", page 48 – "Business-Overview-HS -110", page 49 – Business-Overview- Additional Indications", page 50 – "Our Product Candidates and Clinical Development Programs", page 57 – "Our Product Candidate and Clinical Development Programs" and pages 65-66 – "Grant Funding".

9. We note your response to our prior comment 6 which in part indicated that the proceeds to be used for the Phase II trials for HS-110 in NSCLC may be used as grant matching funds to fund an expanded clinical trial if grant funding is secured. Please provide further disclosure of this nature on a general and specific basis to more fully describe your business model and relationship with the primary inventor with respect to all of your product candidates. In your response letter, please detail your additional disclosure and identify the page numbers where the additional responsive disclosure has been added.

Response: We have added additional disclosure regarding our relationship with the primary inventor as indicated above.

Description of Securities, page 79

10. Please state in your description of the common stock and the preferred stock voting rights the threshold - majority, plurality, supermajority, etc. – by which directors may be elected and by which all other matters upon which common and/or preferred stockholders are entitled to vote shall be approved. Your disclosure should reflect your articles of incorporation and bylaws that will be in effect upon consummation of the offering.

Response: We have provided the appropriate disclosure.

Financial Statements, page F-1

11. Please provide interim financial statements for the quarterly period ended March 31, 2013 as well as updated disclosures.

Response: We have provided the interim financial statements for the quarterly period ended March 31, 2013 and updated the disclosures.

Notes to Consolidated Financial Statements
2. Summary of Significant Accounting Policies
Revenue Recognition, page F-4

12. The wording of your accounting policy has changed back to the original wording in your first filing. Please refer to your response to comment 50 in your response letter dated February 12, 2013. Please revise your disclosure to clarify that the timing of submission to your funding sources does not impact your ability to recognize revenue on the grants.

Response: We have revised our disclosure accordingly.

8. License Agreements, page F-8

13. Please refer to your response to comment 19. Please expand your disclosures to include the aggregate amount of future potential milestone payments related to the license agreement with the University of Michigan disclosed on page 64 and the potential milestone payments related to the biological material license agreement with the ATCC disclosed on page 65.

Response: We have expanded the disclosure to include the aggregate amount of future potential milestone payments related to the University of Michigan and ATCC.

We acknowledge that the adequacy and accuracy of the disclosure in our filings is our responsibility. We acknowledge that the staff comments or changes to disclosure do not foreclose the Commission from taking any action with respect to the filings. We acknowledge that the company may not assert staff comments as a defense in any proceedings initiated by the Commission or any person under the federal securities laws of the United States.

If you have any questions or need additional information, please contact the undersigned at (516) 496-2223 or (212) 907-6457.

Sincerely,

/s/ Leslie Marlow

Leslie Marlow
Partner