UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

DIVISION OF
CORPORATION FINANCE

February 25, 2013

Via E-mail
Jeffrey Wolf
Chief Executive Officer and Chairman
Heat Biologics, Inc.
100 Europa Drive
Chapel Hill, NC 27517

Re: Heat Biologics, Inc.
Amendment No. 1 to
Confidential Draft Registration Statement on Form S-1
Submitted February 12, 2013
CIK No. 0001476963

Dear Mr. Wolf:

We have reviewed your amended confidential draft registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by providing the requested information and either submitting an amended confidential draft registration statement or publicly filing your registration statement on EDGAR. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing the information you provide in response to these comments and your amended confidential draft registration statement or filed registration statement, we may have additional comments.

General

1. We note your response to our prior comment 2 that you do not have any written communications that have been presented to potential investors nor do you have any research reports that have been published or distributed. Please note that the request to provide us with copies of all such written communications continues during the entire course of our review, and any communications distributed or published in reliance on the referenced rules during pendency of the registration statement should be provided to us supplementally as soon as practicable after their use.

Prospectus Summary, page 1
Overview, page 1

2. We note your statement on page 35 that the recently completed Phase I clinical trial in lung cancer patients consisted of 18 patients of which 15 patients remained at the end of the trial and were evaluated. Please add similar disclosure to your summary discussion of this trial.

The Offering, page 4

3. Please update your disclosure regarding the use of proceeds to reflect your disclosure on page 22 that you will use $300,000 of the proceeds to repay a portion of the loan from Square 1 Bank that is due and payable in the next 18 months.

Risk Factors, page 7
"Until the Offering contemplated herein is consummated…," page 9

4. In your response to our prior comment 12 you state that Square 1 Bank has not foreclosed on the Company's assets secured by the loan. Please add this statement to your disclosure regarding the status of your loan and discussions with Square 1 Bank here and on pages 33 and 72.

"We rely on licenses to use various technologies that are material to our business.," page 15

5. We note your additional disclosure that if you breach the terms of your licensing agreements, including failure to make payments or failure to reach certain milestones, the licensor has the right to terminate the license. Please include a separate risk factor addressing the risks associated with your ability to generate revenues, your ability to make milestone payments or reach milestones and the potential loss of your material license agreements.

Management's Discussion and Analysis of Financial Condition
and Results of Operations, page 26

Overview, page 26

6. We note the additional disclosure added in response to our prior comment 6. We also note that your Phase I clinical trial was fully funded by the NIH. Please expand your disclosure here and in your business section to more fully describe the nature of your research and development expenses and clinical trials and research expenses in light of the work by your primary inventor and the flow of funds from the NIH grant including how such expenses are incurred. Your disclosure should indicate how you expect costs to be apportioned for the proposed Phase II clinical trial and what your direct expenses from such trial will be. For example, on page 34 you have estimated the amount of funds

you will need to complete your Phase II trial and Phase I/II trial of HS-410 to be $13.5 million. Please estimate what portion of such expenses you will be responsible for and how such apportionment of costs is governed. To the extent that the apportionment of costs may influence your estimated use of proceeds, please also revise your disclosure on page 22.

Critical Accounting Policies
Stock Based Compensation, page 27

7. Please revise your disclosure to include the amount of the discount taken for lack of marketability for each valuation. Please include a discussion of the evidence that supports the amount of the discount selected.

Results of Operations
Operating Expenses, page 32

8. Please refer to your response to comment 23. Please revise your disclosures to include the costs incurred for lung cancer and ovarian cancer separately for each period presented and also the total costs incurred from inception to date. Your current disclosure only includes the most recent periods presented.

Liquidity and Capital Resources, page 32

9. Please clarify your disclosure with respect to the Square 1 Bank loan to state, consistent with your disclosure on page 22, that you will repay $300,000 of the loan that is due and payable within the next 18 months and disclose the amount that will remain outstanding after repayment.

Business, page 35

Our Product Candidates and Clinical Development Program, page 44

10. Your disclosure states, for example, that you have initiated a clinical development program and that you are also completing an advanced study in primates for the development of a therapeutic and prophylactic vaccine for treatment and prevention of HIV. Please revise your disclosure to indicate whether such trials and/or were initiated or conducted by your primary inventor or by you and who will bear responsibility for future development and research.

Phase I HS-110 Clinical Trials, page 45

11. Please disclose why three of the 18 patients dosed in the trial were not included in the evaluable set at the end of the trial.

License Agreements, page 54

12. We acknowledge your pending confidential treatment request, however, milestone payments, royalty rates and payments made are material terms of the agreement. Accordingly, we reissue our prior comment 38. Please revise your disclosure to include for each agreement described the aggregate potential milestones payable, payments made to date and a range within which the royalty rate falls (within a ten percentage point range).

Intellectual Property, page 56

13. It appears that you have provided additional disclosure pursuant to our prior comment 39 only with respect to the "Recombinant cancer cell secreting modified heat shock protein-antigenic peptide complex" family of patents. Please provide the number of patents and the expiration dates of the material patent(s) for each family of patents.

Description of Our Securities, page 69

14. We note the revised disclosure added pursuant to our prior comment 44. Please revise the disclosure to provide the voting thresholds for matters to be voted upon by holders of your common and preferred stock based on the thresholds that will be in place upon consummation of the offering.

15. Please reconcile your disclosure that the Preferred Stock will automatically convert upon closing of the Offering with the disclosure that two-thirds of the Preferred Stock holders may vote in favor of a conversion. It appears from your disclosure that conversion is automatic only if proceeds of the Offering exceed a certain amount.

Underwriters, page 78

16. Once available, please file copies of each of the lock-up agreements.

Financial Statements, page F-1

17. Please provide updated audited financial statements as well as updated disclosures.

Notes to Consolidated Financial Statements
2. Summary of Significant Accounting Policies
Preferred Stock Warrant Liability, page F-10

18. Please expand your disclosures to include the assumptions used in determining the fair value of the warrants for each period presented.

11. License Agreements, page F-17

19. Please expand your disclosures to include all of the license agreements related to the evaluation of certain biological materials disclosed on page 56. Please disclose the aggregate amount of future potential milestone payments related to these agreements.

Signatures, page II-6

20. We note that the confidential draft submission is not required to be signed, however, we note for your future public filing that the power of attorney executed by your directors and filed with the initial draft submission will not suffice for purposes of the initial public filing, and all required individuals must sign the publicly filed registration statement.

General

If you intend to respond to these comments with an amended draft registration statement, please submit it and any associated correspondence in accordance with the guidance we provide in the Division's October 11, 2012 announcement on the SEC website at http://www.sec.gov/divisions/corpfin/cfannouncements/drsfilingprocedures101512.htm.

You may contact Vanessa Robertson, Staff Accountant, at (202) 551-3649 or Joel Parker, Accounting Branch Chief, at (202) 551-3651f you have questions regarding comments on the financial statements and related matters. Please contact Karen Ubell, Staff Attorney, at (202) 551-3873, John Krug, Staff Attorney, at (202) 551-3862 or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Jeffrey P. Riedler

Jeffrey P. Riedler
Assistant Director

cc: Via E-mail
Leslie Marlow, Esq.
Gracin & Marlow, LLP