



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

DIVISION OF
CORPORATION FINANCE

Mail Stop 3030

August 3, 2017

Via E-mail

Ryan Rhodes
Chief Executive Officer
Restoration Robotics, Inc.
128 Baytech Drive
San Jose, CA 95134

**Re: Restoration Robotics, Inc.
Draft Registration Statement on Form S-1
Submitted July 7, 2017
CIK No. 0001409269**

Dear Mr. Rhodes:

We have reviewed your 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 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 draft registration statement or filed registration statement, we may have additional comments.

The ARTAS Solution, page 3

1. Disclose your system's approved marketing indications. In this regard, we note your disclosure in the last risk factor on page 22 that your FDA approval is limited to hair follicle dissection in males that have black or brown straight hair. Revise your disclosure under "Market Overview" on page 2 to reflect how your addressable market is limited by that approval.
2. Tell us whether the pictures represent typical results.

Risks Associated With Our Business, page 5

3. Expand the third bullet point to disclose the covenant mentioned on page 26 that you will not incur additional indebtedness and discuss the potential limitation on your ability to raise additional capital and the impact on shareholders.
4. Briefly indicate the material risk you face from U.S. and international government regulations as a provider of medical devices.

Implications of Being an Emerging Growth Company, page 6

5. Supplementally provide us with copies of all written communications, as defined in Rule 405 under the Securities Act, that you, or anyone authorized to do so on your behalf, present to potential investors in reliance on Section 5(d) of the Securities Act, whether or not they retain copies of the communications.

Summary Consolidated Financial Data, page 9

6. We note disclosures in this section and throughout the filing that you intend to present pro forma adjustments that give effect to the automatic conversion of all of your outstanding shares of preferred stock into shares of common stock and the conversion of convertible preferred stock warrants into common stock warrants. We further note your disclosures on page F-28 that your preferred stock automatically convert into shares of common stock upon an initial public offering provided that the offering price is not less than \$3.58 per share and the aggregate gross proceeds to the company are not less than \$25.0 million. Please tell us whether you presently expect the offering to meet such conditions. If not, explain to us why you believe these pro forma adjustments are factually supportable.

We will require substantial additional financing..., page 13

7. Revise your disclosure regarding potential debt financings in this risk factor to indicate that your current loan agreement contains a covenant that you may not incur additional indebtedness.

We depend on certain technologies that are licensed to us..., page 33

8. Clarify whether the licenses from third parties that you are dependent on are more than just the license from HSC. If you are dependent on other licenses, please expand your disclosure in your "Business" section to disclose the duration and effect of those licenses and file any such license agreements as exhibits if appropriate.

Industry and Market Data, page 50

9. We note your disclosures on pages 2 and 83 referring to published studies involving your product. Please tell us whether you commissioned any of the third-party data you cite for use in connection with your registration statement.

Use of Proceeds, page 51

10. Revise the last sentence of the fourth paragraph to disclose the amount of proceeds you will use to make scheduled payments on your loan as well as the interest rate and maturity date of the loan.
11. Disclose the amount of proceeds you currently intend to use for researching and developing the robotic implantation system and for obtaining regulatory approval for that system.

Dilution, page 55

12. Expand the disclosure on page 56 to clarify how the numbers and percentages in the table would change assuming the exercise of all outstanding warrants and options.

Three Months Ended March 31, 2016 and March 31, 2017, page 67

13. Revise your revenue disclosure to quantify the increases in your net revenue during the first quarter of 2017 attributable to changes in prices and changes in volume. Refer to Item 303(a)(3)(iii) of Regulation S-K.

Years Ended December 31, 2015 and December 31, 2016, page 69

14. Clarify what the “certain strategic changes” were to your U.S. sales force in 2016 and disclose the drivers behind the strategic changes.

Business, page 76

15. We note your risk factor disclosure on page 12 regarding physicians being able to obtain financing to purchase your systems. Expand your disclosure to indicate how your business model addresses customers being able to purchase your products.
16. We note you are developing ARTAS implantation and seeking regulatory approval for intended sales of that feature in 2018. If potential customers might delay purchases of your system until that feature is available, please include appropriate risk factor disclosure. Also disclose if you intend your current systems to be upgradeable for that feature.

Drawbacks of Strip Surgery and FUE Surgery Using Hand-Held Devices, page 81

17. Briefly clarify how your system addresses each of the drawbacks you mention.

Implantation, page 86

18. Revise this section to remove any suggestion that you will receive regulatory approval for the indication you discuss and clarify whether the clinical trial is part of a regulatory submission.

Competition, page 91

19. We note you compete on the basis of procedure costs to patients. In an appropriate location in your prospectus, disclose the factors that affect procedure costs and indicate a general range of procedure costs to patients.

Research and Development, page 92

20. Disclose the material amounts spent on research and development in the past three years. Refer to Item 101(c)(1)(xi) of Regulation S-K.

License Agreement with HSC Development LLC and James A. Harris, MD, page 93

21. Please disclose the duration and effect of the patents subject to the license agreement.

Manufacturing, page 93

22. Disclose the effective date of the master agreement you disclose in the first paragraph of this section.
23. Reconcile your disclosure here regarding single-source suppliers with your disclosure in the last risk factor on page 20 regarding “several sole source suppliers.”

Certain Relationships and Related Party Transactions, page 125

24. File the indemnification agreements and the agreement with Aurus as exhibits to your registration statement.

Voting Agreement, page 126

25. Revise to identify the “certain holders” you mention here and in the next section and disclose how each holder is a related party. Refer to Item 404(a)(1) of Regulation S-K.

Principal Stockholders, page 128

26. Disclose all natural persons who exercise the sole or shares voting and dispositive powers with respect to the shares held in the name of the entities identified in your table.

Description of Capital Stock, page 131

27. File as an exhibit to your registration statement the amended and restated investor rights agreement referred to in the introductory paragraph of this section.

Shares Eligible for Future Sale, page 136

28. Please clarify the reference to “substantially all” security holders who entered into the lock-up agreements.

Underwriter Warrants, page 144

29. It is unclear from your disclosure if the warrants have been exercised. Clarify if the outstanding warrants will remain exercisable for Series C preferred stock or will be exercisable for common stock after your offering.

You may contact David Burton at (202) 551-3626 or Lynn Dicker, Senior Accountant, at (202) 551-3616 if you have questions regarding comments on the financial statements and related matters. Please contact Heather Percival at (202) 551-3498 or Tim Buchmiller, Senior Attorney, at (202) 551-3635 with any other questions.

Sincerely,

/s/ Tim Buchmiller for

Amanda Ravitz
Assistant Director
Office of Electronics and Machinery

cc: Brian J. Cuneo, Esq.
Latham & Watkins LLP