



DIVISION OF
CORPORATION FINANCE

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

October 20, 2014

Via E-mail

Timothy B. Johnson
President and Chief Executive Officer
HTG Molecular Diagnostics, Inc.
3430 E. Global Loop
Tucson, AZ 85706

**Re: HTG Molecular Diagnostics, Inc.
Draft Registration Statement on Form S-1
Submitted September 23, 2014
CIK No. 0001169987**

Dear Mr. Johnson:

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.

Prospectus Summary, page 1

1. Please revise your disclosure to present it from the perspective an investor who may not be an expert in your industry. For example, your use of terms on page 1 such as "formalin fixed paraffin embedded" and "nuclease protein chemistry," and "fibroblast growth factor receptor" on page 2 appear to assume that readers already know the meanings of those terms and their significance.
2. Please revise your summary to clarify how you generate revenue in light of your disclosure on page 16 that you provide some customers with the HTG Edge system and profiling panels free of charge or "through other arrangements." Briefly explain the "other arrangements."

3. Given that your summary is 13 pages long, please revise to avoid repetition of lengthy disclosure that appears in subsequent sections of your document, such as the disclosure in the bullet points on page 61 and the diagrams that appear on pages 66 and 69, and relocate unnecessary detail that overwhelms the most important aspects of the offering and is more appropriate for a subsequent section of your document.
4. Please tell us why you believe it is appropriate to highlight the \$35 billion market on pages 1 and 2 of your summary in view of your disclosure on page 15 that you currently are limited to marketing your HTG Edge system and proprietary profiling panels for research use only.
5. Please revise the summary to highlight that you have incurred losses since inception, your accumulated deficit as of June 30, 2014 and that you expect your losses will continue for the foreseeable future.

Our Solution, page 4

6. Please revise to clarify whether your systems require the use of consumables manufactured specifically for your products, or whether your customers can obtain consumables for use with the HTG Edge platform from other sources.

Expanding our Solution by Providing a Comprehensive Molecular Profile, page 6

7. Regarding the diagram on page 6 and on page 69, please expand the disclosure in the appropriate section to clarify the material hurdles, including expected costs, that remain until you complete the profiling panels mentioned in the diagram.
8. Please avoid reliance on the use of acronyms throughout your document. For example, please revise the first paragraph on page 7 to explain “EGFR,” “KRAS,” “BRAF,” “HER2,” “ALK,” “ROS1,” and “RET.”

Implications of Being an Emerging Growth Company, page 9

9. Please 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.

Use of Proceeds, page 10

10. Please expand your disclosure to quantify the amount of proceeds to be allocated for each purpose cited. With respect to the funds to be allocated to research and development, please revise to clarify the nature of the research and development activities you intend to fund with the proceeds of this offering. If the intended proceeds will not be sufficient to

complete the specific activities to which proceeds will be allocated, state the source and amount of the additional funds needed. Refer to Instruction 3 of Item 504 of Regulation S-K.

Summary Financial Data, page 12

11. Pro forma information should only be shown for the latest fiscal year and interim period, if applicable. Please remove the pro forma net loss per share information for the 2012 fiscal year and 2013 interim period.

Capitalization, page 42

12. Please revise to remove cash and cash equivalents from the capitalization table since they are not a component of your capitalization. As an alternative, the company may disclose the amount of its cash in the text before the table.
13. We note the disclosure in the Redeemable Convertible Preferred stock footnote on page F-21 of the conditions that must be met for the automatic conversion of the preferred stock to common stock. Please tell us whether you expect to meet these conditions for the automatic conversion. Please also disclose these conditions in the narrative to the Capitalization table.

Stock-Based Compensation, page 57

14. Please tell us the estimated initial public offering price range. To the extent that there is a significant difference between the estimated grant-date fair value of your common stock during the past twelve months and the estimated IPO price, please discuss for us each significant factor contributing to the difference. In addition, please consider the impact that any reverse stock-split may have on the valuation of the common stock.

Our Market, page 62

15. Please expand the disclosure on page 63 about the billion dollar markets to clarify that you currently are limited to marketing your HTG Edge system and proprietary profiling panels for research use only.

Patents and Patent Applications, page 82

16. Please disclose the duration of your material patents. Also, disclose the jurisdiction or jurisdictions of your material foreign patents.

Agreements with Third Parties, page 84

17. Please file as exhibits the amendments to the agreement with NuvoGen and the license agreement with Merck, or tell us why you do not believe these are required to be filed.

Principal Stockholders, page 117

18. Please disclose the natural person or persons who exercise the sole or shared voting and/or dispositive powers with respect to the shares held in the name of Novo A/S, S.R. One Limited and Valley Ventures.

Material U.S. Federal Tax Considerations for Non-U.S. Holders, page 128

19. You may not disclaim responsibility for your disclosure. Please revise the first sentence of the second paragraph on page 128 and the first and second sentences of the last paragraph on page 130 accordingly.

Financial Statements, page F-1

Balance Sheets, page F-4

20. Please revise the balance sheet to remove the references to “pro forma (unaudited)” amounts since this is not the latest balance sheet included in the filing. In this regard, please also remove the Unaudited Pro Forma Information note located on page F-14.

Note 1. Summary of Significant Accounting Policies, page F-8

Revenue Recognition, page F-10

21. We note that the revenue recognition disclosure for your multiple elements does not address specific factors which affect the identification of the deliverables or the timing of performance in the arrangements. Accordingly, please revise the policy to provide company specific disclosures which comply with FASB ASC 605-25-50-2.

Note 12. Other Agreements, page F-29

NuvoGen Obligation, page F-29

22. We see that during 2001 you entered into an asset purchase agreement with NuvoGen Research to acquire intellectual property. We note that in September 2014, you determined that the transaction had not properly been accounted for and restated your financial statements. Please address the following and cite the authoritative accounting literature that supports your position:

- Describe for us how you originally accounted for the agreement and how the accounting for the transaction was modified when the restatement was recorded. Please provide sufficient detail to support the amounts recorded in your financial statements as part of the restatement as discussed on page F-31.
- Provide for us additional details of the present value of cash flows calculation to support your accounting for the November 2012 amendment as an extinguishment.
- Similarly, further explain why the February 2014 amendment did not result in a significant change to the minimum cash flows or interest rates.

Summary of Significant Accounting Policies, page F-37

Inventory, net, page F-38

23. We note the disclosure that you reduced your inventory reserve during the six-months ended “to adjust for estimated obsolescence.” Please describe for us in greater detail the adjustment recorded to the inventory reserve and tell us how it complies with FASB ASC 330-10-35-14.

Note 7. Redeemable Convertible Preferred Stock, page F-46

24. Please revise the filing to clearly disclose the conversion ratio of the recently issued Series E Preferred Stock.

You may contact Kevin Kuhar at (202) 551-3662 or Brian Cascio, Accounting Branch Chief, at (202) 551-3676 if you have questions regarding comments on the financial statements and related matters. Please contact Tom Jones at (202) 551-3602 or Mary Beth Breslin, Senior Attorney, at (202) 551-3625 with any other questions.

Sincerely,

/s/ Mary Beth Breslin for

Amanda Ravitz
Assistant Director

cc (via e-mail): M. Wainwright Fishburn, Jr., Esq.