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June 2, 2014

VIA EDGAR

Securities and Exchange Commission  
Division of Corporation Finance  
100 F Street, N.E.  
Washington, D.C. 20549  
Attn: Ms. Pamela Howell

**Re: Signal Genetics LLC  
Amendment No. 3 to Registration Statement on Form S-1  
Filed May 27, 2014  
File No. 333-194668**

Dear Ms. Howell:

On behalf of our client, Signal Genetics LLC (the "Company"), we submit this letter in response to comments from the staff (the "Staff") of the Securities and Exchange Commission (the "Commission") contained in its letter dated May 30, 2014 (the "Comment Letter"), relating to the above-referenced Amendment No. 3 to Registration Statement on Form S-1 (the "Registration Statement"). We are concurrently submitting via EDGAR this letter and Amendment No. 4 to the Registration Statement (the "Amended Registration Statement").

Set forth below in bold are the comments from the Comment Letter. Immediately following each comment is the Company's response to the comment.

**Summary Historical Consolidated Financial Data, page 11**

- We note in response to comment one in our letter dated May 22, 2014 that you expanded your disclosures to include pro forma balance sheet and net loss per share data for fiscal year ended 2013 in your financial statements. However, you have not provided pro forma net loss and the basic and diluted net loss per share for fiscal year ended 2013 and the interim period ended March 31, 2014 in your summary historical consolidated financial data section. Please revise your amendment accordingly.**

The Company acknowledges the Staff's comment and respectfully advises the Staff that it has revised its disclosure on page 11 of the Amended Registration Statement to include this information.

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**Consolidated Statements of Operations, page F-13**

2. **We note in response to comment one in our letter dated May 22, 2014 that you added pro forma net loss per share as \$0.96 for the year ended December 31, 2013. We also note that you recorded a net loss and not net income for the year ended December 31, 2013. Please revise pro forma net loss per share to (\$0.96) for the year ended December 31, 2013.**

The Company acknowledges the Staff's comment and respectfully advises the Staff that it has revised its disclosure on page F-13 of the Amended Registration Statement to include this information.

If it would expedite the review of the information provided herein, please do not hesitate to call the undersigned at (212) 549-0380.

Sincerely,

/s/ Daniel I. Goldberg  
Daniel I. Goldberg

cc: Samuel D. Riccitelli, President and Chief Executive Officer of Signal Genetics LLC

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