

SIGNAL GENETICS, INC.  
Form S-4/A  
January 04, 2017

As filed with the Securities and Exchange Commission on January 4, 2017

Registration No. 333-214893

**UNITED STATES**  
**SECURITIES AND EXCHANGE COMMISSION**  
**Washington, D.C. 20549**

**Amendment No. 1**  
**to**  
**Form S-4**  
**REGISTRATION STATEMENT**  
***UNDER***  
***THE SECURITIES ACT OF 1933***

**SIGNAL GENETICS, INC.**

**(Exact name of registrant as specified in its charter)**

**Delaware**  
**(State or other jurisdiction of**

**8071**  
**(Primary Standard Industrial**

**47-1187261**  
**(I.R.S. Employer**

| <b>incorporation or organization)</b> | <b>Classification Code Number)</b> | <b>Identification Number)</b> |
|---------------------------------------|------------------------------------|-------------------------------|
|                                       | <b>5740 Fleet Street</b>           |                               |
|                                       | <b>Carlsbad, California 92008</b>  |                               |
|                                       | <b>(760) 537-4100</b>              |                               |

**(Address, including zip code, and telephone number, including area code, of registrant s principal executive offices)**

**Samuel D. Riccitelli**  
**President and Chief Executive Officer**

**Signal Genetics, Inc.**  
**5740 Fleet Street**  
**Carlsbad, California 92008**  
**(760) 537-4100**

**(Name, address, including zip code, and telephone number, including area code, of agent for service)**

*Copies to:*

|  |  |  |
|--|--|--|
| <b>Mike Hird</b>                               | <b>William S. Marshall, Ph.D.</b>            | <b>Brent D. Fassett</b>                    |
| <b>Patty M. DeGaetano</b>                      | <b>President and Chief Executive Officer</b> | <b>Matthew P. Dubofsky</b>                 |
| <b>Pillsbury Winthrop Shaw Pittman<br/>LLP</b> | <b>Miragen Therapeutics, Inc.</b>            | <b>Cooley LLP</b>                          |
| <b>12255 El Camino Real, Suite 300</b>         | <b>6200 Lookout Road</b>                     | <b>380 Interlocken Crescent, Suite 900</b> |
| <b>San Diego, CA 92130</b>                     | <b>Boulder, CO 80301</b>                     | <b>Broomfield, CO 80021</b>                |
| <b>(858) 509-4000</b>                          | <b>(303) 531-5952</b>                        | <b>(720) 566-4000</b>                      |

**Approximate date of commencement of proposed sale to the public:** As soon as practicable after the effective date of this registration statement and the satisfaction or waiver of all other conditions under the merger agreement described herein.

If the securities being registered on this Form are being offered in connection with the formation of a holding company and there is compliance with General Instruction G, check the following box:

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Large accelerated filer

Accelerated filer

Non-accelerated filer (Do not check if a smaller reporting company)

Smaller reporting company

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions of large accelerated filer, accelerated filer and smaller reporting company in Rule 12b-2 of the Exchange Act.

If applicable, place an X in the box to designate the appropriate rule provision relied upon in conducting this transaction:

Exchange Act Rule 13e-4(i) (Cross-Border Issuer Tender Offer)

Exchange Act Rule 14d-1(d) (Cross-Border Third-Party Tender Offer)

**The Registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.**

**EXPLANATORY NOTE**

The purpose of this Amendment No. 1 to the Registration Statement on Form S-4 (No. 333-214893) of Signal Genetics, Inc. is solely to file Exhibits 10.41, 10.42, 10.44, 10.45, 10.45.1, 10.45.2, 10.46, 10.47.1 and 10.51 as set forth below in the section of Part II captioned Exhibit Index. Accordingly, this Amendment No. 1 consists only of the facing page, this explanatory note, Part II to the Registration Statement, the Exhibit Index and Exhibits 10.41, 10.42, 10.44, 10.45, 10.45.1, 10.45.2, 10.46, 10.47.1 and 10.51. No other changes have been made to the Form S-4.

## PART II

### INFORMATION NOT REQUIRED IN PROXY STATEMENT/PROSPECTUS/INFORMATION STATEMENT

#### **Item 20. *Indemnification of Directors and Officers***

Subsection (a) of Section 145 of the Delaware General Corporation Law, or the DGCL, empowers a corporation to indemnify any person who was or is a party or who is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with such action, suit or proceeding if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe the person's conduct was unlawful.

Subsection (b) of Section 145 empowers a corporation to indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that the person acted in any of the capacities set forth above, against expenses (including attorneys' fees) actually and reasonably incurred by the person in connection with the defense or settlement of such action or suit if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Court of Chancery or such other court shall deem proper.

Section 145 further provides that to the extent a director or officer of a corporation has been successful on the merits or otherwise in the defense of any action, suit or proceeding referred to in subsections (a) and (b) of Section 145, or in defense of any claim, issue or matter therein, such person shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection therewith; that indemnification provided for by Section 145 shall not be deemed exclusive of any other rights to which the indemnified party may be entitled; and the indemnification provided for by Section 145 shall, unless otherwise provided when authorized or ratified, continue as to a person who has ceased to be a director, officer, employee or agent and shall inure to the benefit of such person's heirs, executors and administrators. Section 145 also empowers the corporation to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against any liability asserted against such person and incurred by such person in any such capacity, or arising out of his status as such, whether or not the corporation would have the power to indemnify such person against such liabilities under Section 145.

Section 102(b)(7) of the DGCL provides that a corporation's certificate of incorporation may contain a provision eliminating or limiting the personal liability of a director to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, provided that such provision shall not eliminate or limit the liability of a director (i) for any breach of the director's duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the DGCL, or (iv) for any transaction from which the director derived an improper personal benefit.

The certificate of incorporation of Signal Genetics, Inc., or Signal, contains provisions that eliminate, to the maximum extent permitted by the DGCL, the personal liability of directors and executive officers for monetary damages for breach of their fiduciary duties as a director or officer. Signal's certificate of incorporation and bylaws provide that Signal shall indemnify its directors and executive officers and may indemnify its employees and other agents to the fullest extent permitted by the DGCL.

Signal entered into indemnification agreements with its directors and executive officers, in addition to the indemnification provided for in its certificate of incorporation and bylaws, and intends to enter into indemnification agreements with any new directors and executive officers in the future.

II-1

Signal has purchased and intends to maintain insurance on behalf of any person who is or was a director or officer of Signal against any loss arising from any claim asserted against him or her and incurred by him or her in any such capacity, subject to certain exclusions.

Under the the terms of the Agreement and Plan of Merger and Reorganization between Signal, Miragen Therapeutics, Inc., or Miragen, and Signal Merger Sub, Inc., dated October 31, 2016, or the Merger Agreement, from the closing of the merger contemplated under the Merger Agreement, or the Merger, through the sixth anniversary of the closing, Signal and the surviving corporation agree that all rights to indemnification, exculpation or advancement of expenses now existing in favor of, and all limitations on the personal liability of, each present and former director or officer, of Signal or Miragen provided for in the respective organizational documents of Miragen and Signal in effect as of October 31, 2016, shall continue to be honored and in full force and effect.

Under the Merger Agreement, the certificate of incorporation and bylaws of Signal and the surviving corporation in the Merger, will contain provisions no less favorable with respect to indemnification, advancement of expenses and exculpation of present and former directors and officers of each of Signal and Miragen than are presently set forth in the certificate of incorporation and bylaws of Signal and Miragen, as applicable, which provisions shall not be amended, modified or repealed for a period of six years time from the closing of the Merger in a manner that would materially and adversely affect the rights thereunder of individuals who, at or prior to the closing, were officers or directors of Signal and Miragen.

The Merger Agreement also provides that Signal shall purchase an insurance policy in effect for six years from the closing, providing at least the same coverage as the current directors and officers liability insurance policies maintained by Miragen and Signal and containing terms and conditions that are not materially less favorable to current and former officers and directors of Miragen and Signal.

### **Item 21. Exhibits and Financial Statement Schedules**

#### **(a) Exhibit Index**

A list of exhibits filed with this registration statement on Form S-4 is set forth on the Exhibit Index and is incorporated herein by reference.

#### **(b) Financial Statements**

The financial statements filed with this registration statement on Form S-4 are set forth on the Financial Statement Index and is incorporated herein by reference.

### **Item 22. Undertakings**

#### **(a) The undersigned registrant hereby undertakes as follows:**

(1) That prior to any public reoffering of the securities registered hereunder through use of a prospectus which is a part of this registration statement, by any person or party who is deemed to be an underwriter within the meaning of Rule 145(c), the issuer undertakes that such reoffering prospectus will contain the information called for by the applicable registration form with respect to reofferings by persons who may be deemed underwriters, in addition to the information called for by the other items of the applicable form.

(2) That every prospectus (i) that is filed pursuant to paragraph (a)(1) immediately preceding, or (ii) that purports to meet the requirements of Section 10(a)(3) of the Securities Act of 1933, as amended, or the Securities Act, and is used in connection with an offering of securities subject to Rule 415, will be filed as a part of an amendment to the



registration statement and will not be used until such amendment is effective, and that, for purposes of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To respond to requests for information that is incorporated by reference into this proxy statement/prospectus/information statement pursuant to Item 4 10(b), 11, or 13 of Form S-4, within one business day of receipt of such request, and to send the incorporated documents by first class mail or other equally prompt means. This includes information contained in documents filed subsequent to the effective date of the registration statement through the date of responding to the request.

(4) To supply by means of a post-effective amendment all information concerning a transaction, and the company being acquired involved therein, that was not the subject of and included in the registration statement when it became effective.

(b) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

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**SIGNATURES**

Pursuant to the requirements of the Securities Act, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized in the city of Carlsbad, State of California, on the 4th day of January, 2017.

**Signal Genetics, Inc.**

By: /s/ Samuel D. Riccitelli  
Samuel D. Riccitelli

President and Chief Executive Officer

Pursuant to the requirements of the Securities Act, this report has been signed by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

| <b>Signature</b>                                 | <b>Title</b>   | <b>Date</b>     |
|--|--|-----------------|
| /s/ Samuel D. Riccitelli<br>Samuel D. Riccitelli | President, Chief Executive Officer and a<br>Director<br><i>(Principal Executive Officer)</i>         | January 4, 2017 |
| /s/ Tamara A. Seymour<br>Tamara A. Seymour       | Chief Financial Officer<br><i>(Principal Financial Officer and Principal<br/>Accounting Officer)</i> | January 4, 2017 |
| *<br>Bennett S. LeBow                            | Chairman of the Board of Directors   | January 4, 2017 |
| *<br>David A. Gonyer, R. Ph.                     | Director   | January 4, 2017 |
| *<br>Douglas A. Schuling                         | Director   | January 4, 2017 |
| *<br>Dr. Robin L. Smith                          | Director   | January 4, 2017 |

\*By: /s/ Samuel D. Riccitelli  
Samuel D. Riccitelli  
Attorney-in-fact

II-4

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**EXHIBIT INDEX**

| <b>Exhibit Number</b> | <b>Description of Document</b>  |
|-----------------------|---|
| 2.1 <sup>^</sup>      | Agreement and Plan of Merger, dated as of October 31, 2016, by and among Signal Genetics, Inc., Signal Merger Sub, Inc. and Miragen Therapeutics, Inc. (incorporated by reference to Exhibit 2.1 to Signal's Current Report on Form 8-K (File No. 001-36483), as filed with the SEC on November 1, 2016, and included as <i>Annex A</i> to the proxy statement/prospectus/information statement). |
| 2.2 <sup>^</sup>      | Form of Support Agreement, by and between Signal Genetics, Inc. and certain directors, officers and stockholders of Miragen Therapeutics, Inc. (incorporated by reference to Exhibit 2.2 to Signal's Current Report on Form 8-K (File No. 001-36483), as filed with the SEC on November 1, 2016).   |
| 2.3 <sup>^</sup>      | Form of Support Agreement, by and between Miragen Therapeutics, Inc. and certain directors, officers and stockholders of Signal Genetics, Inc. (incorporated by reference to Exhibit 2.3 to Signal's Current Report on Form 8-K (File No. 001-36483), as filed with the SEC on November 1, 2016).   |
| 2.4 <sup>^*</sup>     | Subscription Agreement, dated as of October 31, 2016, by and among Miragen Therapeutics, Inc. and each purchaser listed on Annex A thereto.   |
| 2.5 <sup>^</sup>      | Intellectual Property Purchase Agreement, dated as of November 29, 2016 by and between Signal Genetics, Inc. and Quest Diagnostics Investments LLC (incorporated by reference to Exhibit 2.1 to Signal's Current Report on Form 8-K (File No. 001-36483), as filed with the SEC on December 1, 2016, and included as Annex G to the proxy statement/prospectus/information statement).            |
| 3.1                   | Certificate of Incorporation of Signal Genetics, Inc. (incorporated by reference to Exhibit 3.1 to Signal's Quarterly Report on Form 10-Q (File No. 001-36483) filed with the SEC on August 14, 2014).  |
| 3.2                   | Amended and Restated Bylaws of Signal Genetics, Inc., as amended and restated on June 21, 2016 (incorporated by reference to Exhibit 3.1 to Signal's Quarterly Report on Form 10-Q (File No. 001-36483), as filed with the SEC on August 15, 2016).   |
| 3.3 <sup>*</sup>      | Certificate of Amendment of Certificate of Incorporation of Signal Genetics, Inc.   |
| 4.1                   | Specimen Common Stock Certificate of Signal Genetics, Inc. (incorporated by reference to Exhibit 4.1 to Signal's Registration Statement on Form S-1 (File No. 333-194668) filed with the SEC on March 19, 2014).  |
| 4.2                   | Form of Representative's Warrant (incorporated by reference to Exhibit 4.2 to Signal's Registration Statement on Form S-1/A (File No. 333-201533) filed with the SEC on January 29, 2015).  |
| 4.3                   | Form of Representative's Warrant (incorporated by reference to Exhibit 10.24 to Signal's Registration Statement on Form S-1/A (File No. 333-194668) filed with the SEC on June 6, 2014).  |
| 5.1 <sup>*</sup>      | Legal Opinion of Pillsbury Winthrop Shaw Pittman LLP.   |
| 8.1 <sup>*</sup>      | Legal Opinion of Pillsbury Winthrop Shaw Pittman LLP regarding tax matters.   |
| 8.2 <sup>*</sup>      | Legal Opinion of Cooley LLP regarding tax matters.  |
| 10.1                  | Assignment of Membership Interests between LeBow Alpha LLLP and Signal Genetics LLC, dated January 1, 2011 (incorporated by reference to Exhibit 10.1 to Signal's Registration Statement on Form S-1 (File No. 333-194668) filed with the SEC on March 19, 2014).   |

10.2

License Agreement, dated April 1, 2010, by and between The Board of Trustees of the University of Arkansas on behalf of the University of Arkansas for Medical Sciences and Myeloma Health LLC (the UAMS License Agreement ) (incorporated by reference to Exhibit 10.2 to Signal s Registration Statement on Form S-1 (File No. 333-194668) filed with the SEC on April 9, 2014).

| Exhibit Number | Description of Document   |
|----------------|---|
| 10.2.1         | Letter Agreement, dated April 1, 2010, of Signal Genetics LLC (f/k/a Myeloma Health, LLC) (as referenced in the UAMS License Agreement) (incorporated by reference to Exhibit 10.2.1 to Signal's Registration Statement on Form S-1 (File No. 333-194668) filed with the SEC on March 19, 2014).  |
| 10.3           | First Amendment to License Agreement, dated September 1, 2010, by and between The Board of Trustees of the University of Arkansas on behalf of the University of Arkansas for Medical Sciences and Myeloma Health LLC (the First Amendment to UAMS License Agreement) (incorporated by reference to Exhibit 10.3 to Signal's Registration Statement on Form S-1 (File No. 333-194668) filed with the SEC on March 19, 2014).                |
| 10.3.1         | Letter Agreement, dated February 25, 2014, of Signal Genetics LLC (f/k/a Myeloma Health, LLC) (as referenced in the First Amendment to UAMS License Agreement) (incorporated by reference to Exhibit 10.3.1 to Signal's Registration Statement on Form S-1 (File No. 333-194668) filed with the SEC on March 19, 2014).   |
| 10.4           | Second Amendment to License Agreement, dated September 14, 2010, by and between The Board of Trustees of the University of Arkansas on behalf of the University of Arkansas for Medical Sciences and Myeloma Health LLC (incorporated by reference to Exhibit 10.4 to Signal's Registration Statement on Form S-1 (File No. 333-194668) filed with the SEC on March 19, 2014).  |
| 10.5           | Third Amendment to License Agreement, dated October 2011, by and between The Board of Trustees of the University of Arkansas on behalf of the University of Arkansas for Medical Sciences and Myeloma Health LLC (incorporated by reference to Exhibit 10.5 to Signal's Registration Statement on Form S-1 (File No. 333-194668) filed with the SEC on March 19, 2014).   |
| 10.6           | Fourth Amendment to License Agreement, dated December 1, 2011, by and between The Board of Trustees of the University of Arkansas on behalf of the University of Arkansas for Medical Sciences and Myeloma Health LLC (incorporated by reference to Exhibit 10.6 to Signal's Registration Statement on Form S-1 (File No. 333-194668) filed with the SEC on March 19, 2014).  |
| 10.7           | Reference Laboratory Services Agreement, dated March 21, 2011, by and between The Board of Trustees of the University of Arkansas on behalf of the University of Arkansas for Medical Sciences Clinical Laboratory and Signal Genetics LLC (incorporated by reference to Exhibit 10.7 to Signal's Registration Statement on Form S-1 (File No. 333-194668) filed with the SEC on March 19, 2014).   |
| 10.8           | Reference Laboratory Services Agreement, dated September 20, 2014, by and between The Board of Trustees of the University of Arkansas on behalf of the University of Arkansas for Medical Sciences and Signal Genetics, Inc. (incorporated by reference to Exhibit 10.2 to Signal's Quarterly Report on Form 10-Q (File No. 001-36483) filed with the SEC on November 11, 2014).  |
| 10.9           | Reference Laboratory Services Agreement for Research Specimens, dated March 21, 2011, by and between The Board of Trustees of the University of Arkansas on behalf of the University of Arkansas for Medical Sciences Myeloma Institute for Research Therapy and Signal Genetics LLC (incorporated by reference to Exhibit 10.8 to Signal's Registration Statement on Form S-1 (File No. 333-194668) filed with the SEC on March 19, 2014). |
| 10.10          | Reference Laboratory Services Agreement for Research Specimens, dated September 20, 2014, by and between The Board of Trustees of the University of Arkansas on behalf of the University of Arkansas for Medical Sciences and Signal Genetics, Inc. (incorporated by reference to Exhibit 10.3 to Signal's Quarterly Report on Form 10-Q (File No. 001-36483) filed with the SEC on November 11, 2014).                                     |

- 10.11 Form of Indemnification Agreement between Signal Genetics, Inc. and each of its directors and executive officers (incorporated by reference to Exhibit 10.14 to Signal's Registration Statement on Form S-1 (File No. 333-194668) filed with the SEC on March 19, 2014).



| <b>Exhibit Number</b> | <b>Description of Document</b>  |
|-----------------------|---|
| 10.12+                | 2014 Stock Incentive Plan (incorporated by reference to Exhibit 10.1 to Signal's Quarterly Report on Form 10-Q (File No. 000-36483) filed with the SEC on August 14, 2014).   |
| 10.13+                | First Amendment to the Signal Genetics, Inc. 2014 Stock Incentive Plan (incorporated by reference to Exhibit 10.1 to Signal's Current Report on Form 8-K (File No. 001-36483) filed with the SEC on June 23, 2015).   |
| 10.14                 | Exchange Agreement, dated June 17, 2014, by and between Signal Genetics LLC, LeBow Alpha LLLP, LeBow Gamma Limited Partnership, BSL Capital, Inc., Bennett S. LeBow, the LeBow 2012 Nevada Trust and the LFIT-A Trust (incorporated by reference to Exhibit 10.8 to Signal's Quarterly Report on Form 10-Q (File No. 001-36483) filed with the SEC on August 14, 2014). |
| 10.15+                | Amended and Restated Employment Agreement, dated June 17, 2014, by and between Signal Genetics, Inc. and Samuel D. Riccitelli (incorporated by reference to Exhibit 10.4 to Signal's Quarterly Report on Form 10-Q (File No. 001-36483) filed with the SEC on August 14, 2014).   |
| 10.16+*               | Restricted Stock Unit Agreement, dated June 17, 2014, by and between Signal Genetics, Inc. and Samuel D. Riccitelli.  |
| 10.17                 | Letter Agreement, dated March 18, 2014, by and between The Board of Trustees of the University of Arkansas on behalf of the University of Arkansas for Medical Sciences and Signal Genetics, Inc. (incorporated by reference to Exhibit 10.19 to Signal's Registration Statement on Form S-1/A (File No. 333-194668) filed with the SEC on April 9, 2014).              |
| 10.18                 | UAMS Bioventures Lease Agreement, dated March 31, 2014, by and between The Board of Trustees of the University of Arkansas for Medical Sciences and Myeloma Health LLC (incorporated by reference to Exhibit 10.20 to Signal's Registration Statement on Form S-1/A (File No. 333-194668) filed with the SEC on April 9, 2014).   |
| 10.19                 | UAMS Bioventures Lease Agreement, effective as of April 1, 2016, by and between the Board of Trustees of the University of Arkansas for Medical Sciences and Signal Genetics, Inc. (incorporated by reference to Exhibit 10.31 to the Annual Report on Form 10-K (File No. 001-36483) filed with the SEC on March 21, 2016).  |
| 10.20                 | Agreement for Termination of Lease and Voluntary Surrender of Premises, dated March 14, 2014, by and between ARE-Acquisitions, LLC and Signal Genetics LLC (incorporated by reference to Exhibit 10.22 to Signal's Registration Statement on Form S-1/A (File No. 333-194668) filed with the SEC on May 15, 2014).  |
| 10.21                 | Letter Agreement, dated May 16, 2014, by and between The Board of Trustees of the University of Arkansas on behalf of the University of Arkansas for Medical Sciences and Signal Genetics, Inc. (incorporated by reference to Exhibit 10.23 to Signal's Registration Statement on Form S-1/A (No. 333-194668) filed with the SEC on May 27, 2014).                      |
| 10.22+                | Employment Agreement, dated July 21, 2014, by and between Signal Genetics, Inc. and Tamara A. Seymour (incorporated by reference to Exhibit 10.1 to Signal's Current Report on Form 8-K (File No. 001-36483) filed with the SEC on July 23, 2014).  |
| 10.23+                | Amendment to Amended and Restated Employment Agreement, dated July 23, 2014, by and between Signal Genetics, Inc. and Samuel D. Riccitelli (incorporated by reference to Exhibit 10.2 to Signal's Current Report on Form 8-K filed with the SEC on July 23, 2014).  |
| 10.24                 | Office Building Lease Agreement, dated August 18, 2014, by and between OT9 Owner, LLC and   |

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Signal Genetics, Inc. (incorporated by reference to Exhibit 10.1 to Signal's Quarterly Report on Form 10-Q (File No. 001-36483) filed with the SEC on November 11, 2014).

- 10.25\* Form of Stock Option Grant Agreement under the 2014 Stock Incentive Plan.
- 10.26\* Form of Restricted Stock Unit Grant Agreement under the 2014 Stock Incentive Plan.
- 10.27+ Letter Agreement, dated March 25, 2015, regarding Signal Genetics, Inc. Restricted Stock Unit Grant Agreement dated June 17, 2014, by and between Signal Genetics, Inc. and Samuel D. Riccitelli (incorporated by reference to Exhibit 10.28 to Signal's Annual Report on Form 10-K (File No. 001-36483) filed with the SEC on March 27, 2015).

| <b>Exhibit Number</b> | <b>Description of Document</b>   |
|-----------------------|--|
| 10.28                 | Unsecured Demand Promissory Note by and between Signal Genetics, Inc. and Bennett LeBow, dated March 6, 2015 (incorporated by reference to Exhibit 10.29 to Signal's Annual Report on Form 10-K (File No. 001-36483) filed with the SEC on March 27, 2015).                              |
| 10.29                 | Controlled Equity OfferingSM Sales Agreement, dated July 10, 2015, by and between Signal Genetics, Inc. and Cantor Fitzgerald & Co. (incorporated by reference to Exhibit 1.2 to Signal's Registration Statement on Form S-3 (File No. 333-205620) filed with the SEC on July 10, 2015). |
| 10.30+                | Second Amendment to the Signal Genetics, Inc. 2014 Stock Incentive Plan ((incorporated by reference to Exhibit 10.1 to Signal's Quarterly Report on Form 10-Q (File No. 001-36483) filed with the SEC on August 15, 2016).   |
| 10.31                 | Amendment to Unsecured Demand Promissory Note, dated as of October 31, 2016, by and between Signal Genetics, Inc. and Bennett LeBow (incorporated by reference to Exhibit 10.1 to Signal's Current Report on Form 8-K (File No. 001-36483), as filed with the SEC on November 1, 2016).  |
| 10.32+*               | Form of Indemnity Agreement between Miragen Therapeutics, Inc. and each of its directors and executive officers.   |
| 10.33+*               | Employment Agreement by and between Miragen Therapeutics, Inc. and William S. Marshall, Ph.D., dated as of December 2, 2016.   |
| 10.34+*               | Employment Agreement by and between Miragen Therapeutics, Inc. and Jason A. Leverone, dated as of December 2, 2016.  |
| 10.35+*               | Employment Agreement by and between Miragen Therapeutics, Inc. and Adam S. Levy, dated as of December 2, 2016.   |
| 10.36+*               | Employment Agreement by and between Miragen Therapeutics, Inc. and Paul D. Rubin, M.D., dated as of December 2, 2016.  |
| 10.37+*               | Form of 2016 Equity Incentive Plan (included as Annex B to the proxy statement/prospectus/information statement).  |
| 10.38+*               | Form of Stock Option Grant Notice and Stock Option Agreement under 2016 Equity Incentive Plan.   |
| 10.39+*               | Form of 2016 Employee Stock Purchase Plan (included as Annex C to the proxy statement/prospectus/information statement).   |
| 10.40*                | Lease by and between Miragen Therapeutics, Inc. and Crestview, LLC, dated as of December 16, 2010.   |
| 10.40.1*              | First Addendum to Lease by and between Miragen Therapeutics, Inc. and Crestview, LLC, dated as of February 18, 2015.   |
| 10.40.2*              | Second Addendum to Lease by and between Miragen Therapeutics, Inc. and Crestview, LLC, dated as of October 23, 2015.   |
| 10.41                 | Exclusive Patent License Agreement, dated as of April 21, 2008, by and between Miragen Therapeutics, Inc. and Board of Regents of The University of Texas System.  |
| 10.42                 | Exclusive Patent License Agreement, dated as of April 21, 2008, by and between Miragen Therapeutics, Inc. and Board of Regents of The University of Texas System.  |
| 10.43 *               | License and Collaboration Agreement, dated as of October 20, 2010, by and between Miragen Therapeutics, Inc. and T2Cure GmbH.  |

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- 10.43.1\* Amendment No. 1 to License and Collaboration Agreement, dated as of July 8, 2014, by and between Miragen Therapeutics, Inc. and T2cure GmbH.
- 10.44 Amended and Restated License Agreement, dated as of December 31, 2012, by and between Miragen Therapeutics, Inc. and Santaris Pharma A/S.

| <b>Exhibit Number</b> | <b>Description of Document</b>  |
|-----------------------|---|
| 10.45                 | License and Collaboration Agreement, dated as of October 12, 2011, by and between Miragen Therapeutics, Inc. and Les Laboratoires Servier, on the first part, and Institut de Recherches Servier, on the second part.                               |
| 10.45.1               | First Amendment of the License and Collaboration Agreement, effective as of May 13, 2013, by and between Miragen Therapeutics, Inc. and Les Laboratoires Servier, on the first part, and Institut de Recherches Servier, on the second part.        |
| 10.45.2               | Second Amendment of the License and Collaboration Agreement, effective as of April 10, 2014, by and between Miragen Therapeutics, Inc. and Les Laboratoires Servier, on the first part, and Institut de Recherches Servier, on the second part.     |
| 10.45.3 *             | Third Amendment of the License and Collaboration Agreement, effective as of May 28, 2015, by and between Miragen Therapeutics, Inc. and Les Laboratoires Servier, on the first part, and Institut de Recherches Servier, on the second part.        |
| 10.45.4*              | Fourth Amendment of the License and Collaboration Agreement, effective as of September 22, 2016, by and between Miragen Therapeutics, Inc. and Les Laboratoires Servier, on the first part, and Institut de Recherches Servier, on the second part. |
| 10.46                 | Exclusive Patent License Agreement, dated as of May 10, 2016, by and between Miragen Therapeutics, Inc. and The Brigham and Women's Hospital, Inc.  |
| 10.47*                | Loan and Security Agreement, dated as of April 30, 2015, by and between Miragen Therapeutics, Inc. and Silicon Valley Bank.   |
| 10.47.1               | First Loan Modification Agreement, dated as of December 22, 2016, by and between Miragen Therapeutics, Inc. and Silicon Valley Bank.  |
| 10.48+*               | Miragen Therapeutics, Inc. 2008 Equity Incentive Plan.  |
| 10.49+*               | Form of Stock Option Grant Notice and Stock Option Agreement under the Miragen Therapeutics, Inc. 2008 Equity Incentive Plan.   |
| 10.50+*               | Non-Employee Director Compensation Policy to be effective upon the completion of the Merger.  |
| 10.51                 | Research Subaward Agreement, dated as of October 1, 2014, by and between Miragen Therapeutics, Inc. and Yale University, as amended.  |
| 21.1*                 | List of Signal's Subsidiaries.  |
| 23.1*                 | Consent of BDO USA, LLP, Independent Registered Public Accounting Firm to Signal Genetics, Inc.   |
| 23.2*                 | Consent of KPMG LLP, Independent Registered Public Accounting Firm to Miragen Therapeutics, Inc.  |
| 23.3*                 | Consent of Pillsbury Winthrop Shaw Pittman LLP (included in Exhibit 5.1 hereto).  |
| 23.4*                 | Consent of Pillsbury Winthrop Shaw Pittman LLP (included in Exhibit 8.1 hereto).  |
| 23.5*                 | Consent of Cooley LLP (included in Exhibit 8.2 hereto).   |
| 24.1*                 | Powers of Attorney (included on the signature page to this Registration Statement on Form S-4).   |
| 99.1*                 | Form of Signal Genetics, Inc. Proxy Card.   |
| 99.2*                 | Proposed form of Certificate of Amendment of Certificate of Incorporation of Signal Genetics, Inc. (included as Annex D to the proxy statement/prospectus/information statement).   |

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- 99.3\* Proposed form of Certificate of Amendment of Certificate of Incorporation of Signal Genetics, Inc. (included as Annex E to the proxy statement/prospectus/information statement).
- 99.4\* Proposed form of Certificate of Amendment of Certificate of Incorporation of Signal Genetics, Inc. (included as Annex F to the proxy statement/prospectus/information statement).
- 99.5\* Proposed form of Certificate of Amendment of Certificate of Incorporation of Signal Genetics, Inc. (included as Annex H to the proxy statement/prospectus/information statement).

| <b>Exhibit Number</b> | <b>Description of Document</b>  |
|-----------------------|---|
| 99.6*                 | Opinion of Cantor Fitzgerald & Co. (included as Annex I to the proxy statement/prospectus/information statement). |
| 99.7*                 | Consent of Cantor Fitzgerald & Co.  |
| 99.8*                 | Consent of Bruce L. Booth, Ph.D. to serve as a director of Signal Genetics, Inc.                                  |
| 99.9*                 | Consent of John W. Creecy to serve as a director of Signal Genetics, Inc.   |
| 99.10*                | Consent of Thomas E. Hughes, Ph.D. to serve as a director of Signal Genetics, Inc.                                |
| 99.11*                | Consent of Kyle A. Lefkoff to serve as a director of Signal Genetics, Inc.  |
| 99.12*                | Consent of Kevin Koch, Ph.D. to serve as a director of Signal Genetics, Inc.                                      |
| 99.13*                | Consent of William S. Marshall, Ph.D. to serve as a director of Signal Genetics, Inc.                             |
| 99.14*                | Consent of Joseph L. Turner to serve as a director of Signal Genetics, Inc.                                       |
| 101.INS*              | XBRL Instance Document.   |
| 101.SCH*              | XBRL Taxonomy Extension Schema.   |
| 101.CAL*              | XBRL Taxonomy Extension Calculation Linkbase.   |
| 101.DEF*              | XBRL Taxonomy Extension Definition Linkbase.  |
| 101.LAB*              | XBRL Taxonomy Extension Label Linkbase.   |
| 101.PRE*              | XBRL Taxonomy Extension Presentation Linkbase.  |

Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment and have been separately filed with the SEC.

Confidential treatment granted as to portions of the exhibit. Confidential materials omitted and filed separately with the SEC.

+ Management contract or compensatory plans or arrangements.

\* Previously filed.

^ The schedules and exhibits to this exhibit have been omitted pursuant to Item 601(b)(2) of Regulation S-K. A copy of any omitted schedule and/or exhibit will be furnished to the SEC upon request.