



miRagen Therapeutics and Signal Genetics Sign Merger Agreement

November 1, 2016

-Merger to create clinical-stage, NASDAQ-listed, biopharmaceutical company developing proprietary micro RNA-targeted therapeutics-

-Concurrent financing of \$40 million from Miragen investor syndicate-

-Combined company expected to be capitalized with greater than \$50 million in cash intended to advance miRagen's clinical-stage portfolio-

BOULDER, Colo. & CARLSBAD, Calif.--(BUSINESS WIRE)-- Signal Genetics, Inc. (Nasdaq: SGNL) ("Signal") and Miragen Therapeutics, Inc. ("miRagen"), a privately-held biopharmaceutical company, today announced that they have entered into a definitive merger agreement under which the stockholders of miRagen are currently estimated to become holders of approximately 96% of Signal's outstanding common stock on a fully-diluted basis. The proposed merger remains subject to certain conditions, including approval by Signal's and miRagen's stockholders.

This Smart News Release features multimedia. View the full release here: <http://www.businesswire.com/news/home/20161031006326/en/>

In conjunction with the proposed merger, an investor syndicate comprised of existing miRagen investors and new investors has committed to invest approximately \$40 million in miRagen immediately prior to closing of the proposed merger. The investor syndicate includes Fidelity Management and Research Company, Brace Pharma Capital, Atlas Venture, Boulder Ventures, JAFCO Co., Ltd., MP Healthcare Venture Management, MRL Ventures (a venture fund of Merck, known as MSD outside the United States and Canada), Remedix Ventures, and others.

The proposed merger will create a clinical-stage, biopharmaceutical company developing proprietary micro RNA-targeted clinical product candidates addressing hematological malignancies and pathological fibrosis and pre-clinical product candidates addressing cardiovascular and neurodegenerative diseases. The total cash balance of the combined company upon the closing of the proposed merger and the financing is expected to exceed \$50 million.

"We believe microRNA targeting therapeutics have the potential to address complex diseases with high unmet medical need and miRagen will be well positioned to execute on our programs." said William S. Marshall, President and Chief Executive Officer of miRagen. "We believe proceeds from the concurrent financing will allow us to advance our lead assets in hematological malignancy and pathological fibrosis into later stage clinical evaluation."

Samuel D. Riccitelli, Signal's President and Chief Executive Officer added, "We have chosen to combine with miRagen following an extensive review of strategic alternatives and a thorough process because we believe the proposed merger provides Signal stockholders with an opportunity for value appreciation."

About the Proposed Merger

Existing stockholders of miRagen, as well as investors in miRagen's concurrent financing, will receive newly issued shares of Signal common stock in connection with the proposed merger. On a pro forma and fully-diluted basis for the combined company, following the closing of the proposed merger, (a) current Signal stockholders are expected to own approximately 4%, (b) current miRagen stockholders are expected to own approximately 69% (excluding shares issued to them in the concurrent financing), and (c) the investors participating in the concurrent financing are expected to own approximately 27% (excluding shares previously held by them). Signal's ownership percentage includes shares expected to be issued concurrent with the proposed merger upon the conversion of existing Signal debt, which is subject to Signal stockholder approval. If the proposed merger closes before January 31, 2017, approximately 278,213 shares of Signal common stock would be issued upon the debt conversion.

The proposed merger has been unanimously approved by the boards of directors of both companies. miRagen's stockholders holding approximately 80% of outstanding miRagen capital stock and Signal's stockholders holding 26% of outstanding Signal common stock have agreed to vote in favor of the transaction. The proposed merger is expected to close during the first quarter of 2017, subject to the approval of the stockholders of each company and other customary closing conditions. The merger agreement contains further details with respect to the proposed merger. If the transaction is consummated, Signal's name will be changed to Miragen Therapeutics, Inc., and Signal intends to apply to change its ticker symbol on the NASDAQ Capital Market to "MGEN."

The directors and executive officers of Signal will resign from their positions with Signal upon the closing of the proposed merger, and the combined company will be under the leadership of miRagen's current executive management team with William Marshall serving as President and Chief Executive Officer. Following the closing of the proposed merger, the board of directors of the combined company is expected to consist of eight members, all of whom will be designated by miRagen. The corporate headquarters will be located in Boulder, Colorado.

Signal's exclusive financial advisor in the transaction is Cantor Fitzgerald & Co. Wedbush PacGrow is acting as placement agent for miRagen in the concurrent financing. Pillsbury Winthrop Shaw Pittman LLP served as legal counsel to Signal and Cooley LLP served as legal counsel to miRagen.

Sale of Signal's MyPRS®

Signal also announced today that it has entered into a non-binding letter of intent with a large global diagnostic laboratory for the sale of intellectual property assets related to Signal's MyPRS® test. In the event the asset sale is consummated, the net proceeds to Signal are currently expected to be approximately equal to the anticipated costs of operating the MyPRS business through the projected closing date of the proposed merger (resulting from a cash perspective, in an outcome similar to an immediate cessation of the MyPRS business). Completion of the asset sale is subject to the negotiation of a definitive asset purchase agreement, satisfaction of the conditions negotiated therein and approval of the definitive asset purchase agreement by Signal's stockholders.

Signal Reverse Stock Split

Signal's board of directors approved a 1-for-15 reverse stock split of its common stock, which will become effective immediately following the close of trading on the NASDAQ Capital Market on November 4, 2016. Shares of Signal common stock will begin trading on the NASDAQ Capital Market on a split-adjusted basis on November 7, 2016.

Signal's stockholders approved the reverse stock split at its annual meeting of stockholders on June 15, 2016 at a ratio of not less than 1-for-2 and not more than 1-for-20, with the final ratio determined by Signal's board of directors in its discretion. The reverse stock split is being implemented by Signal to maintain the listing of its common stock on the NASDAQ Capital Market. Signal received a deficiency notice from NASDAQ in November 2015 and, following a 180-day cure period, received an additional 180 days from NASDAQ in May 2016 to regain compliance with the minimum bid price requirement. To regain compliance, the closing bid price of Signal's common stock must be at least \$1.00 per share for a minimum of ten consecutive business days (or such longer period of time as the NASDAQ staff may require) before November 21, 2016. There can be no assurance that the reverse stock split will have the desired effect of raising the closing bid price of Signal's common stock prior to such date to meet this requirement.

The reverse split will reduce the number of shares of Signal's outstanding common stock from approximately 11.1 million shares to approximately 740,000 shares. Fractional shares created as a result of the reverse stock split will be settled in cash. Informational letters will be sent to all stockholders of record by Signal's transfer agent, VStock Transfer LLC.

Conference Call & Webcast

Signal and miRagen will host a joint conference call to discuss the transaction as follows:

Tuesday, November 1, 2016 at 8:30 a.m. Eastern Time/6:30 a.m. Mountain Time/5:30 a.m. Pacific Time

Domestic: 1 (800) 218-2154

International: 1 (913) 312-0968

Conference ID: 4846740

Webcast: www.signalgenetics.com

Replays – Available through November 11, 2016

Domestic: 1 (844) 512-2921

International: 1 (412) 317-6671

Replay Pin Number: 4846740

About miRagen Therapeutics, Inc.

miRagen Therapeutics, Inc., is a clinical-stage biopharmaceutical company focused on the discovery and development of innovative microRNA (miRNA)-targeting therapies in disease areas of high unmet medical need. miRagen's lead product candidate, MRG-106, a synthetic microRNA antagonist (LNA anti-miR) of microRNA-155, is currently being studied in a Phase 1 clinical trial in patients suffering from cutaneous T-cell lymphoma (CTCL) of the mycosis fungoides (MF) sub-type. miRagen is also conducting a Phase 1 clinical trial of MRG-201, its lead anti-fibrosis product candidate and a synthetic microRNA mimic (promiR) to microRNA-29b, in human volunteers. miRagen seeks to leverage in-house expertise in miRNA biology, oligonucleotide chemistry, and drug development to evaluate and advance promising technologies and high-potential product candidates for its own pipeline and in conjunction with strategic collaborators.

About MRG-106 and microRNA-155

MRG-106 is an anti-miR (antagonist) of microRNA-155. In hematological malignancy microRNA-155 has key roles in the differentiation, function and proliferation of blood and lymph cells. miRagen believes therapeutic inhibition (antagonism) of microRNA-155 in lymphoma cells may restore normal function and reduce the aberrant cell proliferation that is characteristic of cancerous cells.

About MRG-201 and microRNA-29

MRG-201 is a promiR (agonist) to microRNA-29b. The microRNA-29 family is a well-established negative regulator of a wide variety of genes important in extracellular matrix deposition. The expression of the three family members is consistently down-regulated in a number of pathological fibrotic conditions, including cardiac, renal, hepatic, and pulmonary fibrosis, as well as systemic sclerosis. miRagen believes that numerous studies in cell-culture and genetic replacement in rodents demonstrate the potential of miR-29 normalization to correct many drivers of pathological fibrosis.

For more information, please visit www.miragenrx.com.

For information on clinical trials please visit www.clinicaltrials.gov.

About Signal Genetics, Inc.

Signal Genetics, Inc., headquartered in Carlsbad, California, is a commercial stage, molecular diagnostic company focused on providing innovative diagnostic services that help physicians make better-informed decisions concerning the care of their patients suffering from cancer. Signal's mission is to develop, validate and deliver innovative diagnostic services that enable better patient-care decisions. Signal was founded in January 2010 and became the exclusive licensee in its licensed field to the renowned research on multiple myeloma performed at the University of Arkansas for Medical Sciences, in April 2010.

Safe Harbor Statement

Additional Information about the Proposed Merger and Where to Find It

In connection with the proposed merger, Signal and miRagen intend to file relevant materials with the Securities and Exchange Commission, or the SEC, including a registration statement on Form S-4 that will contain a proxy statement / prospectus / information statement. Investors and securityholders of Signal and miRagen are urged to read these materials when they become available because they will contain important information about Signal, miRagen and the proposed merger. The proxy statement / prospectus / information statement and other relevant materials (when they become available), and any other documents filed by Signal with the SEC, may be obtained free of charge at the SEC web site at www.sec.gov. In addition, investors and securityholders may obtain free copies of the documents filed with the SEC by Signal by directing a written request to: Signal Genetics, Inc., 5740 Fleet Street, Carlsbad, CA 92008, Attention: Investor Relations. Investors and securityholders are urged to read the proxy statement / prospectus / information statement and the other relevant materials when they become available before making any voting or investment decision with respect to the proposed merger.

This communication shall not constitute an offer to sell or the solicitation of an offer to sell or the solicitation of an offer to buy any securities, nor shall there be any sale of securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such jurisdiction. No offering of securities in connection with the proposed merger shall be made except by means of a prospectus meeting the requirements of Section 10 of the Securities Act of 1933, as amended.

Participants in the Solicitation

Signal and its directors and executive officers and miRagen and its directors and executive officers may be deemed to be participants in the solicitation of proxies from the stockholders of Signal in connection with the proposed transaction. Information regarding the special interests of these directors and executive officers in the proposed merger will be included in the proxy statement / prospectus / information statement referred to above. Additional information regarding the directors and executive officers of Signal is also included in Signal's Annual Report on Form 10-K for the year ended December 31, 2015 and the proxy statement for Signal's 2016 Annual Meeting of Stockholders. These documents are available free of charge at the SEC's web site (www.sec.gov) and from Investor Relations at Signal at the address described above.

Forward-Looking Statements

This press release contains "forward-looking statements" that involve substantial risks and uncertainties for purposes of the safe harbor provided by the Private Securities Litigation Reform Act of 1995. All statements, other than statements of historical facts, included in this press release regarding strategy, future operations, future financial position, future revenue, projected expenses, prospects, plans and objectives of management are forward-looking statements. Examples of such statements include, but are not limited to, statements relating to the structure, timing and completion of the proposed merger or financing; Signal's continued listing on the NASDAQ Capital Market until closing of the proposed merger; the combined company's listing on the NASDAQ Capital Market after closing of the proposed merger; expectations regarding the capitalization, resources and ownership structure of the combined company; the role of microRNAs in disease processes and as potential drug products; the potential for MRG-106 and MRG-201 to target diseases; the adequacy of the combined company's capital to support its future operations and its ability to successfully initiate and complete clinical trials; the nature, strategy and focus of the combined company; the development and commercial potential of any product candidates of the combined company; the executive and board structure of the combined company; and expectations regarding voting by Signal's and miRagen's stockholders. Signal and/or miRagen may not actually achieve the plans, carry out the intentions or meet the expectations or projections disclosed in the forward-looking statements and you should not place undue reliance on these forward-looking statements. Such statements are based on management's current expectations and involve risks and uncertainties. Actual results and performance could differ materially from those projected in the forward-looking statements as a result of many factors, including, without limitation, risks and uncertainties associated with stockholder approval of and the ability to consummate the proposed merger through the process being conducted by Signal and miRagen, the ability of Signal to enter into the referenced definitive asset purchase agreement for the sale of the MyPRS test and consummate such transaction, the ability to project future cash utilization and reserves needed for contingent future liabilities and business operations, the availability of sufficient resources of the combined company to meet its business objectives and operational requirements, the fact that the results of earlier studies and trials may not be predictive of future clinical trial results, the protection and market exclusivity provided by miRagen's intellectual property, risks related to the drug discovery and the regulatory approval process and the impact of competitive products and technological changes. Signal and miRagen each disclaims any intent or obligation to update these forward-looking statements to reflect events or circumstances that exist after the date on which they were made.

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