



Synlogic and Mirna Therapeutics Agree to Merger

May 16, 2017

- *Transaction Expected to Advance Synlogic's Innovative Platform for the Discovery and Development of Novel Synthetic Biotic™ Medicines* –
- *Synlogic Closes \$42 Million of Series C Preferred Stock Financing by Leading Biotechnology Investors* –
- *Combined Company Well-Capitalized with Approximately \$82 Million in Cash Expected at Closing from Merger and Series C* –
- *First Clinical Trial for Lead Synlogic Product Candidate Anticipated to Start Mid-2017* –
- *Conference call to be held today at 8:30 AM ET* –

CAMBRIDGE, Mass. & AUSTIN, Texas—([BUSINESS WIRE](#))—Privately held Synlogic, Inc., has entered into a definitive merger agreement with Mirna Therapeutics, Inc. (NASDAQ:MIRN) under which Synlogic will merge with a wholly owned subsidiary of Mirna in an all-stock transaction. The merged company will continue under the Synlogic name and will focus on advancing Synlogic's drug discovery and development platform for Synthetic Biotic medicines, which are designed using synthetic biology to genetically reprogram beneficial microbes to treat metabolic and inflammatory diseases and cancer. Synlogic also recently closed a \$42 million Series C preferred stock financing from leading biotechnology investors, including Aju IB Investment, Ally Bridge Group, Arctic Aurora LifeScience, CLI Ventures, Perceptive Advisors, Rock Springs Capital, and other undisclosed new investors. Existing investors, Atlas Venture, Deerfield, New Enterprise Associates (NEA), and OrbiMed also participated in the financing.

"We believe that our Synthetic Biotic medicines are efficient and targeted biologic engines with the potential to have a transformative impact on the treatment of human diseases. While many conventional medicines address one molecular dysfunction, these living medicines have the potential to uniquely and effectively compensate for entire processes or pathways to treat patients with significant unmet medical need," said Jose Carlos Gutierrez-Ramos, Ph.D., Chief Executive Officer of Synlogic. "This merger and our recently completed Series C financing are projected to provide the capital to progress our two lead metabolic disease programs through patient proof-of-concept studies as well as advance the development of our earlier product candidates."

By mid-2017, Synlogic plans to initiate a Phase 1 healthy volunteers study for its lead candidate, SYN1020, which is for the potential treatment of Urea Cycle Disorders (UCD) and hepatic encephalopathy (HE), both diseases where patients experience elevated ammonia levels. Following success in the first study, the company plans to open two parallel studies in symptomatic patients with UCD and HE. The company's second development candidate SYN1618 will be studied in Phenylketonuria (PKU), which is caused by defective metabolism of the amino acid phenylalanine.

"Following a thorough review of strategic alternatives, we are delighted to announce this transaction with Synlogic, which we believe is in the best interest of Mirna's stockholders," said Paul Lammers, M.D., M.Sc., President and Chief Executive Officer of Mirna. "Synlogic is advancing an exciting potential new class of medicines supported by a strong drug discovery and development platform, an experienced management team and a strong set of investors."

About the Transaction:

Following the merger, current Synlogic shareholders are expected to own approximately 83 percent of the combined company and the current Mirna stockholders will own approximately 17 percent of the combined company. The exchange ratio is based on Mirna's expected cash at the time of the close, and the actual allocation will be subject to adjustment based on Mirna's net cash balance at closing.

The transaction has been approved by the board of directors of both companies. The merger is currently expected to close in the third quarter of 2017, subject to the approval of the stockholders of each company and the satisfaction or waiver of other customary conditions.

Wedbush PacGrow acted as exclusive strategic advisor to Mirna for the reverse merger transaction and Latham & Watkins LLP served as legal counsel to Mirna. Leerink Partners LLC acted as exclusive financial advisor to Synlogic for the reverse merger and as exclusive placement agent for the Series C financing, and Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. served as legal counsel to Synlogic.

Management and Organization:

Following the merger, Jose Carlos Gutierrez-Ramos, Ph.D., Synlogic's Chief Executive Officer will become the chief executive officer of the merged company. The board of directors will be comprised of seven directors, including two directors currently serving on Mirna's board. Upon closing of the transaction, the merged company will operate under the Synlogic name and the company's common stock will trade on the NASDAQ global market under a ticker symbol to be announced at a later date. The corporate headquarters will be located in Cambridge, Massachusetts.

Conference Call and Webcast:

The companies will host a conference call to discuss the proposed transaction as well as Synlogic's platform and pipeline assets on May 16, 2017 at 8:30 AM ET. The live webcast can be accessed on the Events & Presentations page of Mirna's website or by dialing +1-844-815-2882 (U.S.) or +1-213-660-0926 using the conference ID number 24465241. The conference call will be archived on both the Mirna and Synlogic websites for at least

30 days.

About Synthetic Biotic™ Medicines:

Synlogic's innovative new class of Synthetic Biotic medicines leverages the tools and principles of synthetic biology to genetically reengineer beneficial, probiotic microbes to perform critical functions missing or damaged due to disease. The company's two lead programs target a group of rare metabolic diseases – inborn errors of metabolism (IEM). Patients with these diseases are born with a faulty gene, inhibiting the body's ability to breakdown commonly occurring by-products of digestion that then accumulate to toxic levels and cause serious health consequences. When delivered orally, these medicines can act from the gut to compensate for the dysfunctional metabolic pathway and have a systemic effect. Synthetic Biotic medicines are designed to clear toxic metabolites associated with specific metabolic diseases and promise to significantly improve the quality of life for affected patients.

About Synlogic™

Synlogic™ is pioneering the development of a novel class of living medicines, Synthetic Biotics™, based on its proprietary drug discovery and development platform. Synlogic's initial pipeline includes Synthetic Biotic medicines for the treatment of rare genetic diseases, such as Urea Cycle Disorder (UCD) and Phenylketonuria (PKU). In addition, the company is leveraging the broad potential of its platform to create Synthetic Biotic medicines for the treatment of more common diseases, including liver disease, inflammatory and immune disorders, and cancer.

Synlogic is collaborating with AbbVie to develop Synthetic Biotic-based treatments for inflammatory bowel disease (IBD). For more information, please visit synlogictx.com.

About Mirna

Mirna is a biopharmaceutical company that has focused on the development of microRNA-based oncology therapeutics. Mirna's first product candidate, MRX34, the first microRNA mimic to enter clinical development in oncology, was studied as a single agent in a multicenter Phase 1 clinical trial. In September 2016, Mirna voluntarily halted enrollment and dosing in the clinical study following multiple immune-related serious adverse events (SAEs) observed in patients dosed with MRX34 over the course of the trial. Subsequently, the U.S. Food and Drug Administration (FDA) notified the Company that the Investigational New Drug (IND) Application for MRX34 was placed on full clinical hold. The Company has since closed the IND and focused on evaluating strategic alternatives, including the possibility of a merger or sale of the Company.

No Offer or Solicitation:

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 public offer of securities 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:

Mirna, Synlogic and their respective directors and executive officers may be deemed to be participants in the solicitation of proxies from the holders of Mirna common stock in connection with the proposed transaction. Information about Mirna's directors and executive officers is set forth in Mirna's Annual Report on Form 10-K for the period ended December 31, 2016, which was filed with the SEC on March 15, 2017. Other information regarding the interests of such individuals, as well as information regarding Synlogic's directors and executive officers and other persons who may be deemed participants in the proposed transaction, will be set forth in the proxy statement/prospectus, which will be included in Mirna's registration statement when it is filed with the SEC. You may obtain free copies of these documents as described in the paragraph below.

Important Additional Information Will be Filed with the SEC:

In connection with the proposed transaction between Mirna and Synlogic, Mirna intends to file relevant materials with the SEC, including a registration statement that will contain a proxy statement and prospectus. Mirna urges investors and stockholders to read these materials carefully and in their entirety when they become available because they will contain important information about Mirna, the proposed transaction, and related matters. Investors and stockholders will be able to obtain free copies of the proxy statement/prospectus and other documents filed by Mirna with the SEC (when they become available) through the website maintained by the SEC at www.sec.gov. In addition, investors and shareholders will be able to obtain free copies of the proxy statement/prospectus and other documents filed by Mirna with the SEC by contacting investor relations by mail at Attn: Investor Relations PO Box 163387 Austin, TX 78716 USA. Investors and stockholders are urged to read the proxy statement/prospectus and the other relevant materials when they become available before making any voting or investment decision with respect to the proposed transaction.

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. In addition, when or if used in this press release, the words "may," "could," "should," "anticipate," "believe," "estimate," "expect," "intend," "plan," "predict" and similar expressions and their variants, as they relate to Mirna, Synlogic or the management of either company, before or after the aforementioned merger, may identify forward-looking statements. Examples of forward-looking statements, include, but are not limited to, statements relating to the timing and completion of the proposed merger; Mirna's continued listing on the NASDAQ Global Market until closing of the proposed merger; the combined company's listing on the NASDAQ Global Market after closing of the proposed merger; expectations regarding the capitalization, resources and ownership structure of the combined company; the approach Synlogic is taking to discover and develop novel therapeutics using synthetic biology; 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 difficulty in predicting the time and cost of development of Synlogic's product candidates; the executive and board structure of the combined company; and expectations regarding voting by Mirna's and Synlogic's stockholders. Actual results could differ materially from those contained in any forward-looking statement as a result of various factors, including, without limitation: the risk that the conditions to the closing of the transaction are not satisfied, including the failure to timely or at all obtain stockholder approval for the transaction; uncertainties as to the timing of the consummation of the transaction and the ability of each of Mirna

and Synlogic to consummate the transaction; risks related to Mirna's ability to correctly estimate its operating expenses and its expenses associated with the transaction; the ability of Mirna or Synlogic to protect their respective intellectual property rights; unexpected costs, charges or expenses resulting from the transaction; potential adverse reactions or changes to business relationships resulting from the announcement or completion of the transaction; and legislative, regulatory, political and economic developments. The foregoing review of important factors that could cause actual events to differ from expectations should not be construed as exhaustive and should be read in conjunction with statements that are included herein and elsewhere, including the risk factors included in Mirna's Quarterly Report on Form 10-Q filed with the SEC on May 9, 2017. Mirna can give no assurance that the conditions to the transaction will be satisfied. Except as required by applicable law, Mirna undertakes no obligation to revise or update any forward-looking statement, or to make any other forward-looking statements, whether as a result of new information, future events or otherwise.

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