Unum Therapeutics Implements Strategic Restructuring to Prioritize Efforts on BOXR1030 for the Treatment of Solid Tumor Cancers

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BOXR1030 is a GPC3-targeted CAR T cell incorporating the novel GOT2 transgene designed to improve T cell function in the solid tumor microenvironment by enhancing T cell metabolism

Investigational new drug (IND)-enabling studies are underway for BOXR1030 with plans to submit an application to the FDA in late 2020

Unum concludes its Phase 1 ACTR707 programs and reduces workforce to focus solely on BOXR1030

CAMBRIDGE, Mass., March 02, 2020 (GLOBE NEWSWIRE) -- Unum Therapeutics Inc. (NASDAQ: UMRX), a biopharmaceutical company focused on developing curative cell therapies for solid tumors, today announced plans to prioritize resources towards advancing its preclinical program, BOXR1030, for the treatment of solid tumor cancers. Unum's BOXR1030 expresses a glypican-3 (GPC3) targeted CAR and incorporates the novel transgene glutamic-oxaloacetic transaminase 2 (GOT2) to improve T cell function in the solid tumor microenvironment by enhancing T cell metabolism. Unum has initiated formal preclinical development activities, including preclinical safety testing and GMP process development, to support filing an IND application for BOXR1030 in late 2020.

As part of this effort, and to conserve resources for BOXR1030, Unum is concluding its ACTR707 clinical trials, including the Phase 1 trial (ATTCK-20-03) in combination with rituximab in relapsed/refractory non-Hodgkin lymphoma and the Phase 1 trial (ATTCK-34-01) in combination with trastuzumab to treat advanced HER2+ solid tumor cancers. In addition, the company plans to reduce its current workforce by 43 employees (approximately 60 percent) to focus efforts on the BOXR1030 program. Unum also announced today that its Chief Scientific Officer, Seth Ettenberg, Ph.D., has resigned after five years of service to the company. Unum expects to continue to leverage its BOXR discovery platform, potentially in collaboration with partners, to create and develop new BOXR product candidates to address a broad range of solid tumor cancers.

"Following a detailed review of our operations, opportunities, and cash reserves, we believe the decisions announced today are in the best interests of all Unum stakeholders, including patients, clinicians, employees and shareholders," said Chuck Wilson, Ph.D., President and Chief Executive Officer of Unum Therapeutics. "We remain committed to addressing the challenges of treating solid tumor cancers, and would like to thank the patients, their families, and the investigators who have made our efforts to date possible. In addition, we would like to thank Seth for his contributions to the preclinical discovery efforts here at Unum over the years and wish him the very best in his next endeavor."

Unum will provide severance, continuation of employee benefits and outplacement assistance to employees affected by the restructuring. As of September 30, 2019, Unum had cash and cash equivalents of $45.9 million. After implementation of this restructuring, Unum's expects its current cash and cash equivalents to fund the company into mid-2021. Further details on the financial implications of the restructuring will be included in the company's full-year 2019 results expected later this month and with related filings with the Securities and Exchange Commission.

About Unum's BOXR1030 and BOXR Platform

Unum's BOXR1030 was discovered from its Bolt-on Chimeric (BOXR) platform that is designed to discover novel "bolt-on" transgenes to be co-expressed with CARs, a T-cell receptor, or ACTR, to help T cells survive longer and perform better in the solid tumor microenvironment. BOXR candidates consist of two main components: 1) a targeting receptor that directs the T cell to attack tumor cells, which may be a traditional CAR receptor, a T-cell receptor, or Unum's ACTR receptor, and 2) a novel "bolt-on" transgene that improves the intrinsic function of the T cell. Once discovered, BOXR transgenes are designed to be incorporated into several different types of therapeutic T cells, including both ACTR T cells and CAR-T cells, to impart new functionality to T cells.

Unum's first product candidate selected from the BOXR platform, BOXR1030, expresses GPC3+ targeted CAR and incorporates the bolt-on GOT2 transgene to improve T cell function in the solid tumor microenvironment (TME) by enhancing T cell metabolism. Preclinical data with BOXR1030 was presented at the Society for Immunotherapy of Cancer (SITC) Annual Meeting in November 2019. In preclinical studies, BOXR1030 T cells were resistant to suppressive TME-like conditions, showing improved T cell proliferation under both hypoxic and low glucose conditions compared with control GPC3+ CAR-T cells. In vivo, BOXR1030 demonstrated superior activity compared to the parental CAR-T with treated animals achieving complete tumor regressions. Tumor infiltrating lymphocytes isolated from the tumors of treated animals revealed that BOXR1030 cells were more resistant to dysfunction and had fewer markers of exhaustion as compared to the control CAR-T cells.

About Unum Therapeutics

Unum Therapeutics is a biopharmaceutical company focused on developing curative cell therapies to treat patients with solid tumor cancers. Unum's novel proprietary technology includes BOXR, which is designed to improve the functionality of engineered T cells by incorporating a "bolt-on" transgene to overcome resistance of the solid tumor microenvironment to T cell attack. Unum's preclinical program BOXR1030 expresses the GOT2 transgene and targets GPC3+ solid tumor cancers. The Company is headquartered in Cambridge, MA.

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Forward looking Statements

This press release contains forward-looking statements including, without limitation, statements regarding our future expectations, plans and prospects, including projections regarding our long-term growth, enrollment and results for our preclinical and clinical activities, the development of our product candidate, BOXR1030, and the anticipated timing and success of any of our preclinical studies, clinical trials and regulatory filings, and our

strategies, business plans, and focus, as well as other statements containing the words "anticipate," "believe," "continue," "could," "estimate," "expect," "intend," "may," "might," "plan," "potential," "predict," "project," "should," "target," "will," or "would" and similar expressions, constitute forward-looking statements within the meaning of the safe harbor provisions of The Private Securities Litigation Reform Act of 1995, as amended. We may not actually achieve the forecasts disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results could differ materially from the projections disclosed in the forward-looking statements we make as a result of a variety of risks and uncertainties, including risks related to the accuracy of our estimates regarding expenses, future revenues, capital requirements, and the need for additional financing, the success, cost and timing of our product development activities and clinical trials, our ability to obtain and maintain regulatory approval for our product candidates, and the other risks and uncertainties described in the "Risk Factors" sections of our public filings with the Securities and Exchange Commission. In addition, the forward-looking statements included in this press release represent our views as of the date hereof. We anticipate that subsequent events and developments may cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we specifically disclaim any obligation to do so. These forward-looking statements should not be relied upon as representing our views as of any date subsequent to the date hereof.

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