Rubius Therapeutics Presents Updated Data from its Type 1 Diabetes Preclinical Program at the Federation of Clinical Immunology Societies (FOCIS) 2022 Annual Meeting

June 22, 2022

Prevention of Type 1 Diabetes in a Stringent Preclinical Model from Ongoing Experiment;
Two Antigens Prevent Disease Driven by Many Autoantigens Demonstrating Bystander Suppression

Findings Potentially Translatable to Multiple T Cell-Mediated Autoimmune Diseases

CAMBRIDGE, Mass., June 22, 2022 (GLOBE NEWSWIRE) -- Rubius Therapeutics, Inc. (Nasdaq: RUBY), a clinical-stage biopharmaceutical company that is biologically engineering red blood cells to create an entirely new class of cellular medicines called Red Cell Therapeutics™ for the treatment of cancer and autoimmune diseases, today announced updated preclinical data for its type 1 diabetes program at the FOCIS 2022 Annual Meeting in San Francisco, CA, June 21-24, 2022.

“We believe these new preclinical data, part of an ongoing experiment, demonstrate prevention of diabetes and bystander suppression in the non-obese diabetes, or NOD, preclinical model, the primary model used for studying autoimmune diabetes that has striking similarities to the human disease,” said Larry Turka, M.D., chief scientific officer and head of research and translational medicine of Rubius Therapeutics. “We believe these findings extend to our other preclinical autoimmune disease programs in celiac disease and multiple sclerosis. We plan to select a clinical candidate for our type 1 diabetes program later this year.”

Induction of Antigen-Specific Immune Tolerance in Type 1 Diabetes by Antigen-Expressing Re Cell Therapeutics
Abstract Number: TPS2690

- Demonstrated tolerance induction and bystander suppression in stringent type 1 diabetes preclinical models
- From ongoing experiment, showed efficacy in the NOD preclinical model
  - By increasing to 3 doses administered and optimizing the dosing schedule, results at 25 weeks exhibit bystander suppression by delivering only two antigens, indicating disease prevention caused by many autoantigens (0/5 mice)
  - Previously reported data at 25 weeks with two doses prevented or delayed disease onset (7/15 mice)
- Established efficacy in the BDC2.5 adoptive transfer model with data supporting that repeated dosing extends duration of disease protection, reverses established inflammation, which is important for the treatment of existing autoimmunity, and induces two types of regulatory T cells, resulting in protection against re-challenge
- These findings are potentially translatable beyond type 1 diabetes to multiple autoimmune diseases, including multiple sclerosis and celiac disease.

About Rubius Therapeutics

Rubius Therapeutics is a clinical-stage biopharmaceutical company developing a new class of medicines called Red Cell Therapeutics™. The Company’s proprietary RED PLATFORM® was designed to biologically engineer and culture Red Cell Therapeutics™ that are selective, potent and off-the-shelf allogeneic cellular therapies for the potential treatment of several diseases across multiple therapeutic areas. Rubius’ initial focus is to advance RCT™ product candidates for the treatment of cancer and autoimmune diseases by leveraging two distinct therapeutic modalities — potent cell-cell interaction and tolerance induction. Rubius Therapeutics was recently named among the 2021 Top Places to Work in Massachusetts by the Boston Globe, and its manufacturing site was recently named 2022 Best Places to Work in Rhode Island by Providence Business News. For more information, visit www.rubiustx.com, follow us on Twitter or LinkedIn or like us on Facebook.

Forward-Looking Statements

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, including, without limitation, statements regarding beliefs about the efficacy of its Red Cell Therapeutics and beliefs and analyses of the data from Rubius’ type 1 diabetes program, including that it is potentially translatable into multiple T-cell mediated autoimmune diseases . The words “may,” “will,” “could,” “would,” “should,” “expect,” “plan,” “anticipate,” “intend,” “believe,” “estimate,” “predict,” “project,” “potential,” “continue,” “target” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Any forward-looking statements in this press release are based on management’s current expectations and beliefs and are subject to a number of risks, uncertainties and important factors that may cause actual events or results to differ materially from those expressed or implied by any forward-looking statements contained in this press release, including, without limitation, those risks and uncertainties related to the development of our Red Cell Therapeutic product candidates and their therapeutic potential, our ability to execute on our plans and expectations, our analyses of clinical and

preclinical data, including the type 1 diabetes program, and other risks identified in our filings with the U.S. Securities and Exchange Commission (SEC), including our Annual Report on Form 10-K for the year ended December 31, 2021 and subsequent filings with the SEC, including our Quarterly Report on Form 10-Q for the quarter-ended March 31, 2022, and risks and uncertainties related to the severity and duration of the impact of COVID-19 on our business and operations. We caution you not to place undue reliance on any forward-looking statements, which speak only as of the date they are made. We disclaim any obligation to publicly update or revise any such statements to reflect any change in expectations or in events, conditions or circumstances on which any such statements may be based, or that may affect the likelihood that actual results will differ from those set forth in the forward-looking statements. Any forward-looking statements contained in this press release represent our views only as of the date hereof and should not be relied upon as representing its views as of any subsequent date.

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