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Intrexon, ZIOPHARM and Merck KGaA, Darmstadt, Germany Advancing Next-Generation Non-Viral CAR-T Platform Empowered by Membrane-Bound IL-15 Under RheoSwitch Therapeutic System® Control

Two CAR Targets Selected Enable Range of Potential Therapeutic Candidates for Both Solid and Liquid Tumors

GERMANTOWN, Md. and BOSTON, April 03, 2017 (GLOBE NEWSWIRE) -- Intrexon Corporation (NYSE:XON), a leader in the engineering and industrialization of biology to improve the quality of life and health of the planet, ZIOPHARM Oncology (NASDAQ:ZIOP), a biopharmaceutical company focused on new immunotherapies, and Merck KGaA, Darmstadt, Germany, a leading science and technology company, today announced an update on the development of next-generation chimeric antigen receptor T cell (CAR-T) therapy for cancer as part of their strategic collaboration and license agreement.

Intrexon and ZIOPHARM Oncology, in an exclusive partnership with Merck KGaA, Darmstadt, Germany, are advancing a unique approach to develop therapeutic candidates for two CAR-T targets expressed on a wide range of tumor types, including hematologic malignancies and solid tumors.

The distinctive methodology centers on two technologies: the proprietary RheoSwitch Therapeutic System® (RTS®) platform to regulate expression of membrane-bound interleukin-15 (mbIL15) co-expressed with CARs and *Sleeping Beauty* non-viral gene integration.

"*Sleeping Beauty* and the RTS® approach are a powerful combination to improve the manufacturing process and instill control over CAR-modified T cells co-expressing cytokines such as membrane-bound IL-15. The collaboration with Intrexon and Merck KGaA, Darmstadt, Germany, has been a catalyst to progress these next-generation gene therapy technologies. We are excited by the progress and look forward to advancing this innovative approach toward the clinic in mid-2018," said Laurence Cooper, M.D., Ph.D., Chief Executive Officer of ZIOPHARM.

The interleukin-15 (IL-15) cytokine is increasingly recognized as a key driver of therapeutic effect in CAR-T therapy, including in a [recent Journal of Clinical Oncology publication](#) which correlated lymphoma remissions with elevated IL-15 levels. Through the RTS® gene switch, the expression of mbIL15 can be regulated to help CARs target cancers in a controlled manner, thus providing a new paradigm in T-cell therapy.

Additionally, the non-viral *Sleeping Beauty* transposon-transposase is an exceptional system for introducing genes encoding CARs and TCRs into T cells that holds multiple advantages over viral-based delivery systems. It simplifies genetic modification, and when coupled with reduced *ex vivo* processing, offers a pathway to shortened manufacturing and personalized T-cell therapies.

About Intrexon Corporation

Intrexon Corporation (NYSE: XON) is Powering the Bioindustrial Revolution with Better DNA™ to create biologically-based products that improve the quality of life and the health of the planet. The Company's integrated technology suite provides its partners across diverse markets with industrial-scale design and development of complex biological systems delivering unprecedented control, quality, function, and performance of living cells. We call our synthetic biology approach Better DNA®, and we invite you to discover more at www.dna.com or follow us on Twitter at [@Intrexon](https://twitter.com/Intrexon), on [Facebook](https://www.facebook.com/Intrexon), and [LinkedIn](https://www.linkedin.com/company/intrexon).

About ZIOPHARM Oncology, Inc.:

ZIOPHARM Oncology is a Boston, Massachusetts-based biotechnology company employing novel gene expression, control and cell technologies to deliver safe, effective and scalable cell- and viral-based therapies for the treatment of cancer and graft-versus-host-disease. The Company's immuno-oncology programs, in collaboration with Intrexon Corporation (NYSE:XON) and the MD Anderson Cancer Center, include chimeric antigen receptor T cell (CAR-T) and other adoptive cell-based approaches that use non-viral gene transfer methods for broad scalability. The Company is advancing programs in multiple stages of development together with Intrexon Corporation's RheoSwitch Therapeutic System® technology, a switch to turn on and off, and precisely modulate, gene expression in order to improve therapeutic index. The Company's pipeline includes a number of cell-based therapeutics in both clinical and preclinical testing which are focused on hematologic and solid tumor malignancies.

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Safe Harbor Statement

Some of the statements made in this press release are forward-looking statements. These forward-looking statements are based upon our current expectations and projections about future events and generally relate to our plans, objectives and expectations for the development of our business. Although management believes that the plans and objectives reflected in or suggested by these forward-looking statements are reasonable, all forward-looking statements involve risks and uncertainties and actual future results may be materially different from the plans, objectives and expectations expressed in this press release.

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