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Immune Design Provides Update from Two Discovery Platforms: DC-tropic ZVex Delivering Multiple Tumor Antigens (Conserved and Neo-Antigens) and G100 For Intratumoral Immunotherapy

SEATTLE and SOUTH SAN FRANCISCO, Calif., Dec. 05, 2016 (GLOBE NEWSWIRE) -- Immune Design, a clinical-stage immunotherapy company focused on oncology, today announced new data that highlight the broad product reach potential of both its Specific Antigen and Endogenous Antigen/Intratumoral immunization approaches.

ZVexMulti offers the potential to create products that deliver multiple tumor antigens (conserved and/or neo-antigens) to dendritic cells (DCs) *in vivo* within the same product

Immune Design recently presented preclinical data at SITC 2016 (Poster #195) showing that immunization with ZVexMulti (multi-genome ZVex) vectors expressing multiple antigens resulted in consistent induction of polyfunctional CD8 T cells against all delivered antigens, thereby overcoming the limitation of antigen competition. Moreover, immune responses were as high as, or higher than, those obtained by combining individually manufactured vectors, demonstrating the versatility and potency of ZVexMulti.

Immune Design scientists have also investigated the potential for ZVexMulti to deliver multiple MHC Class I and II putative neo-antigens in the CT.26 colon carcinoma model. Immune Design believes that ZVexMulti has the potential to deliver a significantly large number of neo-antigens, thus obviating the need for a proprietary predictive algorithm tools. These experiments were performed outside of the previously announced collaboration with Gritstone Oncology, which the two parties have agreed to terminate.

"These data collectively illustrate the range and flexibility of Immune Design's product discovery platforms to target both conserved tumor antigens and neo-antigens," said Jan ter Meulen, MD, PhD, Chief Scientific Officer at Immune Design. "These approaches offer the potential to reach a broad patient population, while addressing some of the current limitations of other immunization approaches."

G100 ASH data demonstrate eradication of lymphomas via synergy with local radiation

At the 58th American Society of Hematology (ASH) Annual Meeting in San Diego, California, on Monday, December 5 at 6pm Pacific, Immune Design is presenting data (Abstract #4166, Session: 625, "Intratumoral G100 Rescues Radiation-Induced T Cell Depletion and Has Synergistic Anti-Tumor Effect with Local Irradiation in A20 Lymphoma") showing the synergistic effects of the G100 product candidate in combination with local radiation therapy in eradicating lymphomas in preclinical models. These data further support Immune Design's ongoing randomized Phase 2 study in patients with follicular non-Hodgkin's lymphoma (NHL).

The research, authored by Ramesh Rengan, Eric Ford and Jeffery L. Schwartz of the University of Washington Department of Radiation Oncology, and Hailing Lu, Jessica Hewitt, Frank Hsu and Jan ter Meulen of Immune Design, evaluated the immune response and therapeutic effects of intratumoral administration of G100 alone, local radiation alone and G100 and local radiation given in concomitant therapy in a preclinical model of lymphoma. Results of combination therapy demonstrated:

- Synergistic antitumor effects in both injected as well as uninjected tumors (abscopal effects)
- Synergistic induction of pro-inflammatory cytokine and chemokine environment, as well as induction of genes governing antigen processing and presentation
- Increased infiltration of T cells, including both CD4 and CD8 T cells, in treated tumors
- In contrast, tumors that received only radiation but no G100 had significantly decreased levels of T lymphocytes as compared to untreated tumors

"These findings highlight the potential beneficial effect that immunotherapy with G100 could provide when given with radiation by modulating the tumor microenvironment to generate a systemic, durable T-cell anti-tumor response," said Ramesh Rengan, M.D., Associate Professor, University of Washington Department of Radiation Oncology. "As shown in this model, G100 may hold potential as a treatment for lymphoma patients."

About ZVex and ZVexMulti

ZVex is Immune Design's discovery platform, initially designed to deliver a single RNA tumor antigen selectively directly to the patient's DCs to generate tumor antigen-specific polyclonal cytotoxic T cells (CTLs). ZVex is an engineered recombinant viral vector that selectively targets DCs *in vivo* to deliver any RNA gene of interest. Further development of this platform has yielded ZVexMulti, enabling Immune Design to deliver multiple RNA tumor antigens within the same product candidate.

About G100

G100 is a product candidate from Immune Design's GLAAS™ discovery platform. It is a synthetic small molecule toll-like receptor-4 (TLR-4) agonist, Glucopyranosyl Lipid A (GLA), formulated in a stable and oil emulsion. G100 is one of the molecules utilized in Immune Design's intratumoral immune activation, or Endogenous Antigen, approach. It leverages the activation of the innate immune system, including DCs, in the tumor microenvironment to create a robust immune response against the tumor's preexisting diverse set of antigens. A growing set of clinical and preclinical data have demonstrated the ability of G100 to activate existing tumor-infiltrating lymphocytes and promote antigen-presentation and the recruitment of T cells to the tumor to affect clinical outcome, as well as convert immunosuppressive M2-type tumor associated macrophages to a pro-inflammatory, M1-type.

About Immune Design

Immune Design is a clinical-stage immunotherapy company employing next-generation *in vivo* approaches to enable the body's immune system to fight disease. The company's technologies are engineered to activate the immune system's natural ability to generate and/or expand antigen-specific cytotoxic T cells, while also enhancing other immune effectors, to fight cancer and other chronic diseases. CMB305 and G100, the primary focus of Immune Design's ongoing immuno-oncology clinical programs, are products of its two synergistic discovery platforms, ZVex® and GLAAS™, the fundamental technologies of which were licensed from the California Institute of Technology and the Infectious Disease Research Institute (IDRI), respectively. Immune Design has offices in Seattle and South San Francisco. For more information, visit www.immunedesign.com.

Forward Looking Statement:

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as "may," "will," "expect," "plan," "anticipate," "estimate," "intend", "potential" and similar expressions (as well as other words or expressions referencing future events, conditions or circumstances) are intended to identify forward-looking statements. These forward-looking statements are based on Immune Design's expectations and assumptions as of the date of this press release. Each of these forward-looking statements involves risks and uncertainties. Actual results may differ materially from these forward-looking statements. Forward-looking statements contained in this press release include, but are not limited to, statements about the timing, progress, scope and outcome of preclinical studies and clinical trials, and the clinical application of Immune Design's product candidates and technology platforms. Many factors may cause differences between current expectations and actual results including unexpected safety or efficacy data observed during preclinical or clinical studies, changes in expected or existing competition, changes in the regulatory environment and unexpected litigation or other disputes. Success in preclinical testing and early clinical trials does not ensure that later clinical trials will be successful. Other factors that may cause Immune Design's actual results to differ from those expressed or implied in the forward-looking statements in this press release are discussed in Immune Design's filings with the U.S. Securities and Exchange Commission, including the "Risk Factors" sections contained therein. Except as required by law, Immune Design assumes no obligation to update any forward-looking statements contained herein to reflect any change in expectations, even as new information becomes available.

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