Immune Design Presents Data on the Mechanism of Action of G100 via TLR4 Expressed in B Cell Malignancies at the Inaugural AACR International Meeting Advances in Malignant Lymphoma

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- G100 directly targets and modifies TLR4 expressing malignant B cells making them more visible to the anti-tumor immune response-

SEATTLE and SOUTH SAN FRANCISCO, Calif., June 25, 2018 (GLOBE NEWSWIRE) -- Immune Design (Nasdaq:IMDZ), an immunotherapy company focused on novel therapies in oncology, today announced preclinical and translational data that support the mechanism of action of G100 in patients with indolent non-Hodgkin Follicular lymphomas (FL). These data were presented at the Inaugural AACR International Meeting Advances in Malignant Lymphoma: Maximizing the Basic-Translational Interface for Clinical Application 2018 in Boston.

The research presented was designed to understand why high TLR 4 expression in patient's samples correlated with clinical responses to G100 treatment. By analyzing patient samples, cell lines and mouse lymphoma models the following was observed:

- Murine and human B-lymphoma cell lines express TLR4 and respond *in vitro* to G100 stimulation with upregulation of MHC-II and co-stimulatory markers CD40 and CD80, typical of the activation of antigen-presenting function of B-cells;
- *In vivo* murine tumors of lymphoma models respond to treatment with G100 in injected tumors as well as distal, untreated tumors showing local and abscopal tumor control, mediated by systemic T-cell response;
- Approximately 70% of follicular lymphoma patients in a Phase 1/2 study express TLR4 in >50% of tumor cells in baseline biopsies. TLR4 expression ranging from 10%-100% of tumor cells was also detected in biopsies of patients with marginal zone lymphoma, small lymphocytic lymphoma, diffuse large B-cell lymphoma and cutaneous T-cell lymphoma; and
- In an ongoing Phase 2 trial of G100 with low dose radiation and pembrolizumab, almost all patients with an objective tumor response (³50% tumor shrinkage) showed TLR4 expression in >50% of tumor cells.

"These data illustrate that in addition to the known activation by G100 of dendritic cells and macrophages in the tumor microenvironment, G100 can also act directly on malignant B cells expressing TLR4. G100 treated malignant B cells may become more visible to the anti-tumor immune response, which correlates with clinical responses following intratumoral therapy with G100." said Jan ter Meulen, MD, PhD, Chief Scientific Officer at Immune Design. "In FL patients, a strong correlation was observed between expression of TLR4 in more than 50% of tumor cells and objective responses following G100 therapy. This discovery potentially allows for a TLR4 biomarker-targeted G100 therapy of other tumor types, independent of histology."

The full poster presentation can be accessed from the publications page of the Immune Design website.

About G100

G100 is a product candidate from Immune Design's internal discovery platforms and contains a potent synthetic small molecule toll-like receptor-4 (TLR-4) agonist, Glucopyranosyl Lipid A (GLA). G100 leverages the activation of both innate and adaptive immunity in the tumor microenvironment to create an 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 tumor-infiltrating lymphocytes, macrophages and dendritic cells, and promote antigen-presentation and the recruitment of T cells to the tumor. The ensuing induction of local and systemic immune responses has been shown to result in local and abscopal (shrinking of tumors outside the scope of the localized treatment) tumor control. G100 was evaluated in a Phase 1 study in Merkel cell carcinoma patients and produced a 50% overall response rate per protocol and a favorable safety profile. Currently, G100 is being evaluated as both a monotherapy (with local radiation) and in combination with Merck's anti-PD-1 agent, pembrolizumab, pursuant to a clinical collaboration with Merck, in a randomized Phase 1/2 trial in patients with follicular non-Hodgkin lymphoma.

About Immune Design

Immune Design is a late-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 immune cells to fight cancer and other chronic diseases. CMB305 and G100, the leading product candidates with broad potential in oncology, are based on the company's two technology platforms that are potent stimulators of the immune system – ZVex ® and GLAAS® - the fundamental technologies of which were licensed from the California Institute of Technology and the Infectious Disease Research Institute (IDRI), respectively. Both ZVex and GLAAS also have potential applications in infectious disease and allergy indications, which are being developed through ongoing pharmaceutical collaborations. Immune Design has offices in Seattle and South San Francisco. For more information, please visit www.immunedesign.com.

Cautionary Note on Forward-Looking Statements

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" 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 of initiation, progress, scope and outcome of clinical trials for Immune Design's product candidates and the reporting of clinical data regarding Immune Design's product candidates . Many factors may cause differences between current expectations and actual results including unexpected safety or efficacy data observed during preclinical or clinical studies, clinical trial site activation or enrollment rates that are lower than expected, changes in expected or existing competition, changes in the regulatory environment, failure of Immune

Design's collaborators to support or advance collaborations or product candidates and unexpected litigation or other disputes. 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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