

## Press Release

22 October 2018

### Immunicum AB (publ) Presents Preclinical Results of Ilixadencel in Combination with Checkpoint Inhibitors and Immune Enhancers at ESMO 2018

– Intratumoral treatment with ilixadencel, an off-the-shelf cell-based immune primer, provides synergistic anti-tumor effect and enhances efficacy of anti-PD-1 and anti-CD137 treatment in animal model –

Immunicum AB (publ; IMMU.ST) announced today the presentation of preclinical results that showed anti-tumor synergy between its lead product ilixadencel and a checkpoint inhibitor or an immune enhancer in a poster at the European Society for Medical Oncology (ESMO) 2018 Congress. The results of the study highlight the ability of intratumoral ilixadencel to enhance anti-tumor response and survival of systemic checkpoint inhibitors (anti-PD-1) or immune enhancers (anti-CD137/4-1BB). This emphasizes the potential for ilixadencel in multiple future immuno-oncology combination strategies by incorporating complementary mechanisms of action.

“The treatment of cancer has evolved to include a multi-pronged approach to circumvent the challenges of an almost non-existent immune response at the site of the tumor tissue,” said Associate Professor Alex Karlsson-Parra, Chief Scientific Officer of Immunicum and the lead author of the study. “We were able to demonstrate that the immune-priming potential of ilixadencel and its ability to recruit and activate endogenous dendritic cells and NK cells highly complements the activity of checkpoint inhibitors and immune enhancers in eliciting an anti-tumor response. We are pleased to have had the opportunity to present this preclinical data among key opinion leaders in the immuno-oncology field at ESMO as we continue to validate our approach with the goal for ilixadencel to be included as a key component in future combination treatments for solid tumors.”

The *in vivo* studies were conducted at Charles River Laboratories (Morrisville, NC, USA) and the *in vitro* studies and production of mouse ilixadencel were conducted at Rudbeck Laboratory, Uppsala University, Sweden. The studies yielded the following results:

1. Intratumoral immune priming with ilixadencel in combination with anti-PD-1 overcomes resistance to anti-PD-1 monotherapy as shown by a significant delay in tumor progression and prolonged survival. Notably, a comparative intratumoral immune primer (Poly I:C, a Toll-like receptor ligand) did not overcome anti-PD-1 resistance.
2. Combination treatment with ilixadencel and the immune enhancer anti-CD137 had a synergistic effect in delaying tumor progression and prolonging survival. This combination also increased the number of animals with complete tumor response.
3. Ilixadencel/anti-CD137 treated mice that had a complete tumor response also resisted tumor re-challenge, indicating the formation of an adaptive immune memory.
4. Human T cells and NK cells stimulated with ilixadencel within an *in vitro* co-culture model were shown to substantially upregulate the co-stimulatory receptor CD137, providing an additional explanation for the synergistic effect of the combination treatment seen in the mouse model.

The poster titled, “Intratumoral administration of pro-inflammatory allogeneic, off-the-shelf, dendritic cells in combination with anti-PD-1 or anti-CD137 has a synergistic anti-tumor effect” (poster #440P) was presented by Immunicum’s Chief Scientific Officer, Alex Karlsson-Parra, MD, PhD on October 22, 2018 at 12:45 pm CET and is available on Immunicum’s website through the following link: <http://immunicum.se/technology/publications/>

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### About ilixadencel

Ilixadencel, a cell therapy product, is an off-the-shelf cancer immune primer, developed for the treatment of solid tumors. Its active ingredient is activated allogeneic dendritic cells, derived from healthy blood donors. Intratumoral injection of these cells generates an inflammatory response which in turn leads to tumor-specific activation of the patient's cytotoxic T-cells.

### FOR MORE INFORMATION, PLEASE CONTACT:

Carlos de Sousa, CEO, Immunicum  
Telephone: +46 (0) 31 41 50 52  
E-mail: [info@immunicum.com](mailto:info@immunicum.com)

Michaela Gertz, CFO, Immunicum  
Telephone: +46 70 926 17 75  
E-mail: [ir@immunicum.com](mailto:ir@immunicum.com)

### MEDIA RELATIONS

Gretchen Schweitzer or Jacob Verghese  
Trophic Communications  
Telephone: +49 89 2388 7735 or +49 173 364 1607  
E-mail: [ir@immunicum.com](mailto:ir@immunicum.com)

### ABOUT IMMUNICUM AB (PUBL)

Immunicum is establishing a unique immuno-oncology approach through the development of allogeneic, off-the-shelf cell-based therapies. Our goal is to improve survival outcomes and quality of life by priming the patient's own immune system to fight cancer. The company's lead product ilixadencel, consisting of pro-inflammatory allogeneic dendritic cells, has the potential to become a backbone component of modern cancer combination treatments in a variety of solid tumor indications. Founded and based in Sweden, Immunicum is publicly traded on the Nasdaq Stockholm. [www.immunicum.com](http://www.immunicum.com)