ASX Announcement

Imugene's onCARlytics combination with CD19 bispecific antibody blinatumomab for solid tumors presented at SITC Annual Meeting

Sydney, Australia, 11 November 2022: Imugene Limited (ASX:IMU), a clinical stage immuno-oncology company, is pleased to announce that its onCARlytics (CF33-CD19t) oncolytic virus in combination with CD19 bispecific antibody blinatumomab to target solid tumors was presented at the renowned Annual Meeting for the Society for Immunotherapy of Cancer (SITC), held in Boston, USA on 8-12 November 2022.

Dr. Anthony Park, from Dr. Saul Priceman's Lab at City of Hope, presented "Combination immunotherapy using a novel chimeric oncolytic virus to redirect CD19 bispecific T cell engagers to target solid tumors".

Key findings of the presentation are as follows;

- T-cell activation markers along with IFNγ and IL-2 secretion increase in response to blinatumomab in an onCARlytics dose-dependent manner in co-culture.
- Blinatumomab initiates T-cell-mediated tumor killing in onCARlytics infected solid tumor cells.
- Blinatumomab treatment following onCARlytics infection and T-cell treatment shows a significantly higher tumor regression compared to onCARlytics, blinatumomab, or T-Cells alone in human tumor xenograft models of TNBC.
- This combination immunotherapy approach shows that blinatumomab can be redirected to potently target solid tumors with onCARlytics.

The poster is available on Imugene's website: https://www.imugene.com/conference-presentations.

Imugene CEO/MD Leslie Chong said "Blinatumomab, sold under the brand name Blincyto, is a bispecific T cell engager antibody that targets CD19 and is used to treat a particularly acute form of leukemia. Now combining this with our novel CD19-expressing onCARlytics, we are pleased to see an ability to deliver an outstanding impact including tumor killing and higher tumor regression, which will ideally lead to improved outcomes for cancer sufferers. The results certainly support further development of the combination and program."

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About Blinatumomab combination with onCARlytics

Bispecific CD19-directed CD3 T-Cell engager (BiTE) monoclonal antibodies have emerged as a promising immunotherapy strategy for the treatment of hematological malignancies. Blinatumomab, an FDA approved BiTE carrying CD19 and CD3 scFv's has shown durable clinical responses for the treatment of B-Cell acute lymphoblastic leukemia (B-ALL). Despite a wide array of research in hematological malignancies, BiTE therapies for the treatment of solid tumors have remained a significant challenge in demonstrating comparable efficacy. Solid tumors often lack amenable and targetable tumor antigens, and in many tumor types the tumor microenvironment (TME) is largely known to be immunologically "cold" and a barrier to immunotherapy responses.

Oncolytic viruses have recently gained traction in the field for the treatment of solid tumors because of their ability to target tumor-intrinsic properties and reshape the immunosuppressive TME. We have previously described the use of a chimeric oncolytic vaccinia virus (OV), CF33, for the treatment of a variety of tumor cell types, including triple-negative breast cancer, lung cancer, and liver cancer[1]. Building on this, we generated an OV that expresses a non-signaling, truncated CD19 (CD19t) antigen called onCARlytics (CF33-CD19t), onto the surface of infected tumor cells prior to virus mediated tumor lysis, which redirected CD19-targeting chimeric antigen receptor (CAR) T cell activity against solid tumors[2]. Using this OV, we have created a universal system that is agnostic to solid tumor type and can be provided with a targetable and well-characterized antigen. We now demonstrate that onCARlytics can redirect cytolytic functions of blinatumomab in mice. We have demonstrated that tumors infected with onCARlytics in combination with blinatumomab show significant tumor cell killing. Using this approach, we show that a clinically-approved

CD19-directed BiTE can be combined with onCARlytics to activate endogenous immune responses against solid tumors.

References

[1] *Warner SG, Kim SI, Chaurasiya S, O'Leary MP, Lu J, Sivanandam V, Woo Y, Chen NG, Fong Y. A Novel Chimeric Poxvirus Encoding hNIS Is Tumor-Tropic, Imageable, and Synergistic with Radioiodine to Sustain Colon Cancer Regression. Mol Ther Oncolytics. 2019 Apr 11;13:82-92. doi: 10.1016/j.omto.2019.04.001. PMID: 31061881; PMCID: PMC6495072.*

[2] *Park AK, Fong Y, Kim SI, Yang J, Murad JP, Lu J, Jeang B, Chang WC, Chen NG, Thomas SH, Forman SJ, Priceman SJ. Effective combination immunotherapy using oncolytic viruses to deliver CAR targets to solid tumors. Sci Transl Med. 2020 Sep 2;12(559):eaaz1863. doi: 10.1126/scitranslmed.aaz1863. PMID: 32878978; PMCID: PMC9126033.*

About Imugene (ASX:IMU)

Imugene is a clinical stage immuno-oncology company developing a range of new and novel immunotherapies that seek to activate the immune system of cancer patients to treat and eradicate tumours. Our unique platform technologies seek to harness the body's immune system against tumours, potentially achieving a similar or greater effect than synthetically manufactured monoclonal antibody and other immunotherapies. Our product pipeline includes multiple immunotherapy B-cell vaccine candidates and an oncolytic virotherapy (CF33) aimed at treating a variety of cancers in combination with standard of care drugs and emerging immunotherapies such as CAR T cells for solid tumors. We are supported by a leading team of international cancer experts with extensive experience in developing new cancer therapies with many approved for sale and marketing for global markets.

Our vision is to help transform and improve the treatment of cancer and the lives of the millions of patients who need effective treatments. This vision is backed by a growing body of clinical evidence and peer-reviewed research. Imugene is well funded and resourced, to deliver on its commercial and clinical milestones. Together with leading specialists and medical professionals, we believe Imugene's immuno-oncology therapies will become foundation treatments for cancer. Our goal is to ensure that Imugene and its shareholders are at the forefront of this rapidly growing global market.

Release authorised by the Managing Director and Chief Executive Officer

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