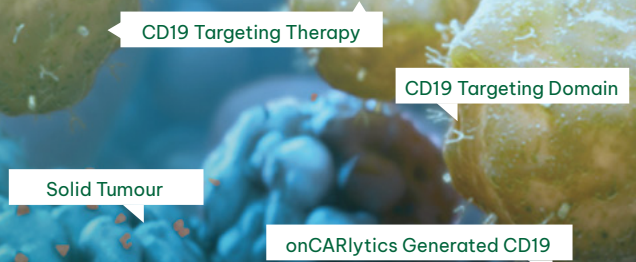


Fact Sheet

ONCARLYTICS TURNS CD19 TARGETING THERAPIES AGAINST SOLID TUMOURS



THE TECHNOLOGY

onCARlytics (CF33-CD19) is a novel immunotherapy utilising the CF33 oncolytic virus to deliver and present CD19 antigen on the surface of cancer cells promoting utilisation of combination with CD19 targeting agents against solid tumours.

The scientific team at City of Hope including Dr Saul Priceman, Ph.D. (Assistant Professor in City of Hope's Department of Hematology and Hematopoietic Cell Transplantation), Dr Anthony Park, Ph.D. (postdoctoral research fellow in the Priceman Lab), Dr Stephen Forman, M.D. (Professor of City of Hope's Department of Hematology and Hematopoietic Cell Transplantation and Director of the T Cell Therapeutics Research Program), and Dr Yuman Fong, M.D. (Professor and the Sangiacomo Family Chair in Surgical Oncology at City of Hope) utilised Imugene's CF33 oncolytic virus as a delivery vector to deliver CD19 targets to solid tumour cells, onCARlytics (CF33-CD19). In solid tumours, onCARlytics followed by treatment with CD19 targeting agents, such as CAR T therapy, could lead to significant effects as seen in blood cancers, and lead to a universal cancer treatment.

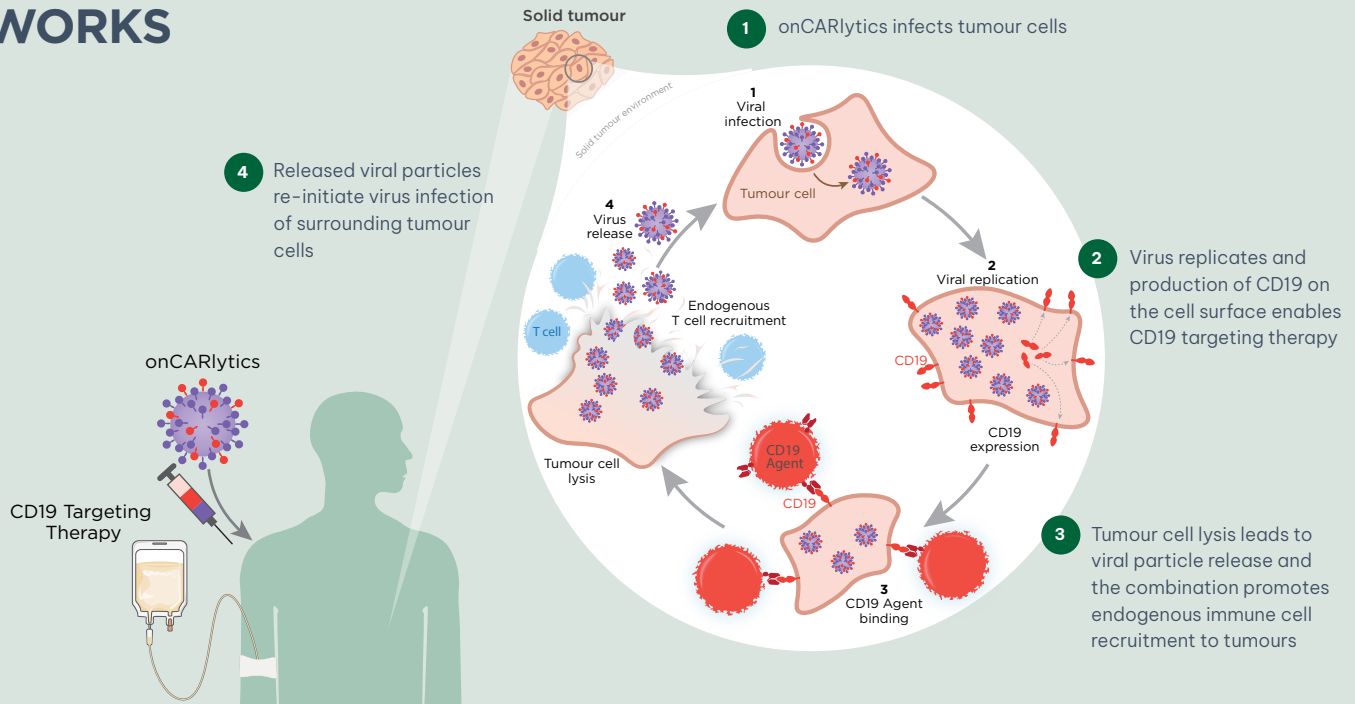
In pre-clinical trials that included triple-negative breast, pancreatic, prostate, ovarian, brain, and head and neck cancers, onCARlytics in combination with CD19 targeting cell therapy has shown greater potency against solid tumours than either CF33 or CD19 targeting therapy alone. Introducing the virus reversed the tumour's suppressed microenvironment, making it more receptive to receiving CD19 targeting

cell therapy. This significant, ground breaking research was featured on the front page of Science Translational Medicine¹ and recently presented at the Society for Immunotherapy of Cancer (SITC) annual meeting.

Researchers have also shown that mice cured of their solid tumours with the onCARlytics in combination with CAR T Cell therapy demonstrated prolonged protective anti-tumour immunity. Once the immune system eradicates the tumours with the combination treatment, it builds a memory response shielding the mice against tumour recurrences.

Cell therapy enables a patient's own immune system to seek out and kill tumour cells. Our body's immune system is made up of millions of cells that protect the body from infection and cancers. Importantly, this system includes T Cells, which have the capacity to destroy abnormal cells within the body including cancerous cells. However, cancer cells evade the body's defenses by generating signals on their cell surface that shield them from recognition by the immune system. Hence the focus by the cancer research community is on enhancing the immune system to recognise, attack, and destroy cancer cells.

HOW IT WORKS

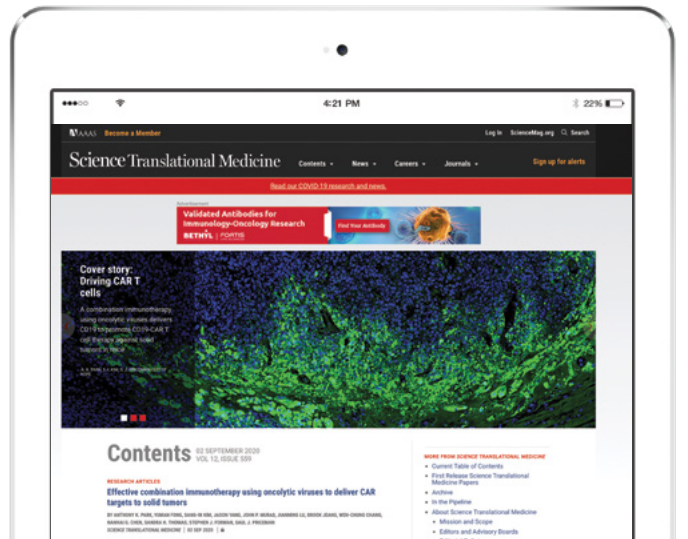


CD19 targeting agents, such as CAR T and bispecifics (blinatumomab), have demonstrated significant success and potential to treat patients with blood cancers. Agents such as KYMRIA[®], YESCARTA[®], TECARTUS[®], and BREYANZI[®] and BLINCYTO[®] have secured FDA approvals. Blood cancer diagnoses once thought of as terminal, with no other options to explore, are now seeing durable and meaningful remissions for patients treated with CD19 targeting agents. CAR T Cell and bispecific therapies are an exciting breakthrough in the treatment hematologic malignancies. Unfortunately, blood cancers only represent about 10% of all cancer types. The success of these therapies in the setting of solid tumours, which represents ~80% cancers, has been limited.

One of the main reasons for the limited success of CAR T therapy in solid tumours is the lack of selective targets on solid tumour cells, such as CD19 (present on blood cancer cells).

onCARlytics utilises the CF33 oncolytic virus to deliver CD19 antigens to solid tumour cells, enabling CD19 targeting therapy to treat solid tumours.

The first clinical trial is anticipated to start in 2023 and will evaluate the safety and efficacy of onCARlytics in combination with a CD19 targeting therapy in patients with solid tumours.



References

1. Park ak, et al. 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/Scitransmed.Aaz1863. Pmid: 32878978; pmcid: pmc9126033.



ASX:IMU

Headquartered in Australia, Imugene is a clinical stage immunology company developing a range of new treatments that activates the immune system of cancer patients to identify and eradicate tumours.

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