

Point-of-care device to deliver affordable life-saving blood cancer immunotherapy

Providing micro and nano fabrication facilities for Australia's researchers, students and industry

Advancements in the manufacturing of life-saving CAR-T (chimeric antigen receptor) cell therapy has potential to improve patient access to blood cancer immunotherapy.

South Australian researchers have developed and patented a novel microfluidic methodology that addresses some of the current bottlenecks of the CAR-T cell manufacturing processes, a cutting-edge cellular immunotherapy for severe forms of blood cancer.

The micro-sized device was developed by a team of researchers from the University of South Australia (UniSA) Future Industries Institute in collaboration with local immunotherapy company Carina Biotech and the South Australian node of the Australian National Fabrication Facility (ANFF-SA).

UniSA's Future Industries Institute Dr Mona Elsemary, said her aim was to ultimately reduce the cost of manufacturing, improve performance and most importantly, make treatment more readily available and affordable for people living with blood cancer.

"The high cost of CAR-T cell therapy is largely due to the complex manufacturing process requiring specialised cleanroom facilities," said Mona. "By developing a technology that can improve the quality of CAR

T cells products at the point-of-care device, we hope to provide a methodology that can rescue out-of-spec patients' products and ultimately facilitate decentralised manufacturing process in treating hospitals who deliver CAR-T therapy to cancer patients."

The rapid prototyping and optimisation of Mona's microfluidic device was completed in ANFF-SA's state-of-the-art class 100 cleanrooms using cutting-edge lithography equipment.

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Dr Mona Elsemary, University of South Australia ”

"ANFF-SA has played a key role in the translation of my research, allowing the development of rapid prototypes without the significant investment in capital equipment and facilities," said Mona. "They provided the necessary training and are very friendly, knowledgeable and always happy to give advice and help make it happen."

The clinical effectiveness of CAR-T cell

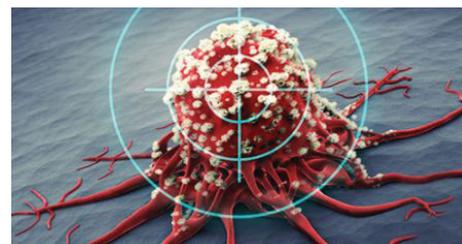


therapy for late stage cancer patients is a constant motivator for Mona's ground-breaking research, which has gained the attention of global CAR-T cell therapy expert, Prof Mike Jensen, attracted world-wide media interest and resulted in a patent being filed and licensed to Carina Biotech.

Mona is looking forward to the final stage of prototyping the device for clinical validation prior to commercialisation.

Co-located at UniSA's Mawson Lakes campus and Flinders University, ANFF-SA provides researchers, academics and industry with open access to world-class micro and nanofabrication facilities, equipment and expertise.

If you would like more information on ANFF-SA or if we can assist with your next project, please contact Simon Doe on 8302 5226 or visit www.anff-sa.com



South Australian Node of the Australian National Fabrication Facility

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