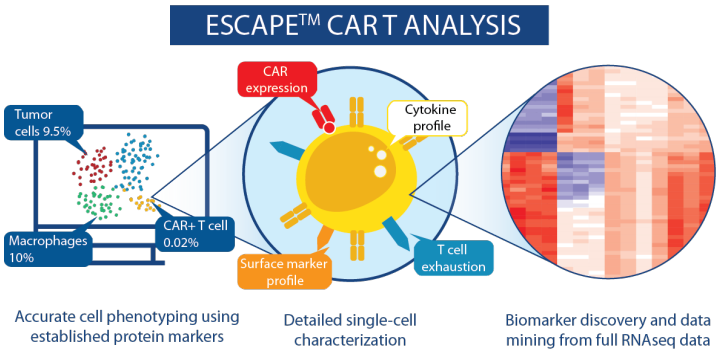
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Proteona launches novel assay for CART cell characterization

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ESCAPE(TM) RNA Sequencing Technology for cell therapy and Immuno-Oncology at genomic and proteomic analysis platform



Singapore based Proteona Pte. Ltd., on 10 June 2019, announced the launch of its latest ESCAPE™ proteogenomics assay designed specifically for Chimeric Antigen Receptor (CAR) T cell characterization. This is the first commercial product designed to characterize both RNA and protein expression levels across thousands of single CAR T cells. Through the use of simultaneous gene and protein expression analysis, the ESCAPE™ CAR T assay is able to identify CAR-positive cells, measure changes in cytokine expression, deeply phenotype cells through measuring the expression of 25 key cell surface proteins and discover new gene expression patterns. Together with Proteona's state-of-the-art data analysis support, the ESCAPE™ CAR T assay provides rich information that can be used at all stages of the CAR T workflow, from initial cell collection to post-infusion patient monitoring.

The Proteona CAR T assay is based on the Enhanced Single Cell Analysis with Protein Expression (ESCAPE^{TM}) RNA sequencing technology, which uses DNA-barcoded antibodies to capture proteomic and gene expression data simultaneously at the single cell level.

CAR T cells are a promising therapy against aggressive blood cancers and solid tumours. They are manufactured from T cells, immune cells that are able to recognize specific markers on pathogens or abnormal cells and destroy them. To manufacture CAR T, human T cells are harvested and then modified to target specific cancer antigens, so that they are able to find and kill cancer cells once infused back to the patient. CAR T manufacturing is a complex process, and there is a large range of variations in patient response in terms of toxicity and efficacy. It is still not clear what the mechanisms are that determine the safety and functionality of CAR T cell treatment. The new CAR T ESCAPE™ assay now provides the most comprehensive tool to shed light on the complex CAR T mechanisms, opening a new path for the development of safer cell therapies.

The Enhanced Single Cell Analysis with Protein Expression, ESCAPE™ platform, the first commercial service for measuring both gene and protein expression at the single cell level, is a customizable platform with current pre-set panels available for measuring multiple cell types

"We are excited about releasing our latest product targeted specifically for researchers, CAR T cell manufacturers, and clinicians to evaluate the link between cell characteristics and clinical outcomes. CAR T and cell therapy, in general, are the most complex therapeutics in use today, and it is absolutely imperative to study the therapy at the level of the single

cell. No other technology can perform such detailed profiling of individual cells. Moreover, by working with Proteona, we help you make sense of the vast amount of data collected," says Dr Andreas Schmidt, CEO of Proteona.

"As early adopters of the ESCAPE™ CAR T assay, we find it extremely valuable to be able to obtain an in-depth understanding of CAR T samples on a single cell level," says Dr. Patrick Schmidt, Principle Investigator at the National Center for Tumor Diseases (NCT) Heidelberg, part of the German Cancer Research Center (DKFZ). An expert in CAR T product engineering and manufacturing, he added "Using only a small amount of blood or bone marrow sample, we get not only an overview of the CAR T cell persistence but also a snapshot of individual CAR T cell's activation status and characteristics. This is the most comprehensive tool available both for quality control and for monitoring patient response in clinical studies."