



PAN-CANCER-TARGETING UNIVERSAL T-CELL THERAPIES

Problem – Challenge

T cell therapies have transformed the cancer landscape due to their effective killing of cancer cells and their continued persistence within the patient's body. Current cell therapies such as CAR-Ts have shown dramatic survival improvements in liquid cancers but have severe limitations in solid tumors due to the lack of cancer-specific targets against which to direct the T cells.

Solution

TCR therapies overcome some of these limitations by targeting cancer-specific peptides presented on the cell surface by human leukocyte antigen (HLA) molecules. However, HLAs are highly polymorphic and current TCR therapies need to be matched to the patient's HLA, significantly limiting the eligible patient population.

MR1 (MHC class I-related molecule 1) is monomorphic and is therefore the same in all patients. Since MR1 binds small metabolite antigens that are highly specific to cancer cells and are shared across liquid and solid tumors, it creates the opportunity for pan-cancer-targeting, off-the-shelf T cell therapies.

Dr. Lucia Mori and Prof. Gennaro De Libero from the Department of Biomedicine of the University of Basel have investigated MR1 specific TCR sequences for years and have brought their technology into Matterhorn Biosciences AG, a spin-off backed by 30 Mio CHF seed capital from Versant Ventures.

Matterhorn Biosciences AG benefits greatly from the Versant-backed Discovery Engine Ridgeline in Basel, which provides development know-how as well as laboratory infrastructure and trained personnel.

