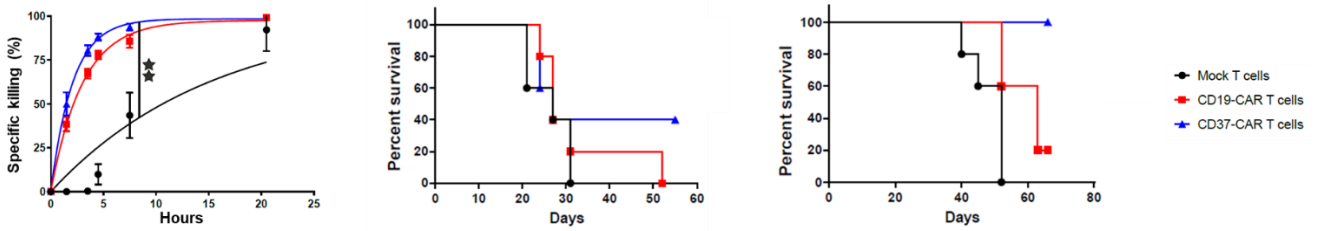
Anti-CD37 CAR for Lymphoma

Executive summary

By combining the antibody binding region of an anti-CD37 antibody and the signaling regions of a T cell receptor, scientists at Oslo University Hospital (Norway) have developed a new chimeric antigen receptor (CAR) targeting CD37. CD37 is a marker specific for B cell lymphoma, alongside CD19 and CD20, which are examples of more established markers. CD37 represents an attractive alternative target as suggested by our expression data where CD37 is shown to be stronger and more stable among lymphoma patient groups than already approved targets. We have accomplished pre-clinical validation experiments and demonstrated efficacy in a mouse model, as well as specificity, and safety.



Left: CD37CAR T cells and CD19CAR T cells demonstrate comparable efficiency in lymphoma cell line killing (BL-41)
Middle: CD37CAR T cells and CD19CAR T cells demonstrate comparable efficiency in prolonging survival of NSG mice engrafted with tumor B cells (BL-41). Tumor size were also drastically reduced (n = 5 for each group).
Right: CD37CAR T cells are still efficient in prolonging survival (and reducing tumor size) in a partially negative CD19 cell line (U2932), whereas the efficacy of CD19CAR T cells are reduced (n = 5 for each group).

Business opportunity

This technology represents an opportunity to develop a new immunotherapy with advantageous capabilities compared to marketed immunotherapies for B-cell lymphoma.

Technology/Advantage

Our invention for CD37 CAR is unique and CARs have multiple advantages over other forms of immunotherapies, such as TCR and antibody-based immunotherapy, including effective and specific killing of tumor cells in a matter of hours. The CD37 CAR mRNA is highly transportable and can be shipped to a cell therapy site anywhere in the world, where it can be electroporated into primary lymphocytes for autologous cell therapy treatment.

IPR

A patent family based on WO2017118745 has entered national phase in US, CA and EP.

Development plans

Retroviral assessment and first-in-man under hospital exemption in a transient setting for refractory patients.

Business offer

Inven2 AS, the TTO at Oslo University Hospital seeks to out-license the IP.

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