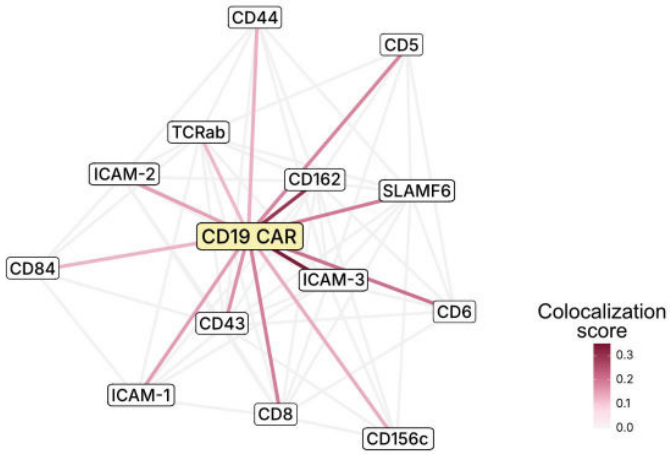
PNA shows where the CAR sits and how CAR T cells change on tumor contact

CD19 CAR T cells (FMC63-based) profiled alone and after 4 or 24 hours with CD19+ Raji tumor cells, using Pixelgen Proxiome Immuno 155 with an anti-FMC63 detection antibody.



The CD19 CAR:

Colocalizes with

TCRαβ · CD5 · CD6 · CD44 · SLAMF6 · ICAM-1/2/3 · CD8

Segregates from

CD52 · CD55 · CD59 · CD81 · CD53 · CD47 · FAS · CD38

WHAT THE STUDY FOUND

1. The CD19 CAR displays a highly specific organization, with low degree of clustering.
2. The CAR colocalized with functional proteins TCRαβ, CD5, CD6, CD44 and ICAM-1/2/3, and segregated from tetraspanins (CD53, CD81) and raft proteins (CD52, CD55, CD59).
3. Following tumor encounter, CAR T cells upregulated coreceptors and checkpoint molecules but also acquired receptors through trogocytosis, particularly in the CD25+PD-1+ population.

WHY IT MATTERS

CAR function, such as tonic signaling and tumor binding, depends on where the CAR sits. Understanding how CAR organization is shaped by receptor design, expansion protocol and responses can enable the design of more efficient CAR T cells in the future.

Profile your CAR T products

Pixelgen Proxiome kits with CAR detection antibodies (FMC63, FLAG, G4S, Whitlow) measure abundance, clustering and colocalization of +150 proteins per cell.

Source: Pixelgen application note AN00004 (v1.00), Uncovering the CD19 CAR T cell protein interactome using the Proximity Network Assay.

For Research Use Only. Not for use in diagnostic procedures.