

Overview

Chimeric Antigen Receptor T cells (CARTs) and Tumor Infiltrated Lymphocytes (TILs) are innovative T Cell therapies in the field of immunotherapy with increasing promise against hematologic malignancies and solid tumors.

T-Cell Therapy: Activated T Cells (CART and TILs) show killing activity against tumoral cells

Vivia's Immuno-Oncology Assays allow for the comparison of CART and/or TILs killing activity and mechanisms of action when combined with tumoral cells. Vivia can analyze any cellular therapies involving CARTs and/or TILs reaching out solutions for activated T-Cells therapies.

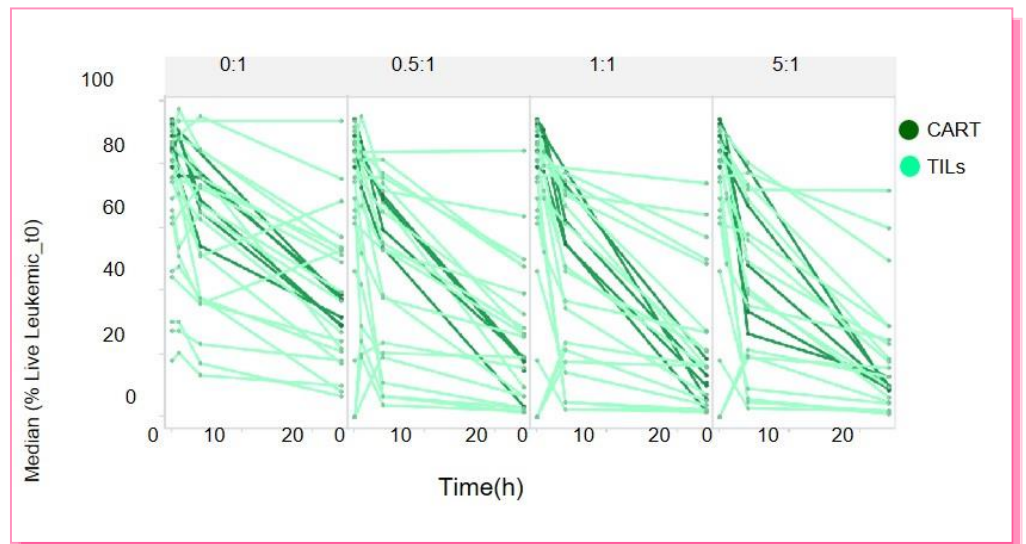



Figure 1 - Activated T cells (CART and TILs) showed killing activity against tumoral cells. CART show less interpatient variability.

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Do CAR T kill better vs TIL cells?

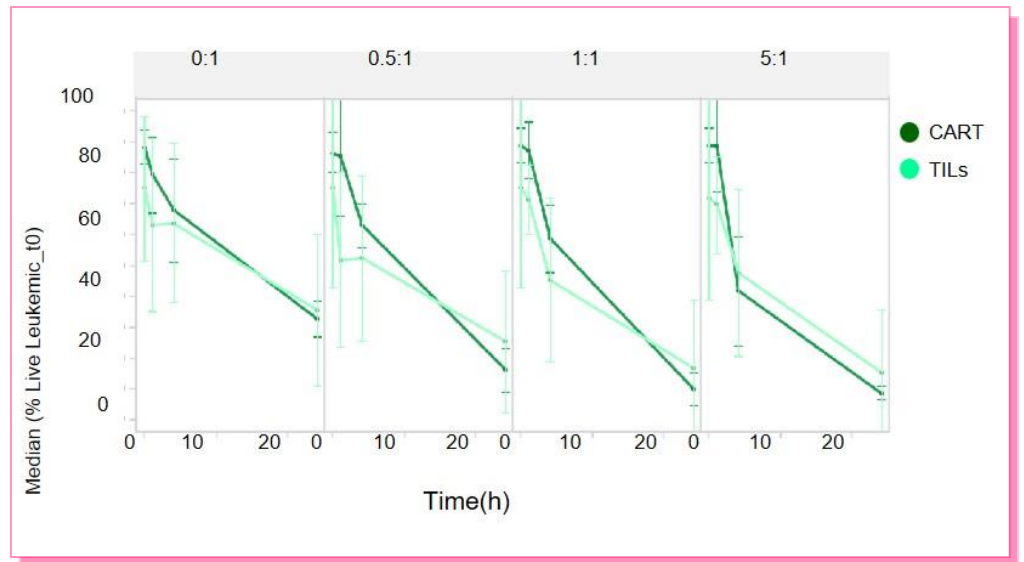


Figure 2 - TILs kill similarly to CART. TILs showed similar kinetics and potency to CART.



Do we observe fratricide killing?

CART and TILs mixed with tumoral cells behave differently over time. Figure 3 (see below) show CART die rapidly (4h) and CART left alive show minimal killing activity. This could be explained as a result of fratricide killing among CART cells, where CART by trogocytosis acquire the tumor cell antigen (e.g. CD19), and another CART kill this antigen-bearing CART (Hamieh, M. et al Nature 568, 112–116 (2019)). CARTs might be more potent killing tumoral cells than TILs, but at the same time they die, probably by fratricide killing, balancing their killing potency thus showing a similar killing as TILs.

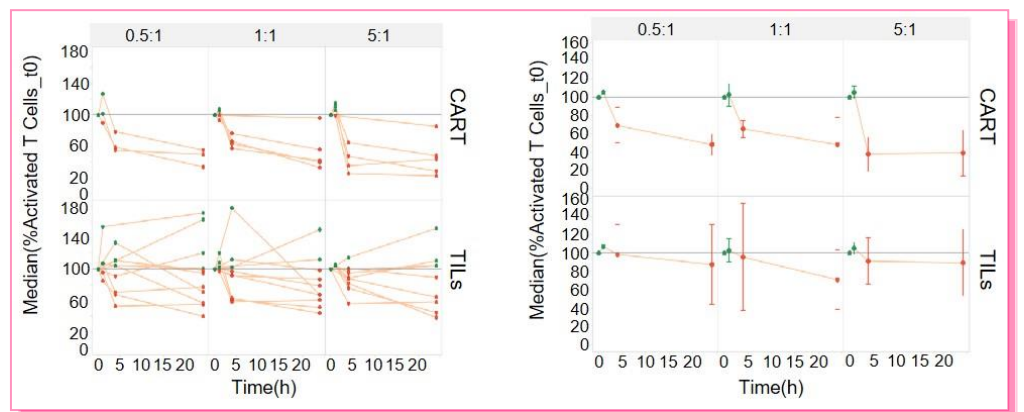





Figure 3 - Comparative killing activity analysis of activated T Cells, CART vs TILs. Percentage of activated T cells, CART and TILs separately over time (hours) at each E:T ratios (0.5:1, 1:1 and 5:1)

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-  We can evaluate ex vivo the killing activity of CART T & TILs, and their combinations with other agents.
-  We can study CART fratricide activity by trogocytosis with our ex vivo assays and look for solutions, such as combination with other agents, to avoid the theoretical loss of potency of these CARTs when compared to TILs.
-  Assay also applicable to NK Cells.

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