



# The enrichment of leukapheresis to improve T cell activation and transduction efficiency during CAR-T processing

## Background

Although using a patient’s leukapheresis reduces the risk of rejection, it introduces variability in starting material composition and the presence of cell populations that might negatively affect production of CAR-T cells.

## Research Question

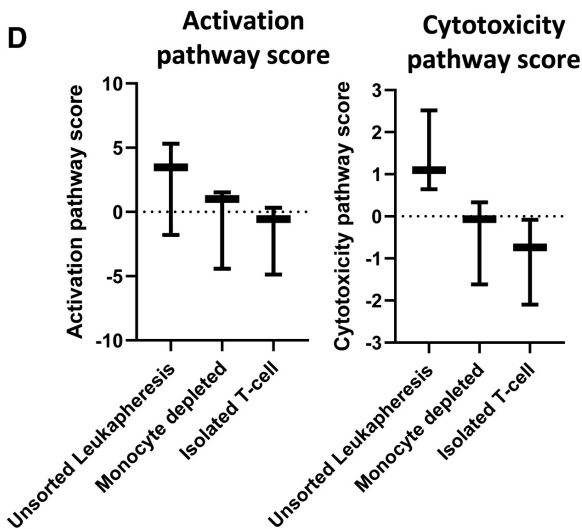
Can the composition of an individual’s leukapheresis material influence key stages of CAR-T cell manufacturing (i.e., activation, transduction, and expansion)?

## Experimental Setup

Sample Type	Apheresis; unsorted; sorted
Tissue Type	Human
Assay	CAR-T Characterization Panel
Analyte	RNA
Instrument	nCounter® Analysis System

*“The NanoString analysis also produces pathway scores, which summarize changes in the expression level of biologically related gene groups.”*

*-Noaks et al.*



**FIGURE D** Pathway scores for activation and cytotoxicity gene set from NanoString data analysis, n=3. The bar represents the median value and error bars the minimum and maximum value.

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## Results & Conclusions

- Activation and cytotoxicity pathways confirm the upregulation of activation and cytotoxicity-associated genes in CAR-T cells.
- The composition of starting material can affect final product, altering phenotype profiles, genetic expression, and ultimately, CAR-T cell cytotoxicity.

Noaks E., Peticone, C., Kotsopoulou, E. and Bracewell D. *Enriching leukapheresis improves T cell activation and transduction efficiency during CAR R processing. Molecular Therapy Methods & Clinical Development. 20, 675-687 (2021).* <https://doi.org/10.1016/j.omtm.2021.02.002>

For more information, please visit [nanosttring.com/CAR-T](https://nanosttring.com/CAR-T)

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