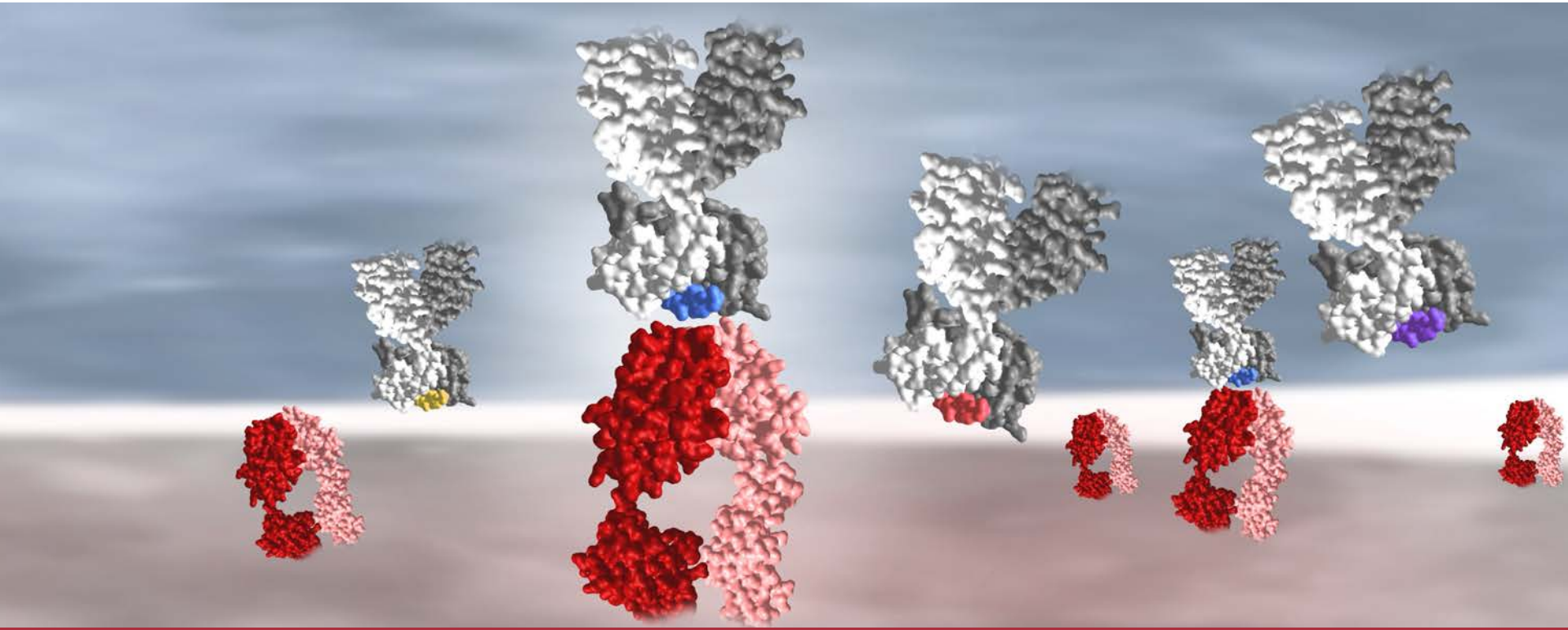
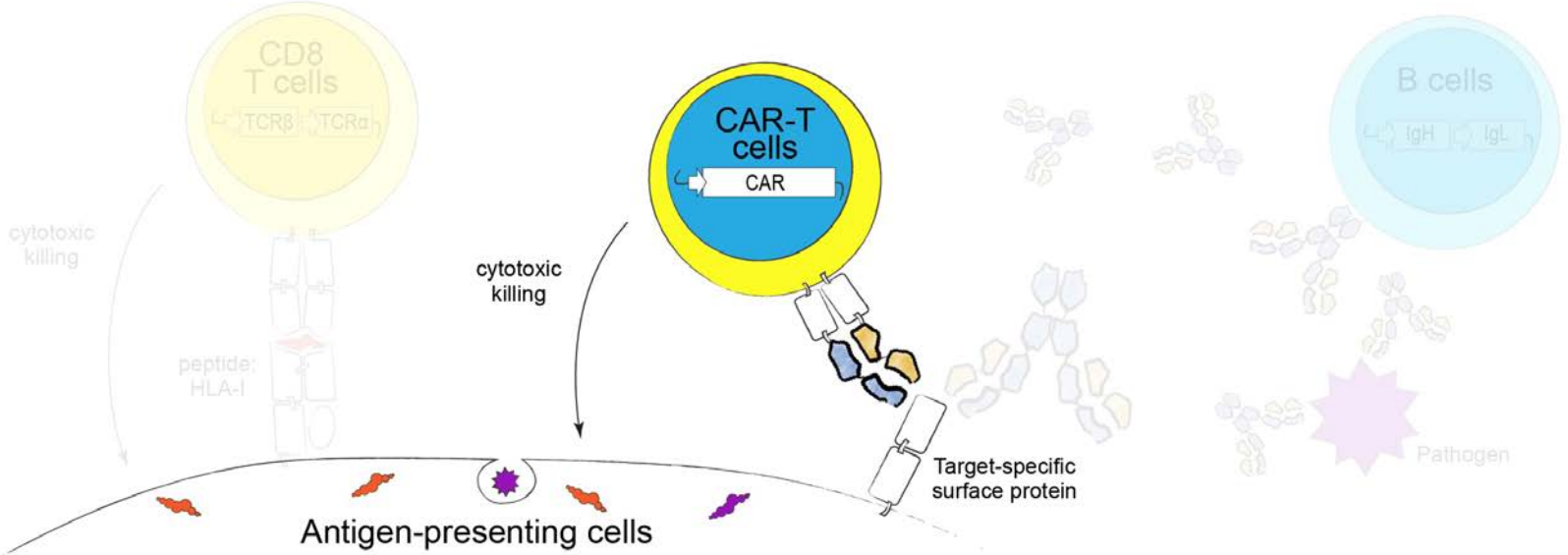
T-FINDER x Chimeric Antigen Receptors
High-throughput CAR evaluation and optimization

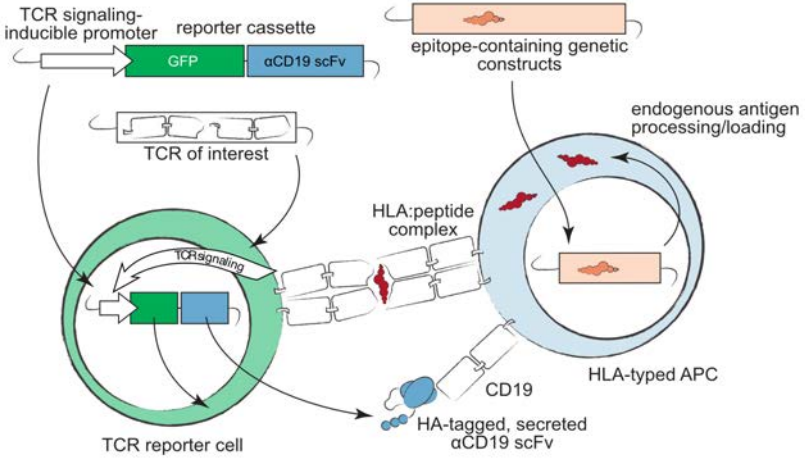


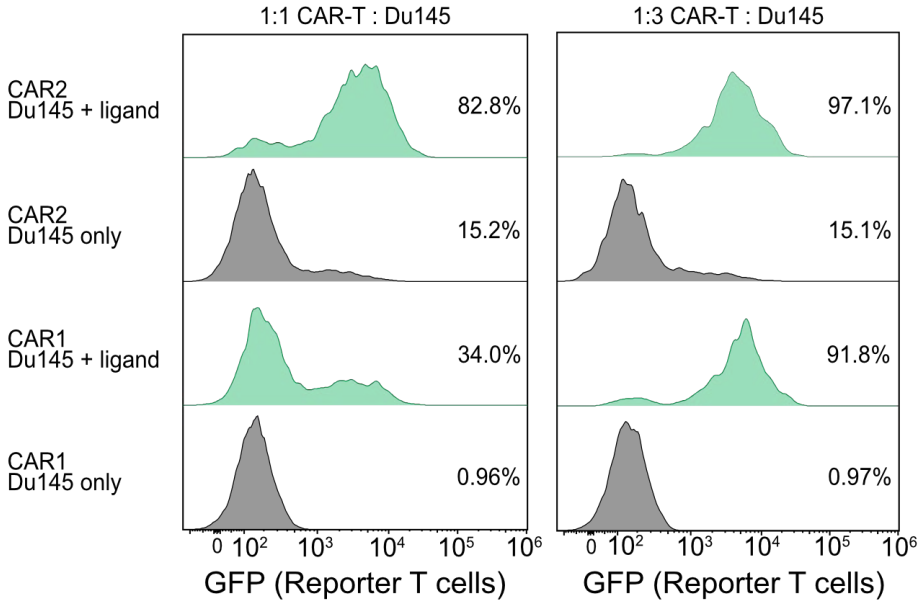
Cytotoxicity-based chimeric antigen receptor assays are a bottleneck for high-throughput optimization

- Immunology Discovery @ BioMed X Institutes can rapidly design and test CAR variants
- 1000 CAR variant library design from a first candidate + target combination
  - Turnaround time: 3 months
  - Investment: 200k EUR



A novel reporter confers sensitivity and specificity and is compatible with all T cell-activating receptors



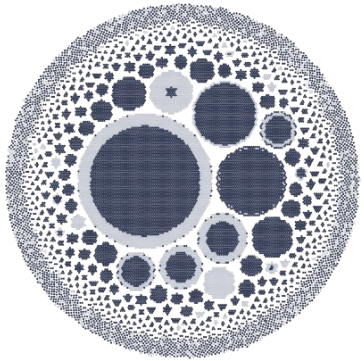


Cetin, Pinamonti, Schmid et al (Sci Adv 2024)

- Tight control of TCR signaling (minimal false positive rate)
- 100-fold signal-to-noise ratio
- 3-log linear range for relative activation strength
- Validated relative response efficiency for CARs

APC, antigen-presenting cell; HLA, human leukocyte antigen; CAR, chimeric antigen receptor

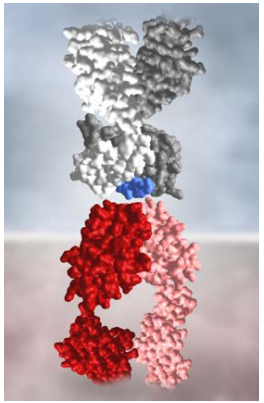
Our toolbox for TCR applications



ESTEL

Epitope-**S**pecific **T**-cell **E**xpansion on **L**ibraries quickly expands relevant TCRs from complex repertoires (e.g. PBMC)

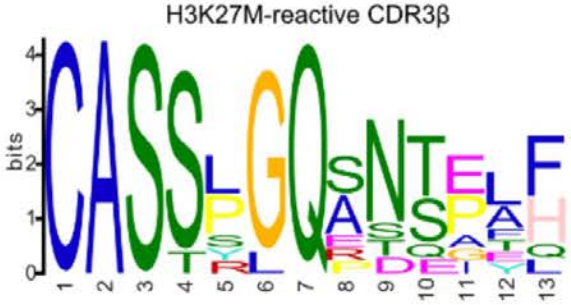
Unpublished



T-FINDER

T-cell **F**unctional **I**dentification and (**N**eo)-antigen **D**iscovery of **E**pitopes and **R**eceptors rapidly deconvolutes cognate TCR:epitope interactions

Cetin et al *Science Advances* 2024



Deep TCR/epitope Characterization

- Functional TCR repertoire analysis to identify binding motifs
- Autologous and population-level HLA mapping
- *De novo* minimal epitope discovery

Boschert et al *Science Advances* 2024

Tumor-reactive TCR prediction: Tan et al *Nature Biotechnology* (2024)

T-FINDER: T cell Functional Identification and (Neo)-antigen Discovery of Epitopes and Receptors