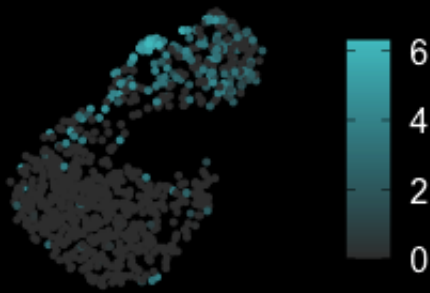


## IFNG

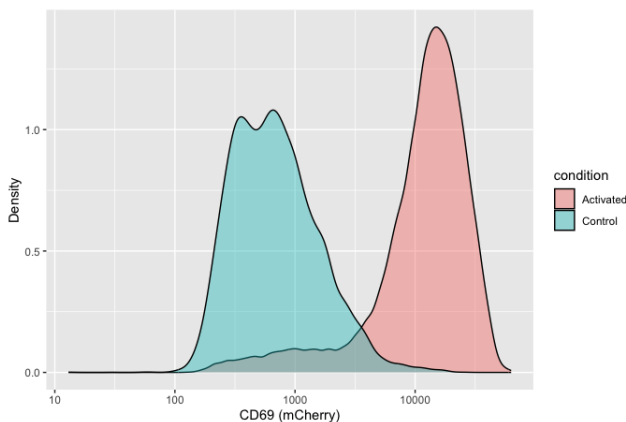


# Integrated imaging and targeted transcriptional profiling of activated vs resting CD8+ T cells at single-cell resolution

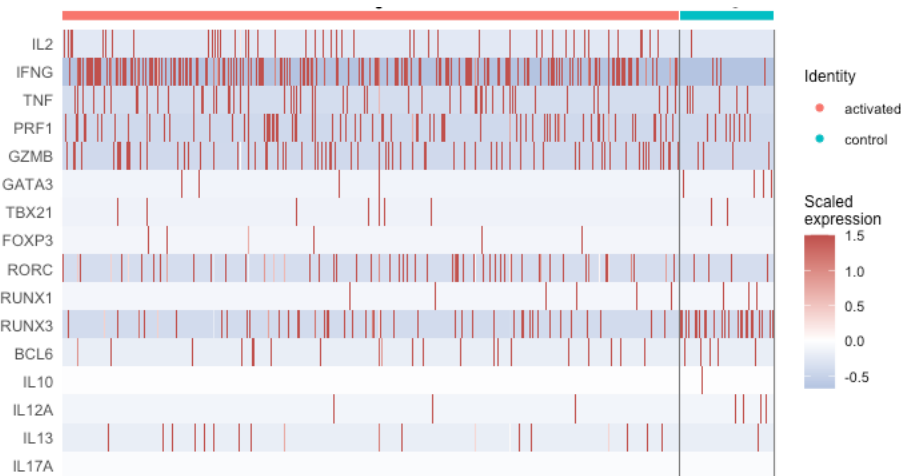
Assessing T-cell activation states often requires measuring defined functional markers across large numbers of cells while preserving single-cell resolution. Here, we demonstrate targeted single-cell transcriptional profiling of human CD8+ T cells following 48-hour on-chip activation, combined with live-cell imaging of viability and activation markers. Using a focused immune gene panel, this workflow resolves activation-associated transcriptional states while maintaining compatibility with image-based phenotyping on the same platform.

## Experimental Setup

- Human CD8+ T cells
- On-chip CD3/CD28/CD2 activation(48 h)
- Control: Unstimulated CD8+ T cells
- Imaging: Viability + CD69
- Sequencing: Targeted immune gene panel



**CD69 fluorescence in CD8+ T cells following 48 h activation.**  
Density plots show CD69–mCherry fluorescence intensity in resting vs activated CD8+T cells measured by live-cell imaging.



## Targeted transcriptional profiling of CD8+ T cells following 48 h on-chip activation.

Heatmap shows log-normalized expression of a focused immune gene panel across single CD8+ T cells grouped by resting and CD3/CD28/CD2-activated conditions.

## Key Results

- >99% on-target sequencing rate for assigned barcodes
- >93% cell viability after 48 h on-chip stimulation
- Thousands of single cells profiled per condition
- Targeted panel reduces sequencing requirements vs WTA

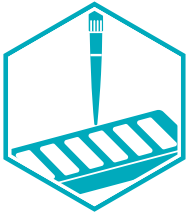
## What this demonstrates:

This experiment demonstrates efficient targeted single-cell transcriptional profiling of activated versus resting CD8+ T cells following prolonged stimulation. A focused immune gene panel resolves activation-associated transcriptional programs while substantially reducing sequencing burden compared to whole-transcriptome approaches.

Together with live-cell imaging readouts, this workflow supports scalable characterization of functional immune states in applications where throughput, cost, and interpretability are critical.



# Flexomics single-cell imaging + sequencing workflow



## 1- LOAD

- Each easy-to-use FLEX chip consumable contains a high-density array of mapped picowells
- No custom equipment required
- Two slide formats are available
  - Eight sites partitioned for concurrent analysis of multiple samples
  - Single site for large-scale analysis of a single sample



## 2- CULTURE

- Culture cells in standard labware OR directly on the FLEX consumable
- Cells cultured on the FLEX consumable maintain high viability for 4+ days



## 3- BRING YOUR OWN ASSAY (BYOA)

- Hassle-free customization of molecular and cellular workflows
- The FLEX chip supports many types of miniaturized functional assays, including:
  - Cell-cell interaction, neoantigen discovery, immunofluorescence, cytokine signaling, proliferation/survival assays, and more



## 4- IMAGE

- The FLEX chip is compatible with conventional inverted fluorescence microscopes
- Enables live cell image capture across multiple timepoints



## 5- SEQUENCE

- Each FLEX chip is combined with optically-encoded RNA capture beads for easy cell labeling and tracking
- FLEX single cell barcoding is compatible with short-read and long-read sequencing platforms
- Choose from whole transcriptome or custom targeted RNA-sequencing panels



## 6- ANALYSIS

- Free access to the FLXplorer analysis platform is included with each consumable purchase
- Easily view, filter, plot, and export correlated imaging and sequencing data directly from the FLXplorer platform
- Analysis-ready outputs compatible with standard single-cell analysis tools

