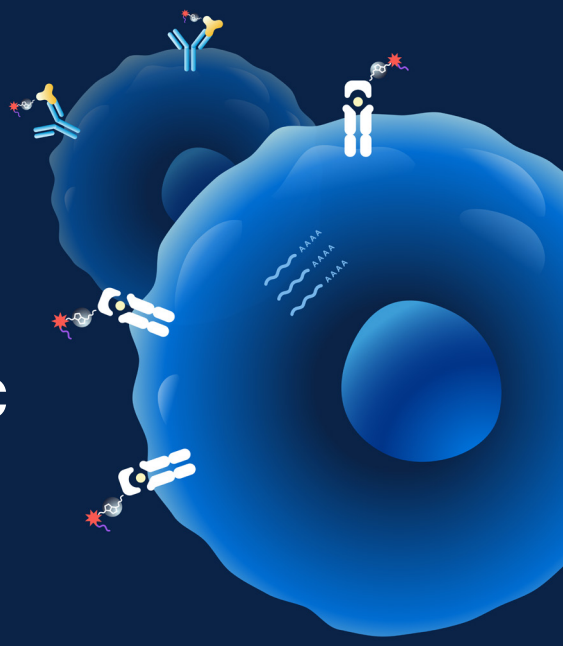
10x GENOMICS

Fast track antigen-specific B- and T-cell discovery



BEAM (Barcode Enabled Antigen Mapping)

Discover new biology and drive the leading edge of immunotherapeutic development. BEAM empowers rapid discovery of antigen-specific B-cell (BEAM-Ab) and T-cell (BEAM-T) clonotypes with unparalleled cellular resolution. Built on the proven Single Cell Immune Profiling workflow, BEAM enables screening of BCRs/TCRs against putative antigens in conjunction with gene expression, V(D)J sequencing, and surface marker expression.

Highlights

- Identify tens to hundreds of hits per sample with multiplexed antigen screening
- Go from sample to data in a week
- Discover antigen-specific clonotypes with single cell resolution
- Get started quickly with an end-to-end, kitted solution, including reagents and sample prep guidance

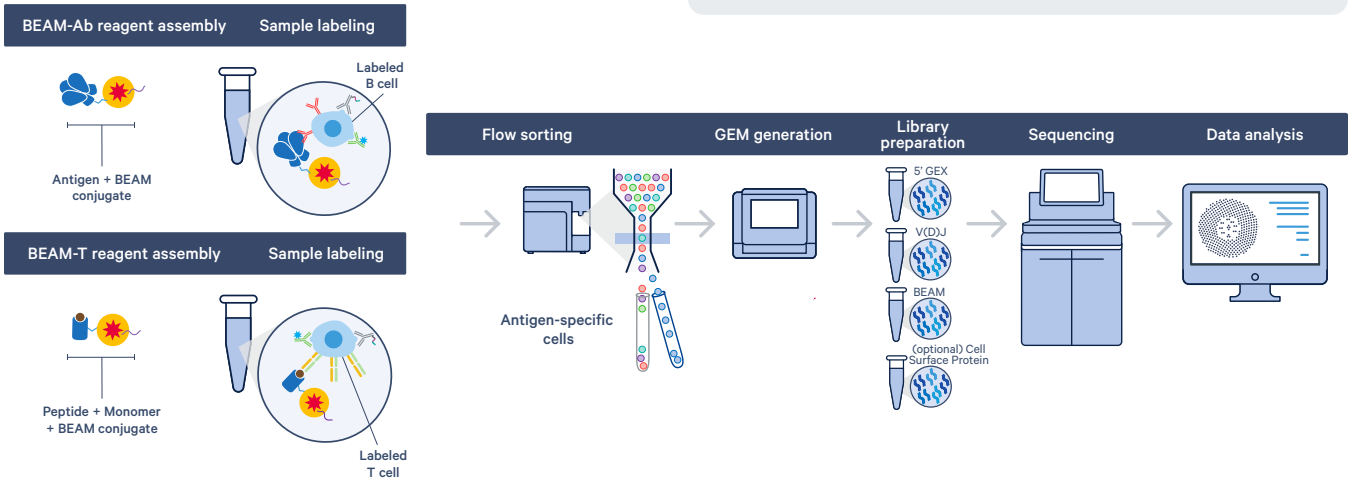


Figure 1. Comprehensive antigen-specific BCR and TCR discovery workflow. BEAM is seamlessly integrated into the Single Cell Immune Profiling workflow, enabling a multiomic readout of antigen specificity and full-length V(D)J sequences for paired B-cell or T-cell receptors, alongside gene expression and, optionally, cell surface protein expression, from single cells. User-supplied antigens are barcoded using 10x Genomics BEAM reagents. Barcoded antigens are then used to stain B or T cells prior to flow sorting for enrichment. Normal library preparation and sequencing steps are then carried out on the sample. (Note: BEAM-Ab and BEAM-T are performed in separate workflows with unique reagents).

A complete data analysis solution

Our easy-to-use software completes the BEAM workflow, supporting analysis and visualization of data according to specific antigen and V(D)J sequence information.

- Identify expanded clonotypes from a sample with their specific V(D)J sequences
- Perform antigen specificity scoring to identify clonotypes with differential binding between antigens of interest and control antigens, informing downstream validation strategies
- Leverage our Loupe V(D)J Browser software to visualize and filter clonotype populations based on antigen specificity scores

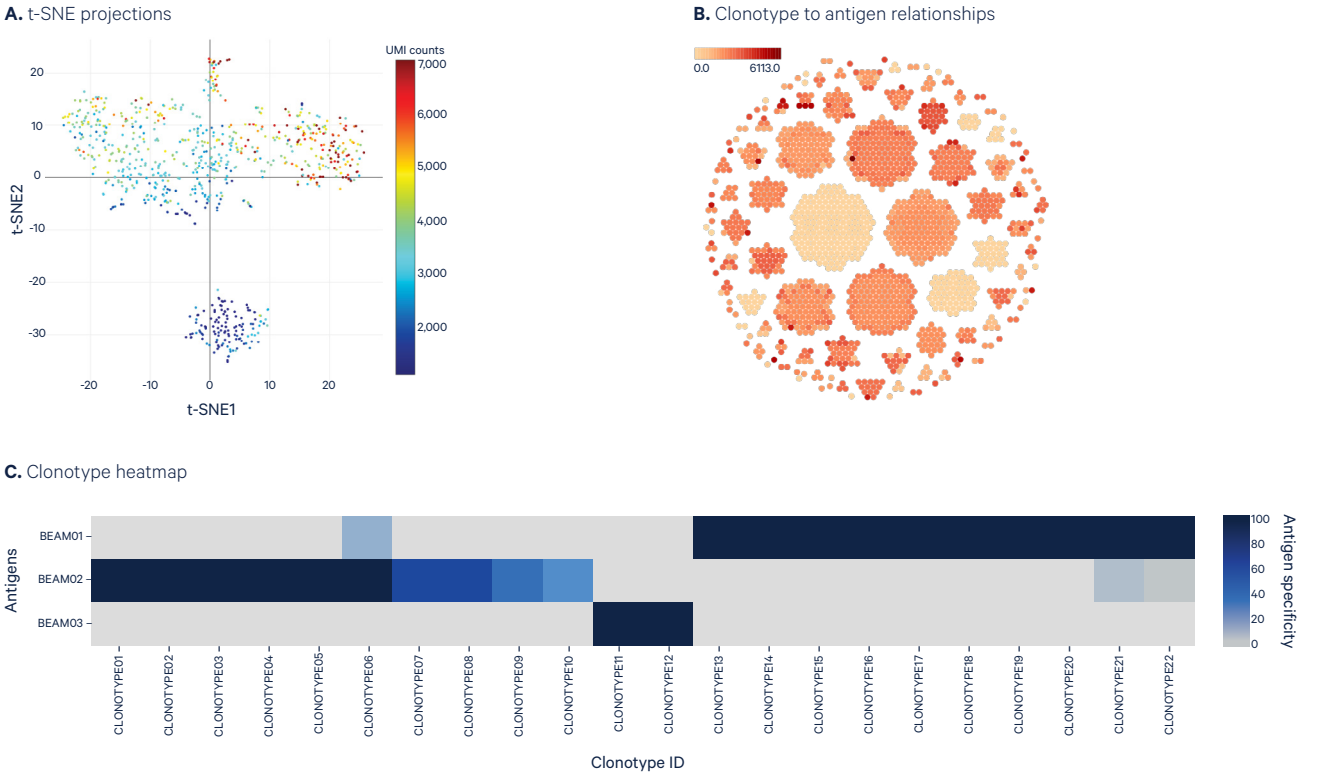


Figure 2. BEAM data visualizations of antigen-specific lymphocytes. A. t-SNE projection showing cells clustered by their associated gene expression, allowing sorting by cell type and deeper interrogation of unique clusters. **B.** Loupe V(D)J Browser visualization depicting antigen-specific clonotypes organized by UMI counts per antigen, where dark red denotes higher antigen UMI count. **C.** A heatmap of clonotypes (X-axis) and antigens (Y-axis) colored by antigen specificity scores, providing an overview of antigen to clonotype interactions.

Have a question about **BEAM**?
Send them to BEAM@10xgenomics.com

Learn more

LIT000196 - Rev A - Flyer - Fast track antigen-specific B- and T-cell discovery