A targeted approach to single cell and spatial gene expression

Focus on the genes that matter most to you

From discovery to validation, targeting the most relevant cell types and biomarkers lets you accelerate your studies into actionable insights. While whole transcriptome analysis is key for early discovery, targeted gene expression lets you conserve sequencing costs while focusing on the most relevant genes and pathways for your research. Validate your hypotheses faster and scale up your research with Targeted Gene Expression from 10x Genomics. Compatible with the Chromium Single Cell Gene Expression and Single Cell Immune Profiling Solutions, as well as the Visium Spatial Gene Expression Solution*, you can profile a defined set of transcripts with pre-designed cancer, immunology, and gene signature panels or design your own custom content.

Targeted Gene Expression Panels

Human Pan-Cancer Panel
1,253 genes spanning 33 cancer types

Human Immunology Panel
1,056 genes probing immune-relevant cell types

Human Gene Signature Panel
1,142 genes covering signaling pathways and drug targets

Human Neuroscience Panel - coming soon

Custom Human Panels - coming soon
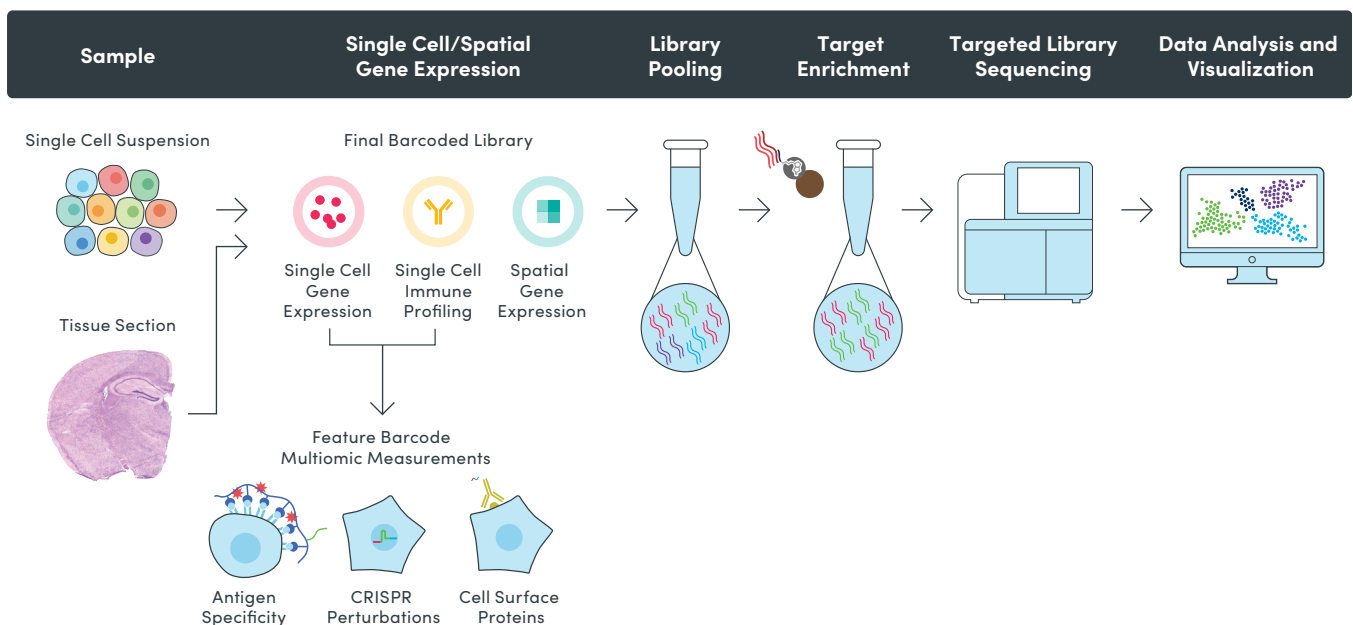10–1,500 user-defined genes

Figure 1: Targeted Gene Expression workflow and compatibility. Targeted Gene Expression enables the enrichment and analysis of a targeted set of mRNAs prepared from either single cells or tissue sections. Starting with a final, barcoded 10x Genomics library, the workflow provides the flexibility to perform both whole transcriptome and targeted gene expression on the same samples, while simultaneously measuring immune cell antigen specificity, CRISPR perturbations, or cell surface proteins.*

10x GENOMICS

Product Benefits

- Focus on your relevant genes and pathways of interest using comprehensive, pre-designed panels with the ability to add up to 200 custom genes, or design a fully custom panel

- Increase sequencing efficiency with higher throughput and up to 90% lower cost

- Streamline your workflow while maintaining high gene sensitivities and reducing computational burden

- Transition seamlessly between whole transcriptome and targeted analysis from the same library preparation to validate discoveries or explore new hypotheses

- Minimize the introduction of bias by leveraging a hybrid capture approach to library enrichment

Product Features

- End-to-end workflow from cells or tissue section* to enriched library in as little as two days

- Measure both gene and cell-surface protein expression or CRISPR perturbations in single cells by combining targeted gene expression with our Feature Barcode technology

- Simultaneously assess TCR, Ig, and 5′ gene expression in the same cell by combining targeted gene expression with our Single Cell Immune Profiling Solution

- Compatible with most cell lines, primary cells, dissociated tissue, and fresh-frozen tissue sections*
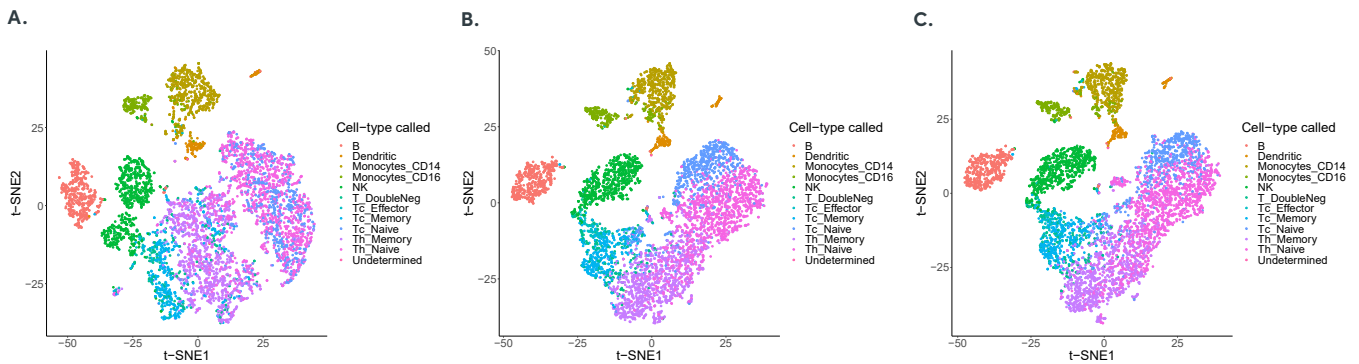
- Easy-to-use data analysis and visualization software

Figure 2. Cell-type clustering and annotation is preserved in targeted samples. Representative data from 6,000 human PBMCs from a healthy donor transcriptionally profiled using the Single Cell Gene Expression Solution. **A.** Cell clustering and annotation based on capture of mRNA from the whole transcriptome, sequenced at 100,000 reads per cell. **B.** Cell clustering based on *in silico* enrichment for genes found in the **Human Immunology Panel**. **C.** The single cell gene expression library illustrated in panels A and B underwent target enrichment using the 10x Human Immunology Panel, and was sequenced and subsampled to 2,000 reads per cell. All major cell subpopulations were preserved compared to the whole transcriptome parent sample.

Products	Product Code
Target Hybridization Kit, 16 rxns	1000248
Library Amplification Kit, 16 rxns	1000249
Human Pan-Cancer Panel, 4 rxns	1000260
Human Pan-Cancer Panel, 16 rxns	1000247
Human Immunology Panel, 4 rxns	1000259
Human Immunology Panel, 16 rxns	1000246
Human Gene Signature Panel, 4 rxns	1000258
Human Gene Signature Panel, 16 rxns	1000245
Human Neuroscience Panel, 4 rxns	1000277
Human Neuroscience Panel, 16 rxns	1000278
Custom Panel Designer	Coming soon

Compatible Products
Chromium Single Cell Gene Expression Solution 10xgenomics.com/single-cell
Chromium Single Cell Immune Profiling Solution 10xgenomics.com/vdj
Visium Spatial Gene Expression Solution* 10xgenomics.com/spatial-gene-expression

*Optimized protocol, support, and software for targeted panels with spatial gene expression coming September 2020.

Research areas

- Cancer Biology
- Immunology
- Neuroscience
- Developmental Biology
- Stem Cell Biology
- Infectious Disease & Vaccine Research

Applications

- Response to Therapeutic Intervention
- Immune Profiling
- Characterization of CAR T Cells
- Rare Cell Detection
- Tumor Heterogeneity
- Mechanisms of Cellular and Tissue Development
- CRISPR screening

Resources from 10x Genomics

We are dedicated to helping you get the most out of your 10x Genomics system by offering multiple helpful resources:

10x University

Immerse yourself in 10x University, a comprehensive step-by-step learning and training environment containing video tutorials and trainings.
10xgenomics.com/10x-university

Support

Visit the support site for documentation, software, and datasets that will help you get the most out of your 10x Genomics products.
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