

# 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

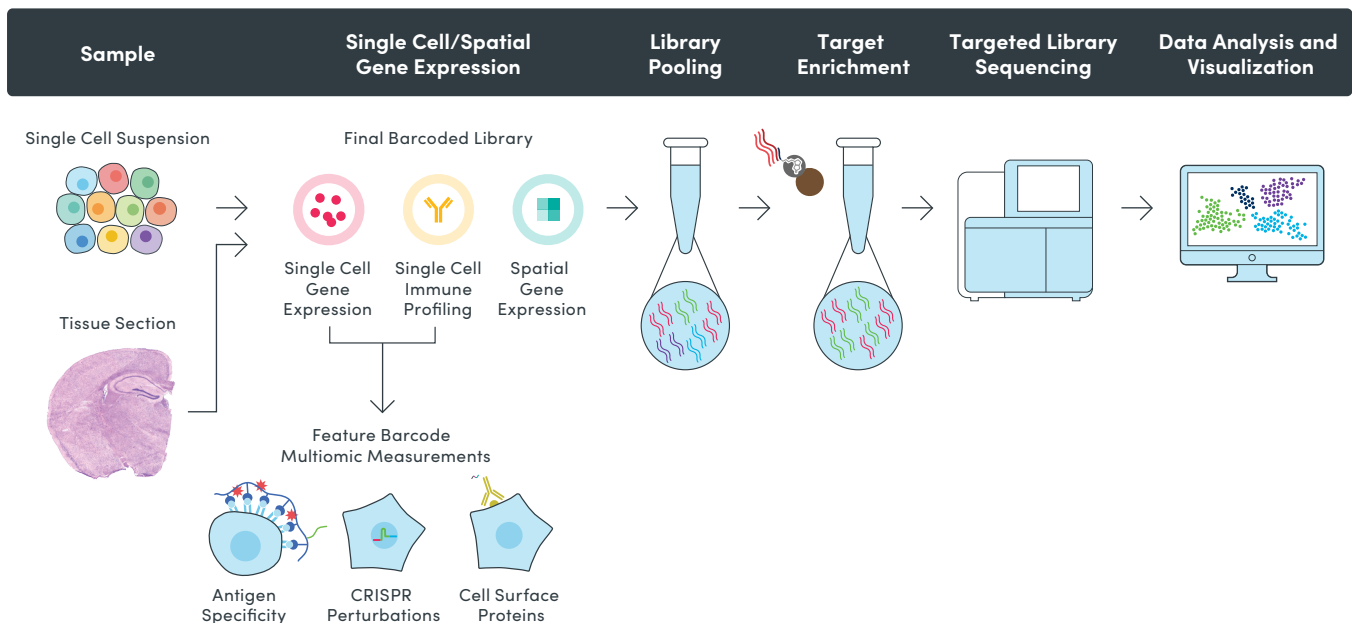
**Human Gene Signature Panel**

1,142 genes covering signaling pathways and drug targets

**Human Neuroscience Panel** - coming soon

**Custom Human Panels**

10–1,500 user-defined genes



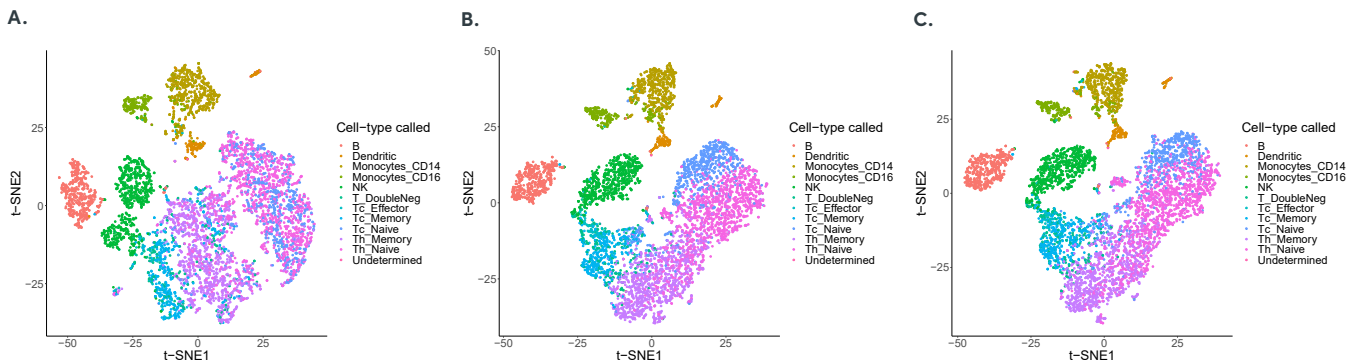
**Figure 1: Targeted Gene Expression workflow and compatibility.** Targeted Gene Expression enables the enrichment and analysis of a targeted set of mRNAs prepared from either single cells or tissue sections. Starting with a final, barcoded 10x Genomics library, the workflow provides the flexibility 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.\*

## 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.

## 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

## Additional resources

### Datasets

[bit.ly/10xgenomics-targeted-gex-datasets](https://bit.ly/10xgenomics-targeted-gex-datasets)

### Seminars

[bit.ly/10xgenomics-targeted-gex-seminars](https://bit.ly/10xgenomics-targeted-gex-seminars)

### Technical Support

[bit.ly/10xgenomics-targeted-gex-support](https://bit.ly/10xgenomics-targeted-gex-support)

| 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<br><a href="https://bit.ly/10xgenomics-custom-designer">bit.ly/10xgenomics-custom-designer</a> | <a href="#">Visit designer</a> |

## Compatible Products

Chromium Single Cell Gene Expression Solution  
[10xgenomics.com/single-cell](https://10xgenomics.com/single-cell)

Chromium Single Cell Immune Profiling Solution  
[10xgenomics.com/vdj](https://10xgenomics.com/vdj)

Visium Spatial Gene Expression Solution\*  
[10xgenomics.com/spatial-gene-expression](https://10xgenomics.com/spatial-gene-expression)

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

## 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](https://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.

[support.10xgenomics.com](https://support.10xgenomics.com)

### Solutions and products

Along with our suite of complete solutions, we offer an ever-growing catalogue of services to help you find the answers to your research questions.

[10xgenomics.com/solutions](https://10xgenomics.com/solutions)

### 10x Genomics library

Easy access to our complete library of product literature, customer publications, application notes, protocols, and many other useful resources.

[10xgenomics.com/resources/library](https://10xgenomics.com/resources/library)

### 10x Genomics compatible products

Access our list of key partner products that have been certified compatible to work with our various solutions.

[10xgenomics.com/compatible-products](https://10xgenomics.com/compatible-products)

### 10x Blog

Keep up to date with the 10x Genomics Blog, where you'll find everything from tips and tricks to the latest 10x news.

[10xgenomics.com/blog](https://10xgenomics.com/blog)

## Contact us

10x Genomics

6230 Stoneridge Mall Road  
Pleasanton, CA 94588-3260

+1 925 401 7300  
+1 800 709 1208

[info@10xgenomics.com](mailto:info@10xgenomics.com)

[10xgenomics.com](https://10xgenomics.com)

For more locations in US, EU and Asia visit:

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