Comprehensive panel curated for immunology

Accelerate immunology research with targeted gene expression

Immunology research requires acquiring more detailed data on immune cells, with a deeper vision into disease and immune response mechanisms. With curated content from established databases and recent publications, the 10x Genomics Human Immunology Panel for targeted gene expression enables you to comprehensively profile the immune response in both single cells and intact tissue sections*.

Containing over 1,000 genes and a range of lineage and tissue markers, the Human Immunology Panel is designed to accelerate your understanding of the complexity of the immune system. Scale your research into the innate and adaptive immune systems at lower cost with this pre-designed panel. Efficiently decipher the activity of immune cells and key molecular signaling pathways in heterogeneous tissue contexts, including the tumor microenvironment, and tissues affected by infection, chronic inflammation, or autoimmune disorders. Compatible with Chromium Single Cell Gene Expression and Single Cell Immune Profiling Solutions, as well as Visium Spatial Gene Expression Solution*, the Human Immunology Panel enables comprehensive and efficient characterization of your immune samples.

Highlights

- 1,056 genes to profile innate and adaptive immunity, inflammation, and immuno-oncology
- Customizable panel content with the ability to add up to 200 additional genes using our Custom Panel Designer
- Curated content from recent publications and experts, spanning key biomarkers, pathways, and lineage and tissue markers
- Compatibility across 10x Genomics solutions, including single cell and spatial* gene expression assays
- Full-tiling across gene transcripts, with an average of 40 probes per gene
- Validated gene content across different sample types, including fresh and frozen cell lines and tissues and blood and bone marrow mononuclear cells

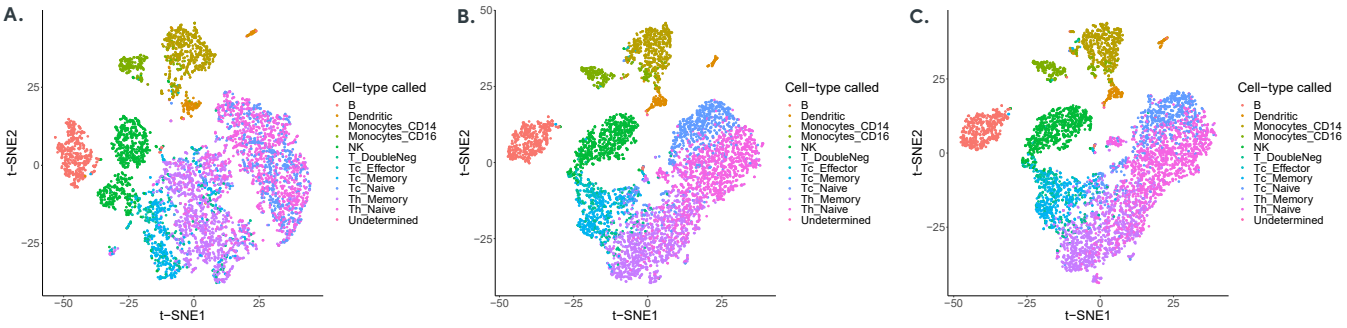

Figure 1. Cell-type clustering and annotation is preserved in targeted samples Representative data from 6,000 human PBMCs from a healthy donor transcriptionally profiled with the Single Cell Gene Expression Solution. A: Cell clustering and annotation based on capture of mRNA from the whole transcriptome, 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 2000 reads per cell. All major cell subpopulations were preserved compared to the whole transcriptome parent sample.

Pathway	Genes
Antigen processing and presentation	40
B-cell receptor signaling pathway	34
Chemokine signaling pathway	86
Cytosolic DNA-sensing pathway	28
Estrogen signaling pathway	16
HIF-1 signaling pathway	25
Jak-STAT signaling pathway	79
MAPK signaling pathway	52
NF-kappa B signaling pathway	61
NOD-like receptor signaling pathway	35
p53 signaling pathway	20
PI3K-Akt signaling pathway	86
Rap1 signaling pathway	33
Ras signaling pathway	35
RIG-I-like receptor signaling pathway	41
Sphingolipid signaling pathway	30
T-cell receptor signaling pathway	51
TNF signaling pathway	60
Toll-like receptor signaling pathway	73
VEGF signaling pathway	14

Table 1. Panel Design Highlights: Pathway Genes Key pathway gene categories included in the Human Immunology Panel.

Tissue Type	Genes
B cell	56
Blood	142
Cord blood	11
Dendritic cell	14
Endothelial cell	11
Foreskin	11
Leukemia	14
Leukocyte	35
Liver	189
Lung	188
Lymph	68
Lymphocyte	17
Lymphocytes	4
Lymphoid	15
Macrophage	9
Monocyte	25
Natural killer cell	11
Neutrophil	15
Pancreas	80
Peripheral blood	40
Peripheral blood leukocyte	22
Peripheral blood monocyte	8
Plasma	73
Platelet	51
Spleen	122
Synovial membrane tissue	17
T cell	56
Thymus	61
Tonsil	15

Table 2. Panel Design Highlights: Tissue Types Key tissue-type categories included in the Human Immunology Panel.

Functional Annotation and Process	Genes
Activator	75
Adaptive immunity	75
Antiviral defense	38
Apoptosis	81
Cell adhesion	71
Cell cycle	79
Cell division	50
Chemotaxis	60
Complement alternate pathway	11
Cytokine	113
Cytolysis	14
Glycoprotein	485
Host cell receptor for virus entry	27
Host–virus interaction	96
Immunity	238
Inflammatory response	83
Innate immunity	146
MHC I	9
MHC II	12
Proto-oncogene	41
Receptor	223
Secreted	271
Signal	474
Signal-anchor	68
Tyrosine-protein kinase	28

Table 3. Panel Design Highlights: Functional Annotation and Processes
Key functional annotation and process gene categories included in the Human Immunology Panel.

Curated content sources

1. V Thorsson et al., The Immune Landscape of Cancer. *Immunity.* 48, 812–830 (2018).

Products	Product Code
Target Hybridization Kit, 16 rxns	1000248
Library Amplification Kit, 16 rxns	1000249
Human Immunology Panel, 4 rxns	1000259
Human Immunology Panel, 16 rxns	1000246
Custom Panel Designer bit.ly/10xgenomics-custom-designer	Visit designer

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

Applications

- Profiling immune responses to infection and vaccination
- Biomarker discovery for autoimmune and inflammatory diseases
- Profiling immunity in tumor and tissue microenvironments
- Characterizing mechanism of action for immune checkpoint therapies
- Immune cell reconstitution and response after transplantation
- Immunophenotyping and atlasing of immune cell types and states

Additional resources

Datasets
bit.ly/10xgenomics-targeted-gex-datasets

Seminars
bit.ly/10xgenomics-targeted-gex-seminars

Technical Support
bit.ly/10xgenomics-targeted-gex-support

*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

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LIT000084 Rev B Comprehensive Panel Curated for Immunology Product Sheet