

Single-cell RNA Sequencing for Gene Expression Analysis



Sample heterogeneity is an important challenge when sequencing cells from tissue or blood samples. Bulk RNAseq methods mask important differences between individual cells within a population. Single-cell RNA Sequencing is a solution which provides expression profiles of individual cells within a heterogeneous population. By partnering 10x Genomics Chromium-based single-cell RNA sequencing (scRNA seq) with our advanced analytics and artificial intelligence (AI) capabilities Genuity Science's scRNAseq enables deeper insights into the biology of your samples—revealing insights into immune repertoire, novel cell types, biomarkers, and cell diversity.

Single Cell Assays Available

- Immune Profiling: TCR and BCR
- Gene Expression
- Contact us to discuss your specific scRNAseq needs

Applications

- Immunology research
- Immuno-oncology research
- Infectious disease research

Genuity Science is your partner for high quality scRNAseq assays. Our laboratory offers full workflow support from sample preparation through analysis. Our high quality standards and high-touch partnership approach deliver results your team can count on.

Services

Data Pre-Processing and Secondary Analysis

Our bioinformatics team utilizes 10x Genomics Cell Ranger software to provide you with clarity and resolution into the cell types present in your samples.

Pre-Processing includes:

- Barcode and unique molecular identifier (UMI) processing
- Alignment
- Quality control/filtering
- Normalization
- Secondary Analysis includes:
 - Dimensionality reduction
 - Clustering
 - Visualization (tSNE plots)
 - Differential expression analysis

We provide you with a web summary report and accompanying data files.

Single Cell Transcriptome Analysis

- Tumor/cell line heterogeneity studies
- Detection of rare subpopulations
- Drug response studies

Utilizing 10x Genomics high-throughput scRNA seq technology we provide single cell expression profiles that enable discovery of gene expression dynamics and molecular profiling of individual cell types.

Single Cell V(D)J Analysis

- Single cells immune profiling
- Immune response studies

Enables assembly of full-length V(D)J sequences on a cell-by-cell basis, providing high resolution insights into the adaptive immune system.

Advanced Analytics and AI: from data to insights

As an additional service, senior members of our artificial intelligence (AI)/machine learning (ML) team with advanced biology domain, bioinformatics, and computational statistical expertise personally consult with you. Together, they will create tailored, statistically valid experimental designs, which employ cutting-edge, scientifically validated deep learning strategies. From secondary analyses to the latest AI/ML approaches, we can generate robust working hypotheses and glean meaningful information from your data. Examples of our single cell AI/ML methods include:

- Generative AI/ML strategies for unsupervised cell clustering
- Supervised ensemble AI/ML classification strategies
- Directed cell differentiation trajectory networks for time series data
- Differential expression analysis for zero-inflation control
- Directed causal gene dependency networks
- Nested functional enrichment of gene ontology (GO) terms

Sample Types

- PBMCs: $>1 \times 10^7$ cells in 1 ml of solution
- Interested in other sample types? Ask us!

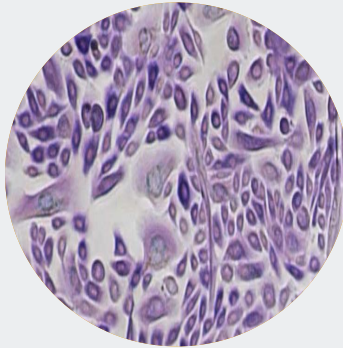
For more information: www.genuitysci.com

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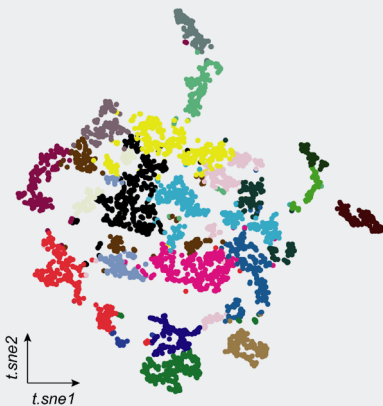
10x Chromium Single Cell Immune Profiling

One sample, three types of analyses



Sample

Single-cell gene expression



Single-cell T-cell repertoire profiling

Paired (TcR α/β) full-length V(D)J clonotypes



Single-cell B-cell repertoire profiling

Paired (BcR H/L) full-length V(D)J clonotypes



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