

## Single Cell Sequencing and Spatial Transcriptomics Solutions for Research

In contrast to whole tissue RNA sequencing, **single cell sequencing** has been a promising tool in the research for medical and clinical treatments by analyzing individual cells at their microenvironments and making discoveries of unknown cell types, particularly in rare diseases.

Obtaining quantitative information on gene expression changes within cells can be laborious and challenging. **Spatial transcriptomics**, an emerging technology that utilizes spatially barcoded, complementary DNA primers for full-transcriptome capture on tissue sections, can be added to RNA sequencing to transform our understanding of functional tissue organization and cell-to-cell interactions in situ.

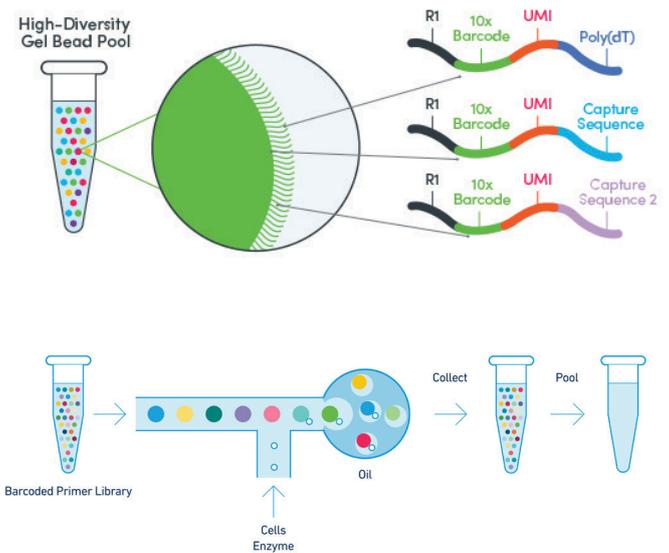
## Single Cell Sequencing: Uncover the Full Complexity of Cellular Diversity

Novogene offers single-cell sequencing solutions using the **10x Genomics Chromium System** and **Illumina platforms**. The highlight of this technique enables massive transcriptional profiling of thousands of individual cells at scale with single cell resolution. It can be applied in the area of oncology, neurobiology, development biology and stem cell research.

### How it works?

The Chromium Single Cell Gene Expression Solution upgrades short-read sequencers to deliver a scalable microfluidic platform for 3' digital gene expression by profiling 500-10,000 individual cells per sample.

Powered by Next GEM technology, it creates a unique reagent delivery system that partitions cells or nuclei and prepares sequencing libraries in parallel such that all fragments produced within a partition share a common barcode. A simple workflow combines large partition numbers with a massively diverse barcode library to generate >100,000 barcode-containing partitions in a matter of minutes.



Images provided by 10x Genomics

## Explore Single-cell Sequencing Solutions at Novogene

### Technical Advantages

#### High Efficiency

Up to 65% cell processing efficiency.

#### High Throughput

Up to 8 channels processed in parallel, 500 to 10000 cells per channel.

#### Low Doublet Rate

Lower than 0.9%/ 1000 cells.

#### Low Time-Consuming

18 min run time (per chip).

### Sample Requirements

#### Sample Types

Cultured Cell Lines/ Primary Cells/Solid tissue

#### Amount

Single cells  $\geq$  500,000

#### Remarks

Activity  $\geq$  90%, diameter: 5-40  $\mu$ m

### Project Workflow

Raw Data

Data QC

Alignment

UMI/  
Cell Counting

t-SNE

Differential  
Expression Analysis

Cell Type  
Identification

## Spatial Transcriptomics: Your One Stop Solution to Capture Transcriptome and Tissue Morphology

Spatial Transcriptomics brings a whole new perspective to **analyze all the gene activities in intact tissue sample** that bulky RNA sequencing has been unable to achieve with the complexity presented by heterogenous tissue.

Presenting you an innovative approach to spatial transcriptomics analysis on the 10x Genomics platform, you can find **flexibility in exploring your research with the classic histopathology and a comprehensive genome-wide gene expression profile from the entire tissue.**

Preserving spatial resolution provides invaluable insights for understanding the relationships between cellular functions, phenotype and location in the tissue, enabling advancements in the area of research and diagnostics.

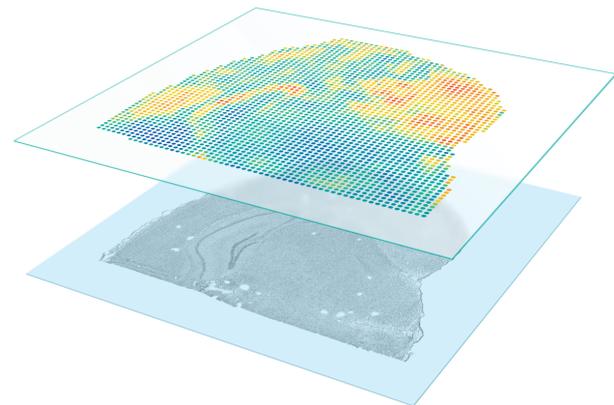


Image provided by 10x Genomics

### How it works?

We offer **complete end-to-end solutions**, including sample preparation, the service to sectioning and staining of your tissue sample, sequencing, and bioinformatics data analysis for your spatial transcriptomics projects.

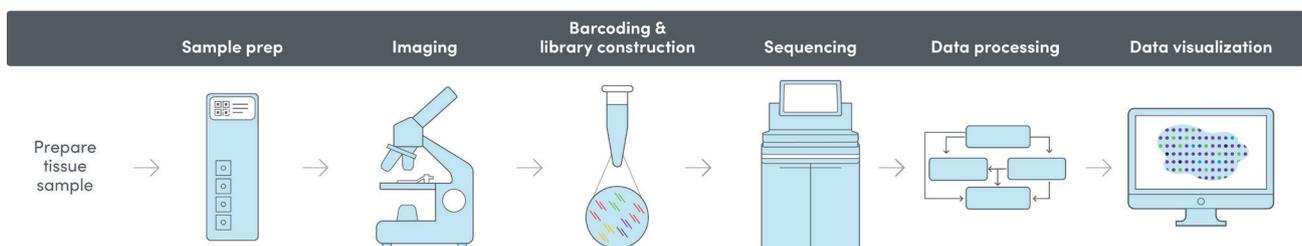


Image provided by 10x Genomics

### Features and benefits when you partner with us

- Relieve the struggles of frozen tissue sectioning, embedding and cutting, HE and IF staining, and tissue permeabilization optimization to our Histopathologist.
- High quality library preparation and NGS sequencing.
- Cutting-edge bioinformatics data analysis.
- The most updated 10x Visium Technology, histology platforms and automated Leica immunofluorescence microscope.

## Dedicated Sequencing Service Provider



### Our solutions cater to your sequencing needs...



- View and manage your projects on our **Customer Service Portal**.



- Enjoy **hassle-free** logistics management of your samples.



- Receive **dedicated support** from our team of professionals.



- The strategic locations of our labs across Asia and our extensive NGS system can provide **faster turnaround time**.

For more information on our single-cell sequencing solutions, visit <https://en.novogene.com/landing-page/single-cell-sequencing/>

For more information on our spatial transcriptomics solutions, visit <https://en.novogene.com/landing-page/spatial-transcriptomics/>



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