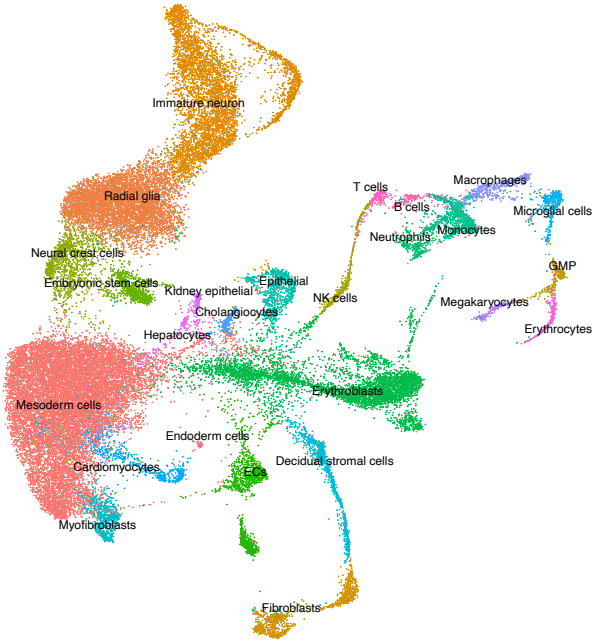
GEXSCOPE® Single Cell RNA Library Kit

The GEXSCOPE® Single Cell RNA Library Kit offers a complete solution for transforming tissues into single cells and converting the mRNA contained in the single cells into NGS libraries (Figure 1).

The GEXSCOPE Single Cell RNA Library Kit uses the GEXSCOPE microchip, a portable, microfluidic chip with microwells. There are two main configuration available for the GEXSCOPE microchip: a standard microchip (SD) and a high density (HD) microchip.

Figure 1. GEXSCOPE Single Cell RNA Library Kit



GEXSCOPE Kit Advantages:

- Complete solution: all reagents from tissue preservation to ready-to-sequence NGS libraries
- High cell viability: typically, >90% cell viability using the sCelLiVE® reagents
- Easy-to-use: operated without special equipment with a possibility for automation
- High throughput: over 30,000 cells captured in the HD configuration
- High sensitivity: large number of genes detected

Analysis of Rare Cell Populations

While SD microchip can be used for sequencing of up to 10,000 cells, the HD microchip can capture over 30,000 cells per sample, both with low amount of doublets.

The ultra-high throughput HD format is ideal for detection and analysis of rare cell populations (Figure 2).

Figure 2. Ultra-high throughput single cell sequencing of a complete mouse embryo processed with GEXSCOPE Single Cell RNA Library Kit (HD) Transcriptome analysis of a complete mouse embryo detected gene expression in 42,641 cells and identified a rare cell population accounting for as little as 0.15% of total cells .

GEXSCOPE Single Cell RNA Library Kit Workflow

The tissue is first dissociated into single cell suspension and loaded onto the GEXSCOPE microchip. The GEXSCOPE microchip integrates single cell capture, cell lysis, capture of the cellular mRNA and molecular labeling. The barcoded cDNA is then amplified and used for the construction of single cell NGS libraries (Figure 3). To automatize the procedure, the loading of the GEXSCOPE microchip can be performed using the Singleron Matrix® instrument.

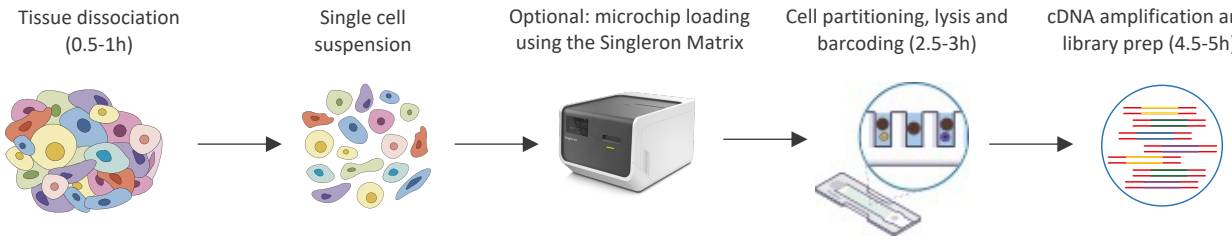


Figure 3. Overview of the GEXSCOPE workflow

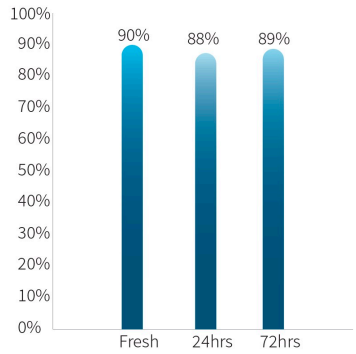
GEXSCOPE Single Cell RNA Library Kit: Manual or Automated Workflow

The easy-to-use GEXSCOPE microchip can be operated manually, with a 200 μL pipette, without any special equipment.

Alternatively, to reduce the manual labor and shorten the operation procedure, the loading of the GEXSCOPE microchip can be automated using the Singleron Matrix instrument (Figure 4).

Figure 4. Singleron Matrix instrument processing two GEXSCOPE microchips simultaneously

GEXSCOPE Single Cell RNA Library Kit: Prolong the Tissue Viability



The sCelLiVE Tissue Preservation Solution maintains the cell viability for up to 72 hours (Figure 5). Samples are easily shipped or stored, making it possible to plan for multi-center, large scale single cell sequencing projects.

To facilitate the tissue dissociation, the sCelLiVE Tissue Dissociation Mix provides effective dissociation of a large variety of tissue types to single cell suspensions.

Singleron PythoN® instrument offers possible automatization of the tissue dissociation procedure,

Figure 5: Viability of cells from brain tissue collected fresh or stored with sCelLiVE Tissue Preservation Solution at 4℃ for 24 and 72 hours.

GEXSCOPE Single Cell RNA Library Kit: High sensitivity

The GEXSCOPE Single Cell RNA Library Kit offers high sensitivity: increased number of median UMI per cell and total genes were detected in mouse subcutaneous implantation of human kidney organoid (Figure 6).

	Mean Reads per Cell	Median UMI per Cell	Total Genes	Median Genes per Cell
Supplier X	29,854	6,205	56,694	2,300
Singleron	**29,087**	**7,662**	**59,151**	**2,687**

Figure 6: Single cell RNA-seq performance comparison

Ordering information:

The GEXSCOPE Single Cell RNA Library Kits contain GEXSCOPE microchip, Barcoding Beads, and reagents for transcriptome amplification and library construction. The GEXSCOPE Tissue Kits contain also sCelLiVE Tissue Preservation Solution and Tissue Dissociation Mix.

Product	Catalogue number
GEXSCOPE Single Cell RNA Library Kit Cell V2 2 RXNs/ 16 RXNs	SD: 4180011/ 4180012 HD: 4180031/ 4180032
GEXSCOPE Single Cell RNA Library Kit Tissue V2 2 RXNs/ 16 RXNs	SD: 5180011/ 5180012 HD: 5180031/ 5180032
GEXSCOPE Single Cell RNA Library Kit Cell for Matrix V2 2 RXNs/ 16 RXNs	SD: 4180021/ 4180022 HD: 4180041/ 4180042
GEXSCOPE Single Cell RNA Library Kit Tissue for Matrix V2 2 RXNs/ 16 RXNs	SD: 5180021/ 5180022 HD: 5180041/ 5180042

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