# STOmics | MGI

Tumor cell heterogeneity and microenvironment are key to research on tumor mechanism, prevention, and treatment. Spatial transcriptome technology -- Stereo-seq, can map tumor cell heterogeneity and microenvironment structure at subcellular resolution, bringing significant breakthroughs in tumor research. Similarly, spatial multi-omics technology can also be applied to other diseases that are tied to spatial structures, providing a powerful tool for further exploration.
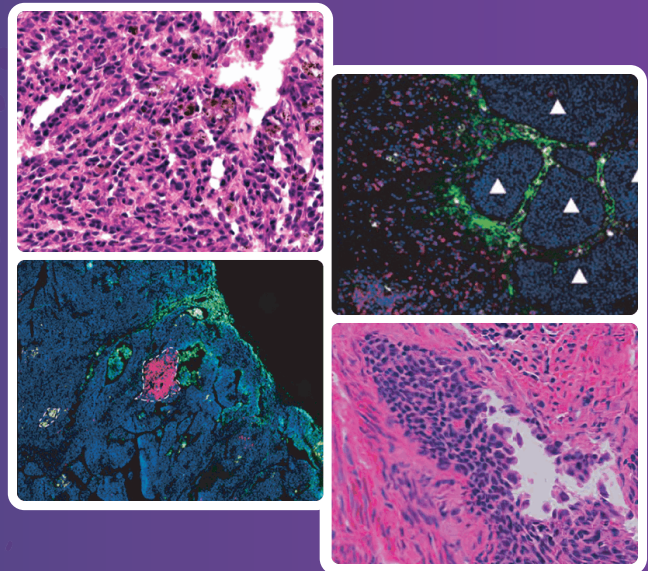
Technology highlights

- Subcellular resolution allowing visualization on cellular heterogeneities and efficient cell type annotations
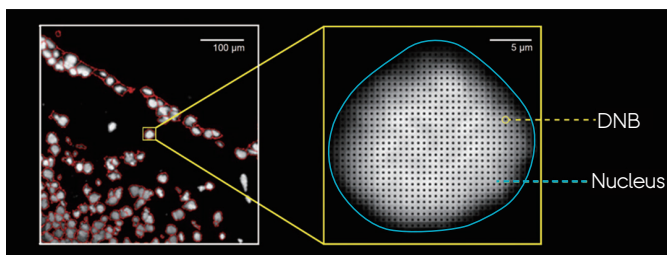

Figure 1. Stereo-seq capturing spots (DNBs) arranged down to single cell resolution, allowing mRNA within one cell to be captured with hundreds of coordinate ID containing DNBs

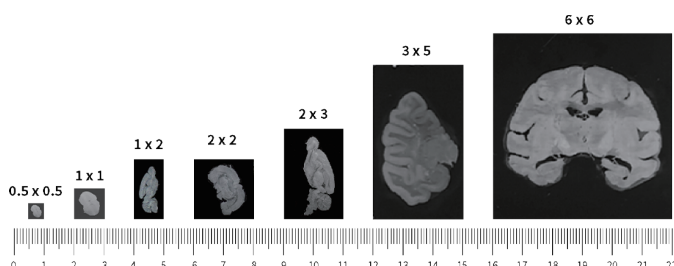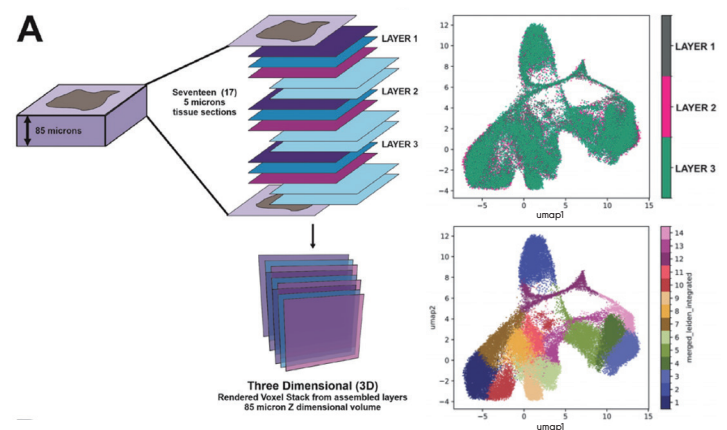- Multiple chip sizes allowing various tissue types and scalable capture areas

Figure 2. Demonstration of Stereo-seq chip at different sizes

Featured publication

Molecular, Metabolic, and Subcellular Mapping of the Tumor Immune Microenvironment via 3D Targeted and Non-Targeted Multiplex Multi-Omics Analyses

Ferri-Borgogno & Burks et al., *Cancers*, 2024

Highlights

- This approach aims to unveil intricate signaling networks between different cell types and the extracellular matrix (ECM) in the 3D tumor microenvironment (TIME) using two FFPE gynecologic tumor samples (HGSOC & AEH)

- Stereo-seq for FFPE enabled the capture of not only human coding and non-coding RNA but also microbiome RNAs with subcellular resolution

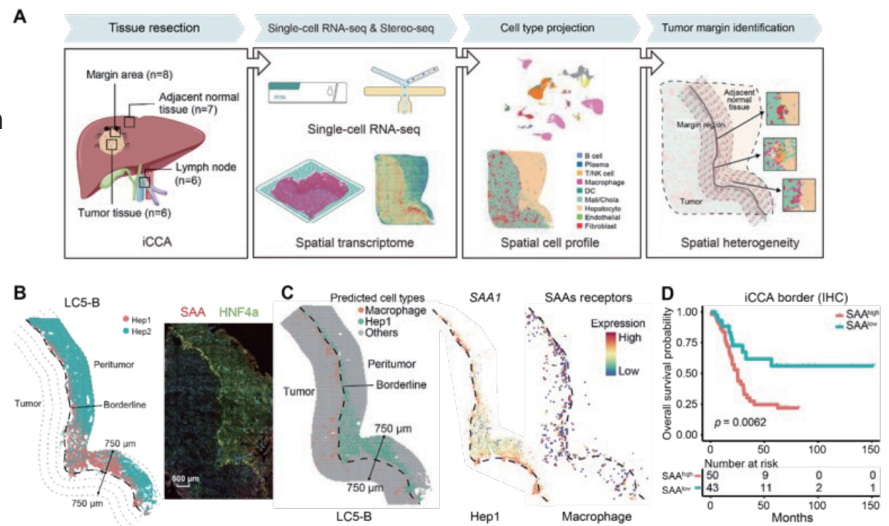**STOmics product: Stereo-seq Transcriptomics Solution**

Featured publication

An invasive zone in human liver cancer identified by Stereo-seq promotes hepatocyte-tumor cell crosstalk, local immunosuppression and tumor progression.

Wu et al., *Cell Research* , 2023

Highlights

- Spatial transcriptomics reveals the heterogeneity in tumor margin area
- Characterization of distinctive immune cells, the suppressive immune microenvironment, and metabolic reprogramming of tumor cells in invasive zone
- In the invasive zone, hepatocyte injury upregulates SAAs, further recruiting and polarizing macrophages to assist tumor progression

STOmics product: Stereo-seq Transcriptomics Solution

Additional publications

Publication	Experiment snapshot	Link
Molecular, Metabolic, and Subcellular Mapping of the Tumor Immune Microenvironment via 3D Targeted and Non-Targeted Multiplex Multi-Omics Analyses *Cancers* 2024, 16(5), 846	**STOmics product**: Early Access Stereo-seq Transcriptomics Solution for FFPE **Sample type**: Human, FFPE	
A cellular hierarchy in melanoma uncouples growth and metastasis. *Nature* 610: 190–198 (2022)	**STOmics product**: Stereo-seq Transcriptomics Solution **Sample type**: Mouse, Fresh frozen	
Presence of onco-fetal neighborhoods in hepatocellular carcinoma is associated with relapse and response to immunotherapy *Nature Cancer* 5:167–186 (2024)	**STOmics product**: Stereo-seq Transcriptomics Solution **Sample type**: Human, Fresh frozen	
Single-cell landscape of idiopathic Multicentric Castleman Disease in identical twins *Blood* 2023021992.	**STOmics product**: Stereo-seq Transcriptomics Solution **Sample type**: Human, Fresh frozen	

Contact us

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