XYZeq – Spatially-Resolved Single Cell Sequencing

Tech ID: 32239 / UC Case 2019-106-0

BRIEF DESCRIPTION

Researchers at UCSF have developed XYZeq, a method for coupling a cell's spatial location with single-cell sequencing. Single-cell genomic techniques have emerged as powerful approaches to further our understanding of disease states and cellular heterogeneity. Single-cell imaging methods gain spatial information, but lack throughput and detailed transcriptomic information. Current single-cell sequencing approaches require dissociation of cells during preparation, as a result cannot record a cell's physical location. UCSF researchers eliminate this step using XYZeq, a new scRNA-seq process that incorporates the benefits of single-cell imaging techniques with single-cell sequencing, without an imaging step. **XYZeq simultaneously discerns the location and gene expression of a single cell residing within a complex tissue microenvironment.** The technology has been validated in a laboratory setting.

ADVANTAGES

- Novel technology to provide spatially-resolved single-cell sequencing data
- XYZeq adds dimensionality to data from current sequencing approaches
- The current iteration of the technology can resolve a single cells spatial information to 500 μm
- The first technique to gain spatial information of single cells without the need for an imaging step
- XYZeq has potential for increased throughput and decreased cost per data point relative to imaging-based techniques gaining spatial information
- XYZeq can perform cell segmentation to discern similar, but distinct cellular clusters in a complex sample.

REFERENCES

Not available at this time

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20230212656	07/06/2023	2019-106

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Prospective Isolation Of Tumor-Reactive Cytotoxic CD4+ T Cells For Bladder Cancer Therapy

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OTHER INFORMATION

CATEGORIZED AS

- **Medical**
  - Research Tools

RELATED CASES

2019-106-0

- Lipid-Modified Oligonucleotides For Sample Barcoding in Droplet Microfluidics-Based Single-Cell RNA Sequencing
- Robust Genome Engineering in Primary Human T Cells using CRISPR/Cas9 Ribonucleoproteins

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