

Genome-Wide Interaction Screens In Primary Human Cells For Target Discovery And Drug Validation.

Tech ID: 32344 / UC Case 2018-100-2

TECHNOLOGY DESCRIPTION

The discovery of novel targets and molecular entities is critical for promoting human health and pharmaceutical research. Current therapeutic development pipelines have become increasingly time and resource intensive, limiting the number of companies able to conduct drug development. Moreover, although these drugs undergo rigorous testing prior to human trials, existing pipelines often miss population-wide biological phenomena, which contribute to their high failure rates in the clinic. Harnessing population-wide genomic and transcriptomic trends is necessary in order to develop more effective therapeutics. Researchers at UCSF have recently developed a platform to enable the testing of small and large molecule libraries on primary cells or CRISPR-edited primary cells from many individuals. **This technology enables the simultaneous unbiased analysis of millions of cells from hundreds of individuals at the genomic and transcriptomic level, introducing the possibility for a cost-effective and high-throughput population-wide drug testing platform to improve downstream clinical efficacy.**

Advantages:

- The technology introduces the first method for the deconvolution and cost-effective preparation of highly multiplexed scRNA-seq datasets.
- The platform allows for a fast, accurate, and scalable method for drug discovery of both small and large molecule libraries.
- This methodology enables high-throughput testing for genetic or pharmaceutical interactions in disease relevant primary human cells, which has not been previously possible.
- This technology introduces the first quantitative platform for studying genetic and pharmaceutical perturbations on a population-wide level.

RELATED MATERIALS

- ▶ [Patent Application](#)
- ▶ [Nat Biotechnol. 2018 Jan; 36\(1\): 89–94.](#)

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OTHER INFORMATION

CATEGORIZED AS

- ▶ **Biotechnology**
- ▶ Bioinformatics
- ▶ Genomics
- ▶ **Research Tools**
- ▶ Bioinformatics
- ▶ Nucleic Acids/DNA/RNA

RELATED CASES

2018-100-2

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20220005547	01/20/2022	2018-100

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Prospective Isolation Of Tumor-Reactive Cytotoxic CD4+ T Cells For Bladder Cancer Therapy](#)
- ▶ [XYZeq – Spatially-Resolved Single Cell Sequencing](#)

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