High-Efficiency One-Cell-One-Bead Encapsulation In Droplets

Tech ID: 28769 / UC Case 2017-803-0

BRIEF DESCRIPTION

A high-efficiency single-cell droplet encapsulation method to improve single cell pharmacological assay throughput.

FULL DESCRIPTION

Background:

» Cell and bead droplet encapsulation is common technique used in heterogeneous single cell pharmacology assays probing genomics, and proteomics.

» Current solutions for one bead-one cell encapsulation are based on random encapsulation dictated by Poisson statistics.

Problem:

» Low (0.1%) efficiency of one bead-one cell droplet encapsulation limits droplet sequencing and heterogeneous assays throughput

Solution:

» Increased one bead-one cell encapsulation efficiency (> 300 times current techniques) utilizing a controllable hydrodynamic vortices microfluidic platform

SUGGESTED USES

» Increased throughput of genome-wide expression profiles for individuals cells

» High efficiency one-bead-one cell encapsulation for droplet based heterogeneous single cell assays

ADVANTAGES

» Improved cell-bead encapsulation throughput for droplet sequencing applications of single cell genomics and proteomics

» Improving the encapsulation efficiency of droplet containing a single cell and a single bead compared to encapsulation of either component individually.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,780,438	09/22/2020	2017-803

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OTHER INFORMATION

CATEGORIZED AS

- **Biotechnology**
  - Other
- **Medical**
  - Diagnostics
  - Screening
- **Research Tools**
  - Other
- **Engineering**
  - Other

RELATED CASES

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