PATENT NO. US20210302300A1

LICENSING OPPORTUNITY: SERIAL CYTOMETRY

DESCRIPTION

Problem

It solves a significant problem in basic and clinical medical research of making precise measurements of objects in flow like characterizing a sample containing fluorescently labeled cancer cells.

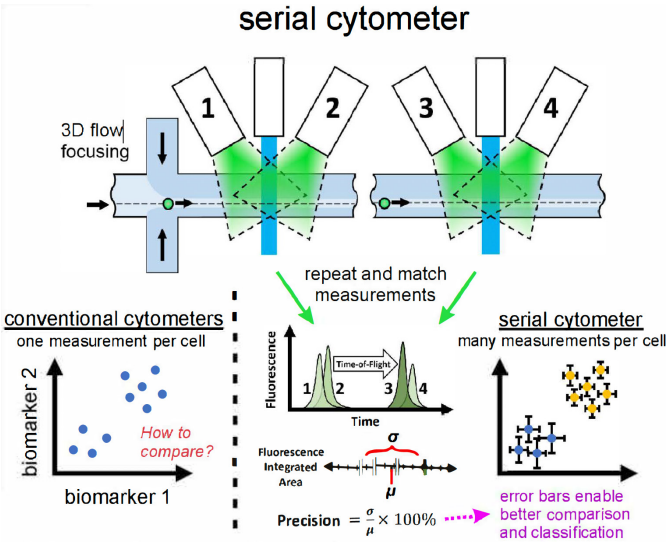
Invention

NIST scientists have developed a microfluidic flow cytometer that is capable of robust and repeated measurements that provide first-of-their-kind uncertainty estimates, which support better comparability and classification of cytometry data. The device measures single objects in flow several times along a microchannel with integrated waveguides that deliver and collect emitted, transmitted, and scattered light and provide additional details about object shape.

BENEFITS

Potential Commercial Applications

- Only cytometer capable of per-object uncertainties
- Better counting accuracy and classification of samples
- Accounts for sources of uncertainty that might be related to the shape, deformability, stability, or activity of objects in a liquid sample
- Does not require a microscope
- Compatible with on-chip sorting technologies



Serial cytometry involves making repeated measurements of single objects as they pass through multiple interrogation regions in a microfluidic channel. Integrated optical waveguides deliver and collect light from objects. Matching and analysis of signals from individual cells, for example, enable uncertainty estimates on the biomarker content of each cell, which enables better comparison and classification of cells and mixture of cells.

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