

Microfluidics Based Flow Analyzer & Sorter

Background:

Traditional flow cytometers, used for fluorophore-based biomarker detection, are limited by their (a) high costs, (b) bulkiness, and (c) larger sample volume requirement, often restricting their usage to few hospitals, research or diagnostic labs. Hence, a rapid, cost-effective, simplified, bench-top device for multiple biomarker detection and sorting with low clinical sample volumes is required to ensure efficient healthcare, agriculture and animal health solutions.

Technology:

Microfluidic Analyzer (MFA) is a bench-top flow-cytometer and sorter that provides a non-imaging based, multiplexed, optical analysis and on-demand sorting of analytes (e.g., cells or particles) *in situ*.

Applications:

The technology has downstream applications in diagnostics, therapeutics, agriculture and animal health. Few examples below:

- Detection of fluorescently labelled or non-labelled cells
- High-throughput sorting of cells/analyte
- Study the downstream impact on individual cells during a drug screen
- Environment control (water contamination counter)

Advantages:

- Portable/benchtop device
- Low sample volume
- Multiple biomarker detection
- Affordable

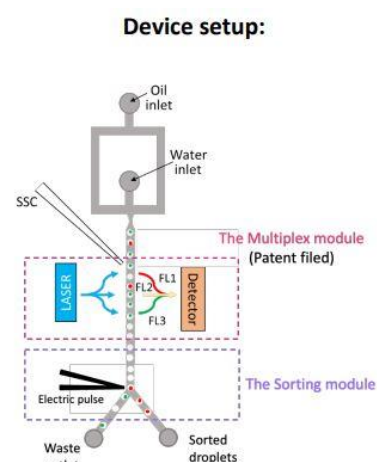


Figure: The microfluidic chip outlining the critical components of the device. The optical data collected in the Multiplex module is analysed real time and used to trigger the Sorting module for on-demand droplet sorting.

Publication:

Mohan, A., Gupta, P., Nair, A. P., Prabhakar, A. & Saiyed, T. A microfluidic flow analyzer with integrated lensed optical fibres. *Biomicrofluidics* 14, 054104 (2020). ([Click here](#) for details)

IP status:

Patent 1: Granted US patent no. US 9,304,122, Eurasian patent no. 1411403/22EA
Jurisdictions: United States (US)

Patent 2: PCT filed (PCT/IB2020/056297)

Filed national phase application in USA (17/624,483), EP (20834629.6) and IN (202247005377)