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Chip-Based Droplet Sorting

Tech ID: 22545 / UC Case 2011-668-0

BRIEF DESCRIPTION

Microfluidic devices are poised to revolutionize environmental, chemical, biological, medical and pharmaceutical detectors and diagnostics. The term “microfluidic devices” loosely describes the new generation of instruments that mix, react, count, fractionate, detect, and characterize samples in a micro-electro-mechanical system (MEMS) circuit manufactured through standard semiconductor lithography techniques. Although a wide array of microfluidic technologies are currently available, novel MEMS fluidic systems are needed as scientists continue to work with smaller sample volumes and desire devices with increased sensitivity and effectiveness.

Researchers at the University of California, Irvine have developed a unique non-contact system for sorting monodisperse water-in-oil emulsion droplets in a microfluidic device. The technology can be coupled to other on-chip processes to increase device efficiency by sorting out un-reacted droplets.

SUGGESTED USES

The invention may be used for monitoring bio-threat agents that contain nucleic acid signatures; biomedical applications (e.g., monitoring infectious diseases and DNA detection); high throughput genetic screening for drug discovery and novel therapeutics; genetic screening for oncology, disease, and personal genomics; forensic purposes; and other research applications (including but not limited to compound discovery, proteomics, and crystallography).

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,822,403	11/21/2017	2011-668
United States Of America	Issued Patent	8,765,455	07/01/2014	2011-668

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OTHER INFORMATION

KEYWORDS

Microfluidic, Droplet, Sorting, MEMS, Emulsion, On-chip

CATEGORIZED AS

- » **Optics and Photonics**
 - » All Optics and Photonics
- » **Environment**
 - » Other
- » **Engineering**
 - » Engineering
- » **Medical**
 - » Devices
 - » Diagnostics
 - » New Chemical Entities, Drug Leads
 - » Research Tools

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