Optical Switching and Sorting of Biological Samples and Microparticles in a Micro-Fluidic Device

Tech ID: 21970 / UC Case 2001-051-0

TECHNOLOGY DESCRIPTION

The invention provides methods and devices in which microscopic particles or cells within a fluid flowing in microfluidic channels are selectively manipulated, normally by being pushed with optical pressure forces at branching junctions in the channels so as to enter into selected downstream branches, thereby realizing particle switching and sorting. Transport of the particles thus transpires by microfluidics while manipulation in the manner of optical tweezers arises either from pushing due to optical scattering force, or from pulling due to an attractive optical gradient force. Whether pushed or pulled, the particles within the flowing fluid may be optically sensed, and highly-parallel, low-cost, cell- and particle-analysis devices thus may be efficiently realized, including as integrated on bio-chips.

INTELLECTUAL PROPERTY INFO

The invention has U.S. patent number 6,778,724, *Optical Switching and Sorting of Biological Samples and Microparticles Transported in a Micro-Fluidic Device*, Including Integrated Bio-Chip Devices. See also U.S. patent number 7,068,874 *Microfluidic Sorting Device* and corresponding Australian patent AU 2002230530, which are available for licensing.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	7,068,874	06/27/2006	2001-051
United States Of America	Issued Patent	6,778,724	08/17/2004	2001-051

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OTHER INFORMATION

KEYWORDS

optical switch, optical force, optical tweezers, optical manipulation, microfluidic device, sorting, bio-chip, lab on a chip

CATEGORIZED AS

- **Medical**
  - Devices
  - Diagnostics
  - Research Tools
- **Research Tools**
  - Nucleic Acids/DNA/RNA
  - Screening Assays

RELATED CASES

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