Self-Regulating CD Microfluidic System

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BRIEF DESCRIPTION

A self-regulating CD microfluidic device that avoids the problem of cross-contamination of different fluids on the device.

FULL DESCRIPTION

The microfluidic device has a number of microfluidic elements or features (e.g., reservoirs, chambers, channels and the like) that are utilized on a CD and connected to each other by ventilation channels and fluid transfer channels. This self-regulating device avoids the problem of cross-contamination. The system accomplishes this by negative feedback. Any excess fluid will enter into the ventilation channels to stop fluid transfer from the starting chambers. Such starting chambers may contain a lysing agent or processing fluid. The excess fluid is prevented from entering into an output chamber that would mix with the fluids from the starting chambers. However with the CD undergoing a higher RPM, the fluid may be transferred from the starting chambers to the output chambers.

SUGGESTED USES

This microfluidic device may be used for integrated centrifugal microfluidic sample preparation. It also may be used for cellular and chemical analysis along with clinical and medical diagnostic applications.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,124,030	02/28/2012	2007-201

STATE OF DEVELOPMENT

A prototype has been made.

TESTING

The prototype has been shown to effectively transfer and mix fluids without cross-contamination.

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OTHER INFORMATION

KEYWORDS

CD, Microfluidic, Cross-contamination, Chamber, Channel

CATEGORIZED AS

- **Medical**
  - Devices
  - Diagnostics
  - Research Tools
- **Engineering**
  - Other

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