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Chip-Based Quantitative Real-Time PCR with Detection (006.9)

Background

Point-of-care (POC; or bedside) testing especially 'Microfluidic lab-on-chip' devices have revolutionized clinical patient management by conveniently providing immediate intervention in a physician's office, at home, in an ambulance or even at an airport. While conventional POC devices such as glucometers or urine strip tests involve simple assays (membrane based strip tests), use of microfluidic lab-on-chip devices help perform complex assays in a short time. Global POC diagnostics market was \$13b in 2010 and is expected to grow at a rate of 3.7% between 2011 and 2016 and a CAGR of 9.3%. Global Microfluidic device market was approximately \$150m in 2011 and is expected to reach \$800m for POC applications by 2017. 1

Technology Status

- Researchers from the University of Calgary have created a cheap & **portable** new [microfluidic actuation system for lab-on-chip applications](#).
- Micro-droplets from multiple reservoirs can be **individually manipulated** (transported, split, mixed) & thermally cycled between two or more micro-patterned temperature zones.
- ***This technology provides on-chip, real-time, quantitative nucleic acid amplification (qRT-PCR) for detection of pathogenic and human genomic samples.***
- Prototype for multiplexed capabilities with blind detection for human respiratory viruses completed.

See the video.



Areas of Application

1. Medical diagnostics, Point of care analysis
2. Speed of assay, Multiple assays
3. Low volume, Low power requirements

Intellectual Property Status

US Provisional Patent application (US 61/953,283), Canadian Patent application (CA 1425062)