



## TECHNOLOGY

# Microdevice for the Detection of Sequence Differences in Biological Samples

## OVERVIEW

### Background

With the advancements in biomedical research, accurate sequencing of biological samples is becoming of greater importance. The completion of the Human Genome Project has highlighted the potential of single nucleotide polymorphisms (SNPs) in DNA while the increase in protein-based therapies has increased interest in the development and regulation of biosimilar drugs. However, full utilization of SNPs and biosimilars requires the quick and accurate ability to sequence these DNA samples and proteins. Currently, high-throughput SNP genotyping is performed using expensive technology, and the sequencing of biosimilars is so limited that few biosimilar drugs are gaining clearance from the FDA. Devices that economically and rapidly sequence biological samples with single-point accuracy would help lower costs in genetic testing and protein-based pharmaceuticals, increasing their use in biomedical research and treatment.

### Innovative Technology

Researchers at the University of Maryland, in collaboration with the National Institute of Standards and Technology, have developed a device to detect single-point differences in sequences of biological samples. Using integrated micro-heaters, the device uses the difference in melting temperatures for proteins or double stranded DNA to characterize differences in sequences. By manufacturing multiple micro-heaters on a single test plate, multiple melting curves are acquired at one time for high-throughput testing.

## APPLICATIONS

- Single nucleotide polymorphism (SNP) genotyping
- Evaluation of biosimilars

## ADVANTAGES

- Simple manufacturing decreases costs
- Precise control allows for quick testing
- Multiple reaction wells per plate for easy high-throughput testing

## CONTACT INFO

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## Additional Information

## INSTITUTION

University of Maryland, College Park

**PATENT STATUS**

Pending

**LICENSE STATUS**

Available for non-exclusive license

**CATEGORIES**

- Diagnostics
- Devices
- Research Tools, Antibodies, & Reagents

**EXTERNAL RESOURCES**

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