

# Capillary Driven Microneedle Patch for Blood Biomarker Analysis

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## **Blood testing can be unreliable and complex**

The problem with current blood testing methods is the lack of reliable, integrated platforms for point-of-care settings, coupled with the high cost and complexity of existing blood biomarker quantization technologies.

This bioresorbable thermoplastic microneedle platform addresses these issues by enabling accurate and reliable capillary blood collection and on-chip biomarker quantization. It integrates a hollow microneedle with microfluidic patterns and crossflow filtration, allowing for sensitive detection directly on the chip. Supported by a smartphone attachment for easy read-out, this low-cost, robust design eliminates the need for expensive peripheral equipment, enhancing point-of-care testing efficiency.

## **New technology allows for efficient collection and transportation of blood samples**

This technology is a bioresorbable thermoplastic microneedle platform designed for the accurate and reliable collection of capillary blood and on-chip quantization of blood biomarkers. It integrates a hollow microneedle with microfluidic patterns to collect and transport blood samples efficiently. The platform features crossflow filtration for blood cells and enables sensitive detection of biomarkers directly on the chip, supported by a smartphone attachment for easy read-out.

## **Summary Bullets**

- This bioresorbable thermoplastic microneedle platform accurately collects capillary blood and quantifies biomarkers on-chip, supported by a smartphone attachment for easy read-out.
- The prototype integrates hollow microneedles with microfluidic patterns and crossflow filtration, providing low-cost, reliable, and sensitive point-of-care blood testing.
- It enables point-of-care personalized diagnostics and blood biomarker analysis in clinical and remote settings without expensive peripheral equipment.

## **Solution Advantages**

- Low-cost and robust design
- Smartphone attachment for convenient biomarker read-out.
- Integrated system from blood collection to biomarker detection.
- Eliminates the need for costly peripheral read-out equipment.
- Bioresorbable thermoplastic material for safety and comfort.

#### Potential Commercial Applications

- Point-of-care personalized diagnostics.
- Blood biomarker analysis in clinical and remote settings.

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#### IP Status

<p>The patent application has filed</p>:

#### Publications

[Immunomagnetic leukocyte differential in whole blood on an electronic microdevice](#), Lab on a Chip - 2022

#### Images

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