

Plasma Separation from Blood

OEM MODULE FOR OPTICAL ACCESS TO PLASMA DIRECTLY FROM BLOOD

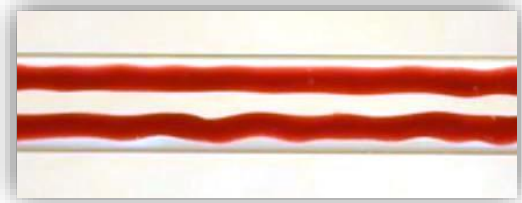
Real time integrated sample preparation

AcouPlasma enables rapid optical access to plasma in a miniaturized device. The solution uses gentle acoustic forces in combination with microfluidics to separate whole blood samples and open a cell-free plasma window. The module enables new types of point-of-care diagnostic devices. Access to cell free plasma enables integrated applications such as:

- Spectrophotometric measurements¹
 - Hematocrit
 - Bilirubin
 - Glucose
- Raman Spectroscopy (SERS)²
 - Cancer detection
- FTIR³
 - Protein Analysis



Channel filled with undiluted whole blood, ultrasound OFF



Ultrasound is turned ON. A window of clear plasma opens up in the center of the channel enabling optical analysis of the plasma fraction.

AcouPlasma provides

- Optical access to plasma within 2 – 30 seconds
- In-line integration with sample flow-path possible
- Non-disruptive technology – sample can be used for downstream analysis
- Small footprint device with separation chip and electronics

References:

1) *Analytic Methods for Bilirubin in Blood Plasma*, Vol. 7, Issue 6 December 1961, Watson D., *Acoustofluidic hematocrit determination*, ACA, 2018, 1000, 199-204, Petersson Et Al.

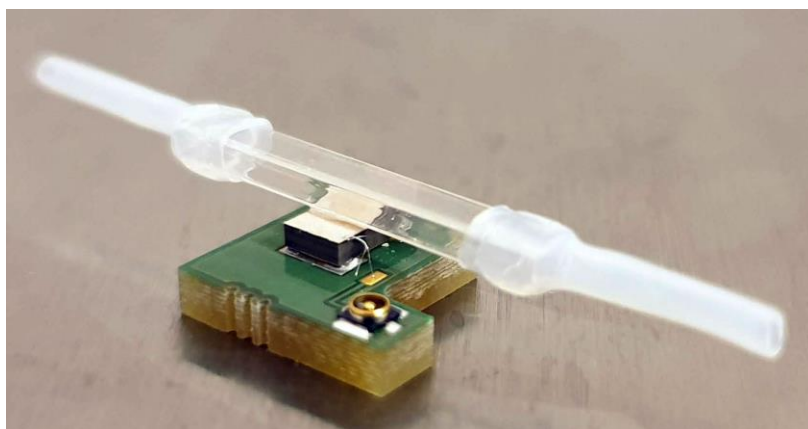
2) *Blood plasma surface-enhanced Raman spectroscopy for non-invasive optical detection of cervical cancer*, The Analyst 138(14), Feng et Al, *In-line whole blood fractionation for Raman analysis of blood plasma*, Analyst, 2019, 144, 602, Moritz et Al

3) *Plasma Protein Contents Determined by Fourier-Transform Infrared Spectrometry*, Vol. 47, Issue 4 April 2001, Petibois Et Al.

Technical specification

The AcouPlasma OEM module consists of a PCB with a piezoelectric element, where a microfluidic chip with fluidic connectors is attached.

- Sample volume: Minimum 3 μ l
- Separation time: 2 – 30 seconds (dependent on sample hematocrit level)
- Plasma window size: At least 0.3 x 0.1 mm²
- Hematocrit range: Maximum 75 hct
- Outer dimensions of separation unit: 25 x 20 x 15 mm³
- Operating temperature range: Ambient 18 – 32°C



Strategic Collaborations / Custom solutions

In addition to the standard OEM module, AcouSort engages in joint development of customized solutions based on acoustic separation and trapping, for example MNC-separation, enrichment and rapid staining of extracellular vesicles and cells.

AcouSort

AcouSort is a technology company in the biotech sector located in Lund, Sweden.

AcouSort has developed a platform technology for acoustophoresis that is based on migration with sound. It uses a new method with ultrasound to separate, concentrate and clean cells and other particles.

Contact

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