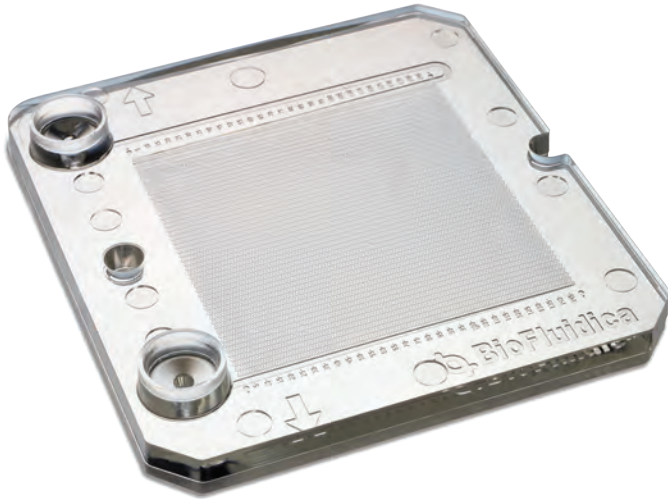




## LIQUIDSCAN™

LiquidScan uses high-throughput clinical-grade pipetting robotics to supply blood or other liquid biopsy samples without pre-processing to microfluidic chips positioned on the LiquidScan Module. The chips are surfaced with anti-biomarker antibodies or aptamers for biomarker capture. A "no-loss" closed-loop pipetting system has been uniquely implemented to eliminate sample loss and the creation of any aerosols. Hamilton® Company manufactures the liquid handling robot (STARlet platform), and chips are manufactured by precision injection molding with production scaling capability. With our supply chain established, BioFluidica can supply laboratories worldwide.



## MICROFLUIDIC CHIPS

The BioFluidica LiquidScan chip is a one-time-use test-specific microfluidic device. From 1 to 8 chips can be processed simultaneously on the LiquidScan system controlled to run autonomously by LiquidScan software. Circulating Tumor Cells (CTCs), for example, have a low abundance in blood, fetal cells, even less, against a high background of blood cells, RBCs  $10^9$  per ml; WBCs  $10^7$  per ml. Using antibody-surfaced channels, the microfluidic chip allows for the capture, isolation and enrichment of CTCs, fetal cells or exosomes. Elution of the cells and exosomes from the chip is performed such that the isolated material is fully compatible with downstream molecular and immunochemical analyses, as required for specific assays.

**OUR VISION IS THAT LIQUIDSCAN LIQUID BIOPSY WOULD REPLACE SURGICAL BIOPSY – NO MORE DISCOMFORT AND PAIN FROM BIOPSY, MORE REGULAR TESTING AND FOLLOW UP IS POSSIBLE.**

BioFluidica used an Acute Myeloid Leukemia (AML) study as a trial showing the system can be used to longitudinally track any patient and search for signs of relapse following therapeutic intervention.

## WORKFLOW





## LIQUIDSCAN TESTED

Ovarian	Cholangiocarcinoma
Colorectal	Multiple Myeloma
Endometrial	Acute Myeloid Leukemia
Lung	Acute Lymphoblastic Leukemia
Pancreatic	Prenatal
Prostate	Stroke
Bladder	SARS-COV-2 Detection
Leiomyosarcoma	

## EXAMPLE STUDY 1

### Prenatal Screening

LiquidScan was used to isolate fetal cells from maternal blood. Fetal cells are even rarer in blood samples than are CTCs. LiquidScan was able to isolate and enrich fetal cells from maternal blood and demonstrated the detection of trisomy, responsible for Down Syndrome, as described in the following two publications:

1. Identification of fetal aneuploidy with dual-probe fluorescence in situ hybridization analysis in circulating trophoblasts after enrichment using a high-sensitivity microfluidic platform – [doi.org/10.1002/pd.6046](https://doi.org/10.1002/pd.6046)
2. Detection of 69,XXX karyotype in circulating trophoblasts using fluorescence in-situ hybridization after enrichment using novel high-throughput microfluidic platform – [doi.org/10.1002/uog.23586](https://doi.org/10.1002/uog.23586)



## EXAMPLE STUDY 2

### Breast Cancer Study

Whole blood (6–8 ml) was collected in BioFluidica Blood Collection Tubes from 16 consenting patients with confirmed stage 3 or 4 metastatic breast cancer with clinical HER2 status identified by solid tissue biopsy (5 HER2+ and 11 HER2-). CTCs were isolated and collected using LiquidScan, probed by HER2 FISH, and analyzed using automated and visual microscopy. The results of LiquidScan were compared to those derived from needle biopsy.

LiquidScan uncovered HER2+ patients that needle biopsy missed. LiquidScan demonstrated that this new non-invasive liquid biopsy methodology could lead to rapid, non-invasive, and accurate identification of HER2 status in patient samples. Patients BCD12 and BCD16 were not selected for targeted HER2+ therapy and had to undergo standard chemotherapy. Based on this pilot study, more extensive patient studies, including earlier disease stages, are in development.

**"WE AT BIOFLUIDICA ARE COMMITTED TO MAKING CELL-BASED NON-INVASIVE LIQUID BIOPSY TESTING (CBNIT) AVAILABLE FOR PRECISION MEDICINE BRINGING A VAST IMPROVEMENT IN PATIENT CARE."**

- ROLF MULLER, CEO, BIOFLUIDICA

## ABOUT

BioFluidica, Inc. is a privately held liquid biopsy instrument company with headquarters and commercial development operations in the heart of the San Diego biotechnology region with R&D operations in Lawrence, Kansas. BioFluidica was incorporated in 2013 with the mission to innovate technology and processes to overcome the technical challenges that hindered the large-scale application of liquid biopsy, especially the use of information-rich rare circulating cells and exosomes for clinical use.

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