

OncoMetastat™

An investigational extracorporeal system engineered to capture and deplete circulating tumor cells to delay cancer metastasis and progression in early stage cancers.

Capturing the Cells that Matter.

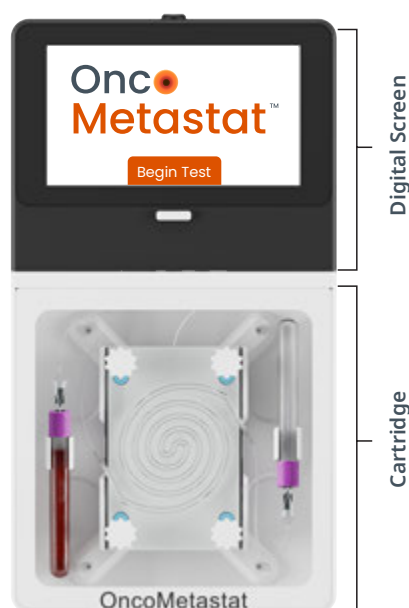


Fig 1: OncoMetastat® Device

OncoMetastat® is an investigational **extracorporeal blood-processing platform**, inspired by blood-dialysis principles, and envisaged to **selectively capture and deplete circulating tumor cells (CTCs)** from a patient's blood while maintaining blood integrity. Designed with a focus on **precision and safety**, the prototype is currently under evaluation for its potential research relevance to metastasis and broader cancer management.

Key Features:

Spiral Filtration System

Spiral channel housing CTC- capturing glass beads 3D printed with biomedical grade resin can filter 1-10 ml clinical blood sample.

Affinity Based System

Ligand-conjugated glass beads designed to capture circulating tumor cells (CTCs) for investigational evaluation. Ligands are EpCAM, Transferrin and N-Cadherin.

Biocompatible Design

Constructed from non-immunogenic materials to support durability and biocompatibility testing.

Built-in Safety Controls

Includes provisions for anti-coagulant handling and mixing systems during prototype testing.

Continuous Automated Operation

Designed to model gentle, continuous and automated blood circulation similar to dialysis principles for investigational use.

Algorithmic Image Analysis

Use of image processing algorithms for automated cell quantification and counting.

300+ Clinical patient samples processed to date

CA types tested:

Breast, Lung, Colorectal, Prostate, Gall bladder, Liver, Stomach, Thyroid, etc.

OncoMetastat® Device Layout



Fig 2: OncoMetastat® Digital Screen

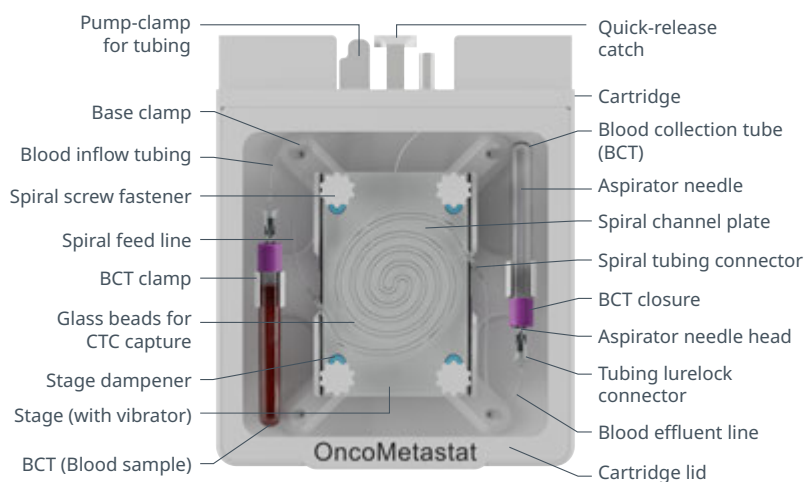


Fig 3: OncoMetastat® Components

Analytical Concordance Between OncoMetastat® and OncoDiscover® (N = 32)

True Positives	False Positives	False Negatives	True Negatives	Sensitivity
17	1	1	13	94.4%

Specificity	PPV	NPV	Accuracy	Balanced Accuracy
92.9%	94.4%	92.9%	93.8%	93.7%

OncoDiscover® is a DCGI-approved CTC enumeration assay employing EpCAM immunocapture and CK/CD45/DAPI staining; it served as the internal reference method in this preliminary analytical assessment. Data are from internal studies and has not been reviewed or approved by the U.S. FDA.

CTC Captured by OncoMetastat®

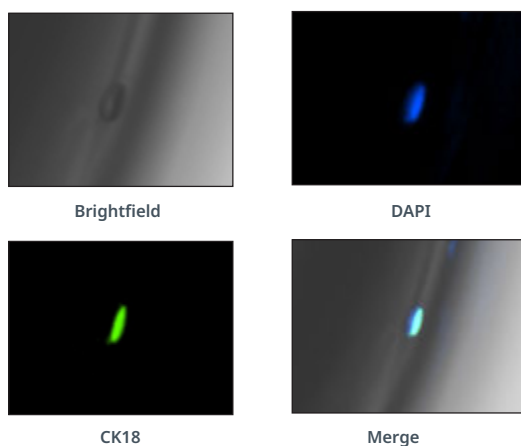


Fig 4. CTCs Captured on OncoMetastat® Platform on the EpCAM/Tf functionalized glass bead.

Blood Parameter Testing with OncoMetastat®

Evaluation of Potential Hemolysis in OncoMetastat® (OMS)

	OncoSpiral	Glass Beads	OMS Device
Hemolysis %	0.9	0.8	<2.0

Blood Protein Level Changes During OncoMetastat® Processing

Control Serum	Processed Serum	Protein Loss to Processing
70 mg/m	68.96 mg/m	1.5 %

Evaluation of Leucocyte (WBC) Adsorption on OncoMetastat® Beads

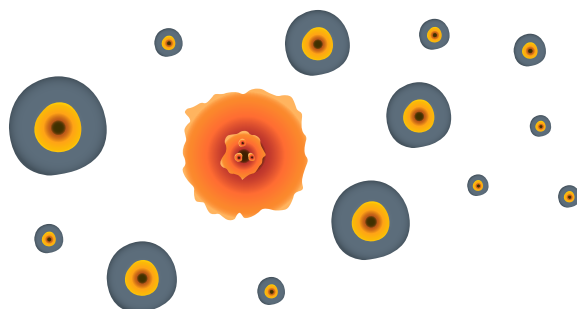
Bead-adherent WBCs	OMS Processing	OMS (with vibration)
WBC Count	2+/-1	1+/-1

Evaluation of OncoMetastat® Induced Pyrogenicity

Pyrogenicity	Control	OMS
Body Temperature	37 °C	37+/-0.5 °C

The OncoMetastat® technology aims to pioneer an innovative, research-driven strategy as a new therapeutic direction in preventing and delaying cancer metastasis.

Filtering Cancer. Fighting Metastasis.



References:

1. Khandare, et. al. Continual depletion of circulating tumor cells using an automated device enriched with affinity glass bead substrates in breast and CRC patient's whole blood. ASCO 2026
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3. Khandare, et. al. Use of dynamic blood flow device with conjugated affinity ligands on glass substrate to capture circulating tumor cells in cancer patients. J Clin Oncol 2025; 43.
4. Khandare, et. al. Automated Continual Flow Device to Deplete Circulating Tumor Cells using Spiral Cartridge Mediated by Antibody and Transferrin Glass Substrate. The Journal of Liquid Biopsy 2025; 9; 100334.
5. Khandare, et. al. Extracorporeal microchannel device to capture and eliminate circulating tumor cells from cancer patient's blood. J Clin Oncol 2022; 40.
6. Khandare, et. al. Device for the enumeration and continuous removal of circulating tumor cells in improving overall survival of epithelial cancer patients. J Clin Oncol 2020; 38.

