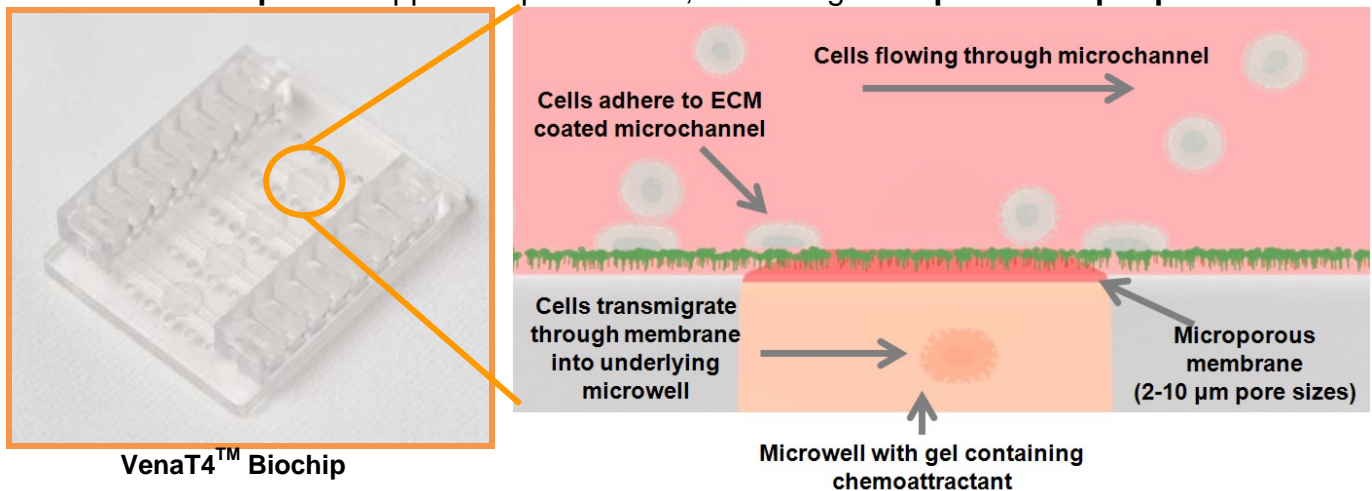


VenaT4™ Biochip:

For cell migration, transmigration, invasion and chemotaxis studies

VenaT4™ Biochips contain 4 parallel enclosed microcapillaries separated from 4 underlying microwells via a membrane with pore sizes of 2-10µm. Applications include migration, transmigration, invasion and chemotaxis studies of leukocytes across the membrane embedded into the biochip. ECM proteins can be coated onto the membrane separating the flow channel and microwell containing the chemokine well. Cell suspensions may then be injected using the Mirus™ Nanopump which supports a range of shear stresses / shear flow rates for dynamic flow based assays. Leukocyte migration can be observed under conditions of continuously applied shear stress to mimic physiological conditions of blood vessels.

VenaT4™ Biochips are supplied in packs of 10, facilitating **40 experiments per pack**.



VenaT4 Biochip Illustration close-up: Cell transmigration across microporous membrane into underlying microwell

Features

- **20x, 40x long working distance** magnification microscopy.
- 4 microwells of ~14µL each volume to immobilize chemoattractants inside ECM gel.
- Polycarbonate membrane with various pore sizes of 2-10µm.
- Compatible with Kima™ pump for long term studies or for slow migrating cells.
- Brightfield / Phase contrast / Fluorescent microscopy.
- Suitable for migration, transmigration, invasion and chemotaxis experiments with leukocytes and cancer cells.
- Suitable for whole blood and blood cells analysis (e.g. leukocytes)
- Biochip plastic is optically clear permitting detailed microscopy studies.
- 0.05 – 200 dyne/cm² shear stresses / shear flow rates easily obtained and controlled by the **Mirus™ Nanopump** and **VenaFluxAssay™ software**.
- Shear stress / Shear flow rate may be preset to be incrementally increased during an assay.
- Real time imaging under flow conditions.

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Performance Specifications	
Range of proteins:	Laminin, VCAM, ICAM, Fibrinogen
Range of chemokines:	IL-8, SDF-1, MCP-1 etc.
Cell Suspension Assay:	
Cell types:	<ul style="list-style-type: none"> • T-cells: primary & cell lines e.g. HUT 78 • Monocytes: primary and cell lines; e.g. THP-1 • Eosinophils • Neutrophils • PBMCs, whole blood, etc.
Minimum Sample Volume:	~12 μ L
Maximum Sample Volume:	100 μ L (Vena microwells at input/output ports)
Shear Stress Precision:	<0.5% CV
Shear Stress Range for cell suspension:	0.05 - 10 dyne/cm ² ; steps of 0.05 dyne/cm ² (100 μ L syringe)
Shear Stress Range for whole blood *:	2.25 - 200 dyne/cm ² (1 mL syringe)
Volumetric Flow Rates**:	100 nL/minute - 20 μ L/minute (100 μ L syringe); 5 μ L/minute – 1 mL/minute (5 mL syringe)
Sample Volume Aspiration Accuracy:	\pm 1%
Shear Stress Accuracy:	\pm 0.5%
Sample Volume Aspiration Precision:	<1% CV

*Considering human whole blood with a viscosity of 4.5 cP

**Given for the flow of distilled water in a microcapillary with dimensions: 400 μ m (W) x 100 μ m (D) x 28 mm (L).

Technical Specifications	
Material:	Acrylic (biochip), PDMS (channel walls), Polycarbonate (membrane)
Number of channels per biochip:	4
Volume of each channel:	2.253 μ L
Dimensions of each channel:	800 μ m (W) x 100 μ m (D) x 28 mm (L)
Number of microwells per biochip:	4
Diameter of each microwell:	6mm
Volume of each microwell:	14.13 μ L
Dead volume at input/output port:	0.1 μ L
Thickness of bottom substrate:	0.5 mm