



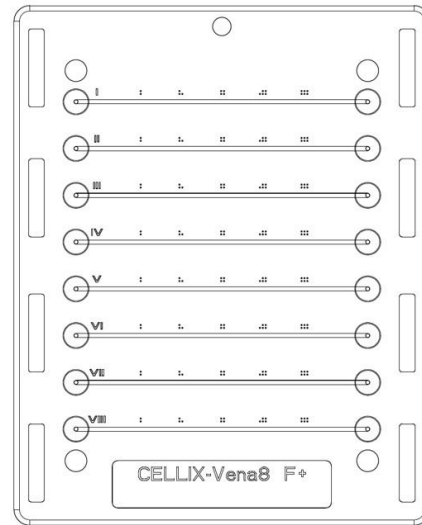
## Technical Note

---

Vena8 Fluoro+™ Biochips

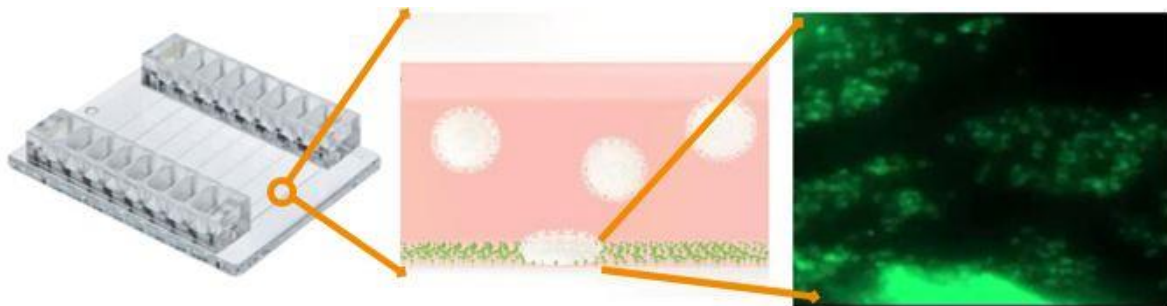
## Vena8 Fluoro+ Biochip: for cell receptor–ligand studies under conditions mimicking physiological flow

Vena8 Fluoro+ biochips contain 8 parallel enclosed microcapillaries for continuous flow cell-based assays. Each microcapillary may be coated with a different adhesion molecule. Cell suspensions may then be injected using Cellix's microfluidic pumps which supports a range of shear stresses for dynamic flow-based assays. Vena8 Fluoro+ biochips are particularly suited for applications requiring fluorescent immunostaining or confocal microscopy observation combined with flow-based experiments. Vena8 Fluoro+ biochips are supplied in packs of 10, facilitating 80 experiments per pack.



*Vena8 Fluoro+ biochip*

### COMPATIBLE WITH CONFOCAL MICROSCOPY!



*Vena8 Fluoro+ Biochip*

*Illustration close-up: cell adhesion inside ligand-coated microchannel of Vena8 Fluoro+ biochip*

*Example: adhesion of human PBMC (stained with FICT conjugated to CD3 antibody) to VCAM-1 coated channel at shear stress of 0.5 dyne/cm<sup>2</sup>*

**Vena8 Fluoro+ Features, Performance and Technical Specifications:**

- 20x, 40x, 60x, 100x short working distance magnification microscopy; 60x, 100x oil-immersion microscopy.
- Compatible with brightfield / phase contrast / fluorescent / confocal microscopy.
- Low level fluorescence imaging, low fluorescent background.
- Suitable for a wide range of cell suspensions and whole blood.
- Easy to coat microcapillaries with a range of different adhesion molecules.
- Biochip plastic is optically clear permitting detailed microscopy studies.
- 0.05–450 dyne/cm<sup>2</sup> shear stresses easily obtained and controlled by the Mirus Evo Nanopump, ExiGo, UniGo and 4U microfluidic pumps.
- Real time imaging under flow conditions.

Technical specifications	
Material	Topas
Number of channels per biochip	8
Volume of each channel	1.12 $\mu$ L
Dimensions of each channel	400 $\mu$ m (W) x 100 $\mu$ m (D) x 28 mm (L)
Dead volume at input port	0.1 $\mu$ L
Thickness of bottom substrate	0.17 mm

Performance specifications	
Range of proteins for biochip coating	VCAM, ICAM, fibronectin, vWF, fibrinogen, collagen, etc.
Cell types for cell suspension assay	T-cells & monocytes (both primary & cell lines, e.g. HUT 78 e.g. THP-1), Eosinophils, Neutrophils, Platelets, PBMCs, whole blood, etc.
Shear stress precision	<0.5% CV
Shear stress range for cell suspension	0.05–10 dyne/cm <sup>2</sup> ; steps of 0.05 dyne/cm <sup>2</sup> (100 $\mu$ L syringe)
Shear stress range for whole blood*	2.25–450 dyne/cm <sup>2</sup> (1 mL syringe)
Volumetric flow rates**	100 nL/min–20 $\mu$ L/min (100 $\mu$ L syringe); 5 $\mu$ L/min–1 mL/min (5 mL syringe)
Sample volume aspiration accuracy	$\pm$ 1%
Shear stress accuracy	$\pm$ 0.5%
Sample volume aspiration precision	<1% CV
Minimum sample volume	$\sim$ 10 $\mu$ L
Maximum sample volume	100 $\mu$ L (Vena8 Fluoro+ microwells)

\*Considering human whole blood with a viscosity of 4.5 cP.

\*\*Given for the flow of distilled water in a microcapillary with dimensions: 400  $\mu$ m (W) x 100  $\mu$ m (D) x 20 mm (L).