

# VenaFlux Pro

## Technical Note



### VenaFlux Solutions mimic human blood vessels



#### THROMBOSIS, PLATELET ADHESION & AGGREGATION ASSAYS

2.25 - 450 dyne/cm<sup>2</sup> with Vena8 Fluoro+ Biochips.



#### CELL-LIGAND & CELL-CELL ROLLING, ADHESION & MIGRATION SHEAR FLOW ASSAYS

0.05 - 10 dyne/cm<sup>2</sup> with Vena8 Fluoro+ and Vena8 Endothelial+ Biochips.



#### MAIN BENEFITS



##### COST EFFECTIVE SOLUTION



**MULTIPLIED ASSAYS** with Mirus Evo Pump and MultiFlow8 providing equal flow rates in 8 channels of Cellix's biochips. This enables multiple cell types or adhesion molecules to be tested simultaneously comparing different therapeutic treatments.



**TEMPERATURE CONTROLLED CONDITIONS** mimicking physiological conditions with microenvironmental chamber.



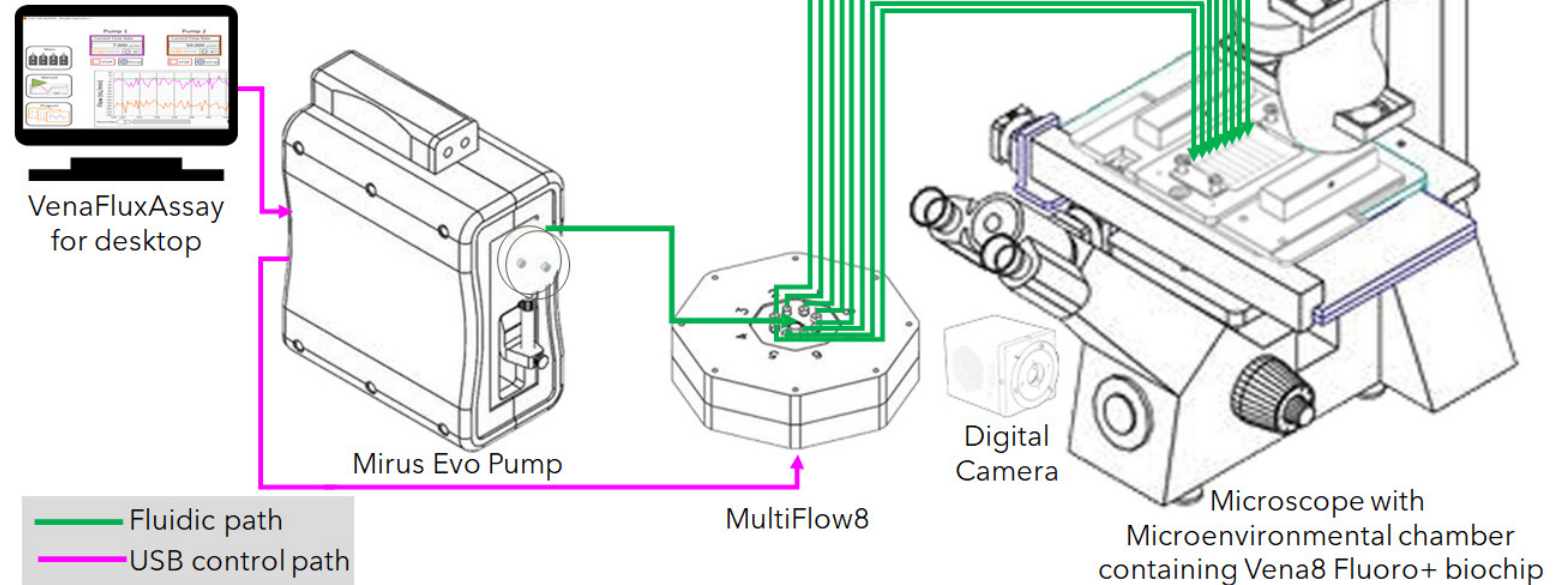
**CELL ANALYSIS** of % thrombus coverage and number of thrombi; number of cells adhered to protein-coated channels and analysis of rolling velocities of cells - all with Image Pro.



**PROGRAMMABLE** with PC-controlled VenaFluxAssay software enabling execution of customised protocols.



## HOW DOES IT WORK?



## TECHNICAL SPECIFICATIONS



### Mirus Evo Pump with MultiFlow8

Capable of executing up to 8 assays in parallel in Vena8 biochips resulting in an 8-channel simultaneous flow control.

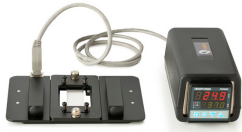
Shear stress range for cell suspension	0.05–10 dyne/cm <sup>2</sup> ; steps of 0.05 dyne/cm <sup>2</sup> (100 µL syringe)
Shear stress range for whole blood*	2.25–450 dyne/cm <sup>2</sup> (1 mL syringe)
Volumetric flow rates	100 nL/min–20 µL/min (100 µL syringe) (at 20°C, 2Hz, with air under 10psi pressure)
Dead volume	600 µL
Sample volume increments	Freely adjustable
Valve switching time	30 ms max
Working pressure	30 psi–2 bars max
Linear velocity range**	10 µm/s–10 cm/s
Flow direction	Reversible
Sample volume aspiration accuracy	±1%
Shear stress accuracy	±0.5%
Sample volume aspiration precision	<1% CV
Shear stress precision	<0.5% CV
Software control	VenaFluxAssay Software
Dimensions	21.5 cm x 18 cm x 16.5 cm
Weight	5.64kg
Power requirements	110 / 220 V – 50 / 60 Hz – 60 W

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

\*\*Given for the flow of distilled water in a microcapillary with dimensions: 400 µm (W) x100 µm (D) x 20 mm (L).



## TECHNICAL SPECIFICATIONS



### Microenvironmental chamber

Temperature controlled microscope frame for microfluidic chips. Heated frame and ITO glass heater to heat surface of microfluidic biochip.

Temperature range	Room temperature to 50°C. One presetting of at 37°C.
Microscope compatibility	Zeiss, Nikon, Olympus.
Chip dimensions	The frame will hold microfluidic chips of size 50mm (L) x 40mm (W) x 3mm (D). Compatible with Cellix's Vena biochip range.



### Zeiss Axio Vert A1 Microscope

Inverted microscope with fluorescence and manual stage

Stand	Manual inverted stand, transmitted light and LED fluorescence
Eyepieces	Field number 23 (W-PI 10x / 23 br foc), diameter: 30 mm
Objectives	<b>10X, 20X, 40X:</b> LD A-plan 10x/0.25 Ph1 (PS) LD PN 20x/0.4 Corr Ph2 LD PN 40x/0.6 Corr Ph2)
Phase contrast	40X Phase contract objective; LD-plan Neofluar 40x/0.6 Corr Ph2 M27
LED-Modules	355nm, 470nm and neutral white f. and reflector module FL EC P&C.
Filter sets	49 DAPI, EX G365 shift free; 38 HE GFP shift free and 43 HE Cy3 shift free.
Camer Adaptor	C-Mount 60N-C 1" 1.0x
Dimensions	23.5 x 56.0 x 56.0 cm
Weight	12.3kg
Power requirements	110 / 220 V – 50 / 60 Hz



### Digital camera: Prime BSI Express

The Prime BSI Express camera delivers the perfect balance between high resolution imaging and sensitivity with an optimized pixel design, USB 3.2 Gen 2 connectivity and near perfect 95% Quantum Efficiency to maximize signal detection.

Sensor	Gpixel GSENSE2020BSI Scientific CMOS sensor
Pixel Area	6.5µm x 6.5µm (42.25µm <sup>2</sup> )
Frame rate	95fps
Peak Quantum Efficiency %	>95%
Active Array Size	2048 x 2048 (4.2 Megapixel)



## WHAT'S INCLUDED?

	INCLUDED	OPTIONAL
Mirus Evo Pump with MultiFlow8	☑	
PC with VenaFluxAssay software pre-installed & tested	☑	
Microenvironmental chamber	☑	
Image analysis software: Image Pro	☑	
Microscope: Zeiss Axio Vert A1 Fluorescence with manual stage	☑	
Digital camera for image acquisition: Prime BSI Express	☑	
1 glass syringe for Mirus Evo Pump	☑	
Power supply and cables	☑	
Biochips		☑