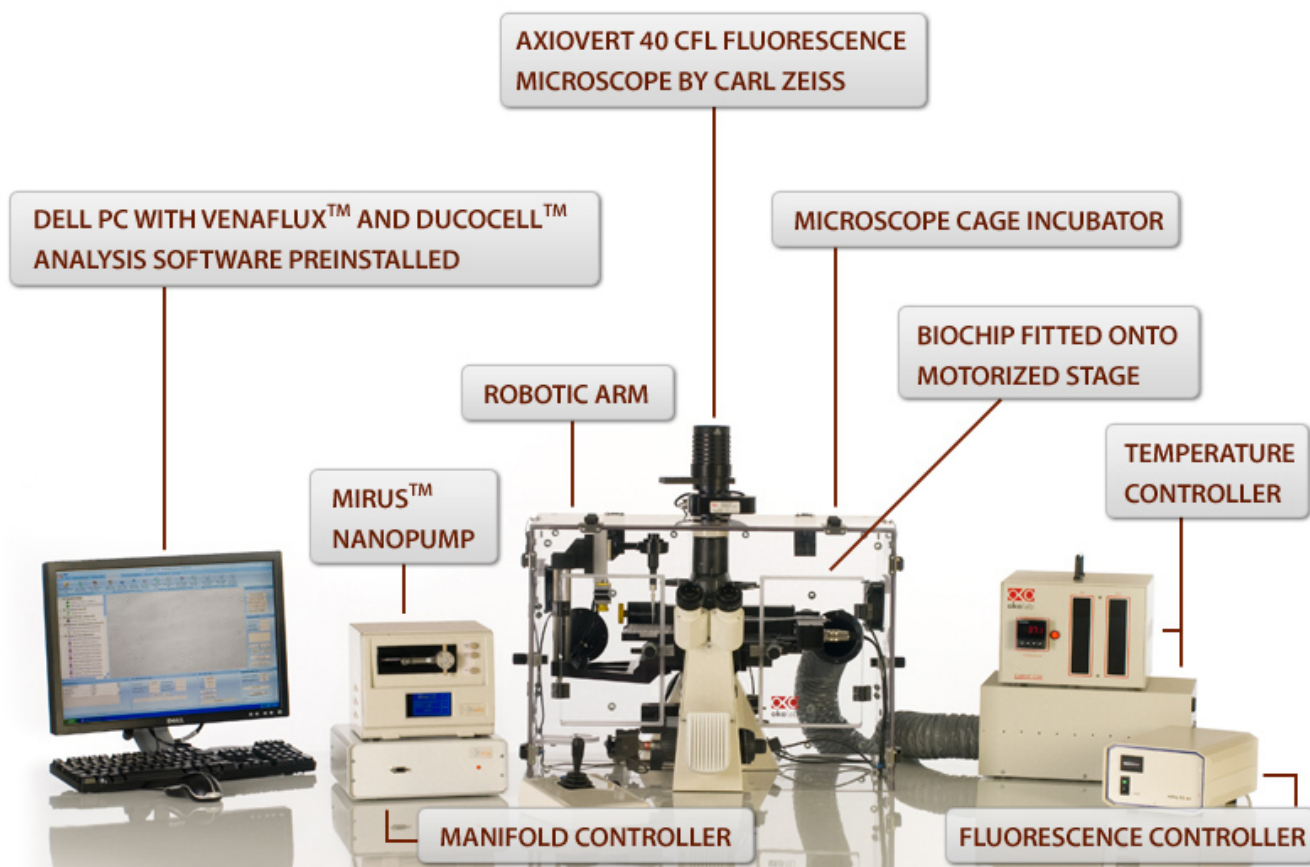


VenaFlux™ Platform Technical Specifications



Vena8 Biochip Specifications	
Biochip Coating: Range of proteins: Minimum Sample Volume:	VCAM, ICAM, MAdCAM, Fibronectin, vWF, Fibrinogen, Collagen etc. ~10µl
Cell Suspension Assay Cell types: Minimum Sample Volume: Maximum Sample Volume: Number of channels per biochip: Volume of each channel: Dimensions of each channel: Dead volume at input port: Thickness of bottom substrate:	T-cells: primary & cell lines e.g. HUT78 Monocytes: primary and cell lines; e.g. THP1 Eosinophils Neutrophils PBMCs, whole blood, etc. ~10µl 100µl 8 0.8µl 400 µm (W) x 100 µm (D) x 20mm (L) 0.1 µl 0.5mm

Mirus™ Nanopump Specifications	
Shear Stress Range for cell suspension: Shear Stress Range for whole blood*: Volumetric Flow Rates: Sample Volume Aspiration Accuracy: Shear Stress Accuracy: Sample Volume Aspiration Precision:	0.05 - 10 dyne/cm ² ; steps of 0.05 dyne/cm ² (100 µL syringe) 2.25 - 200 dyne/cm ² (1 mL syringe) 100nL/minute - 20 µL/minute (100 µL syringe) ±1% ±0.5% <1% CV

Shear Stress Precision: Software Control:	<0.5% CV Integrated <i>VenaFlux FlowAssay</i> software facilitates pumping of cell suspensions through biochips.
Dimensions:	220mm (W) x 175mm (D) x 220mm (H)
Weight:	Approx. 5kg
Power Requirements:	110 / 220V 50 / 60Hz

*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) x 100 µm (D) x 20mm (L).

Microscope: Carl Zeiss Axiovert 40 CFL Specifications	
Contrast Option:	Brighfield, Phase contrast, Varel, Fluorescence (TRITC, FITC, etc.)
Shutters:	Automated Brightfield and Fluorescence.
Objectives:	10x LD A-Plan, 20x LD A-Plan, 32x CP-Achromat, 40x LD A-Plan.
Eyepieces:	E-PL 10x/20 Br., 10x/20 Br. Foc.
Biochip Frame Holder:	Vena8 biochip compatible stage holder, Eppendorf tubes holder.
Motorized Stage with Z-Focus:	Marzhauser IM series stage, Travel 120mm x 100mm, Repeatability <1µm, Precision ±3µm, Maximum Travel speed 180mm/s.
Microscope Cage incubator with Temperature Control:	Temperature control ±0.1 ^o C, CO ₂ and humidity module Temperature monitoring software module, black panels for use in fluorescent microscopy (optional).
Robotic Arm:	Sample transfer from 96-well plate in to Vena8 biochip, tip washing, cell sample dilution.
Robotic Arm pipettor:	Tricontinent Z-series pump, 200µL max volume, 0.191µL/half-step, Z-drive.
Digital Camera:	Deltapix DP 450 USB 2.0 camera for image acquisition: 2 Mega Pixels (1,616 x 1,216); Color CCD; 1/1.8" format; Pixel 4.4µm x 4.4µm. Resolution: 12 FPS @ 1,616 x 1,216 pixels; 14 FPS @ 1,280 x 1,024 pixels; 18 FPS @ 1,024 x 768 pixels; 22 FPS @ 800 x 600 pixels; 26 PFS @ 640 x 480 pixels. Dynamic range: > 66dB.

Dell PC Technical Specifications
Dell Optiplex 745 PC computer
<ul style="list-style-type: none"> Intel Core2 processor; 1.86GHz; 2GB RAM; ATI Radeon X1300PRO; Objective Imaging stage control hardware; 19" LCD monitor. Windows XP Professional SP2; DeltaPix Viewer Software; VenaFluxAssay and DucoCell software preinstalled.

VenaFluxAssay Software Specifications
<ul style="list-style-type: none"> Execution of preset protocols, simultaneous control of pumping, scanning and image acquisitions, sample transfer and protocol flow. Intuitive stepwise protocol interface with steps hierarchy and status control. Office2007 GUI interface, preset and user-designed protocols.

DucoCell Software Specifications
<ul style="list-style-type: none"> Automatic Counting and Detection; Morphological parameters analyzed automatically (Area, diameter, form-factor, ellipticity, eccentricity, orientation, perimeter, asymmetry, cell centroid coordinates, elliptical axis); Cell sorting and filtering; Ability to analyze sub-populations based on inclusion/exclusion of morphological parameters. Data may be exported to Excel spreadsheet incorporating automatic graph generation (e.g. % cell adhesion vs. shear stress). File Formats analyzed: *.jpg, *.jpeg, *.tif, *.tiff, *.gmp, *.gif, *.png.