

Materials List for:

In Vitro Model of Physiological and Pathological Blood Flow with Application to Investigations of Vascular Cell Remodeling

Winston Elliott¹, Devon Scott-Drechsel², Wei Tan¹

¹Department of Mechanical Engineering, University of Colorado at Boulder

²Product Development, Covidien, Ltd.

Correspondence to: Winston Elliott at welliott@baiwe.net

URL: <https://www.jove.com/video/53224>

DOI: [doi:10.3791/53224](https://doi.org/10.3791/53224)

Materials

Name	Company	Catalog Number	Comments
Acetone	Sigma-Aldrich	34850	
Sulfuric Acid	Sigma-Aldrich	320501	
(3-Aminopropyl)triethoxysilane	Sigma-Aldrich	440140	
Glutaraldehyde Solution	Sigma-Aldrich	G5882	
Ethanol	Sigma-Aldrich	459844	
Glass Slide (70 mm x 50 mm)	Sigma-Aldrich	CLS294775X50	
Polycarbonate Membrane	Millipore Corp.	HTTP09030	
Silicone Gasket	Grace Bio-Labs	RD 475464	
Fibronectin (25 µg/ml)	Sigma-Aldrich	F1141	
Collagen Type-I	Sigma-Aldrich	C3867	
NaHCO ₃	Fluka	36486	
NaOH	Sigma-Aldrich	S5881	
Damping Chamber			This chamber is custom made, and may be requested using the engineering drawing of Figure 3 .
Blood Pump	Harvard Apparatus	529552	
Poly-Vinyl Carbonate Tubing	US Plastic	65066, 65063, 65062	Various sizes may be required
Luer Connections	Nordson Medical	Various	Various sizes will be required, and a number of parts should be purchased for replacement use.
Culture Chamber	Machined in-house	Custom	Acrylic may be purchased in sheets and machined for intended use. The engineering drawing shown in Figure 2 may be used to recreate this chamber.
Square Petri Dish	Cole-Parmer	EW-14007-10	
Glass Slide Holder	Capitol Scientific	WHE-900303	
Fetal Bovine Serum	Mediatech, Inc.	35-010-CV	
Dulbecco's Modified Eagle Medium	Mediatech, Inc.	10-013-CV	
Flow Meter	Sonotec, GmbH	Sonoflow co.55/060	
Sylgard Elastomer Kit	Sigma-Aldrich	761036-5EA	
14 G Steel Cannula	General Laboratory Supply	S8365-1	