

Materials List for:

Fabrication and Validation of an Organ-on-chip System with Integrated Electrodes to Directly Quantify Transendothelial Electrical Resistance

Marinke W. van der Helm¹, Mathieu Odijk¹, Jean-Philippe Frimat^{1,2}, Andries D. van der Meer³, Jan C.T. Eijkel¹, Albert van den Berg¹, Loes I. Segerink¹

¹BIOS Lab on a Chip group, MIRA Institute for Biomedical Technology and Technical Medicine, MESA+ Institute for Nanotechnology and Max Planck Center for Complex Fluid Dynamics, University of Twente

²Microsystems, Eindhoven University of Technology

³Applied Stem Cell Technologies, MIRA Institute for Biomedical Technology and Technical Medicine, University of Twente

Correspondence to: Marinke W. van der Helm at m.w.vanderhelm@utwente.nl

URL: <https://www.jove.com/video/56334>

DOI: [doi:10.3791/56334](https://doi.org/10.3791/56334)

Materials

Name	Company	Catalog Number	Comments
Materials			
Polydimethylsiloxane (PDMS) base agent and curing agent: Sylgard 184 Silicone elastomer kit	Dow Corning	1673921	
Scotch Magic tape	3M		
Biopsy punch, 1.0 mm diameter	Integra Miltex	33-31AA-P/25	
Polycarbonate membrane, 0.4 µm pore size	Corning	3401	Cut from Transwell culture inserts
Toluene	Sigma-Aldrich	244511	
Platinum wire, 200 µm diameter	Alfa Aesar	10287	
UV-curable adhesive: Norland Optical Adhesive 81	Norland Products	NOA 81	
Epoxy adhesive: Loctite M-31 CL Hysol	Henkel	30673	
hCMEC/D3 cells			Human cerebral microvascular endothelial cell line, kindly provided by Dr. P.-O. Couraud, INSERM, Paris, France
Phosphate buffered saline (PBS)	Sigma	P4417	
Human plasma fibronectin, 20 µg/ml	Gibco	33016015	
Endothelial growth medium-2 (EGM-2)	Lonza	CC-3162	Endothelial basal medium-2 (EBM-2) supplemented with EGM-2 SingleQuots
Trypsin-EDTA, 0.05%	Gibco	15400-054	
Fetal bovine serum (FBS)	Gibco	26140-079	
Equipment			
Oven	Binder	9010-0190	
Spin coater: Spin 150	Polos	SPIN150-NPP	
UV light source, 365 nm for 5 s at 350 mW/cm ²	Manufactured in-house		
Centrifuge: Allegra X-12R Centrifuge	Beckman Coulter		
Incubator	Binder	CB E2 150	

Boxense	LocSense		Lock-in amplifier with probe cable circuit, specialized for on-chip TEER measurements
---------	----------	--	---