

Materials List for:

Image-guided, Laser-based Fabrication of Vascular-derived Microfluidic Networks

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Materials

Name	Company	Catalog Number	Comments
MATLAB	Mathworks	R2015a	named "programming software" in protocol; refer to source 9 for details on algorithm
FIJI (Fiji is Just Image J)	NIH	version 1.51a	named "image processing software" in protocol
LSM 780 Confocal Microscope	Zeiss		named "laser-scanning confocal microscope" in protocol; for laser-based hydrogel degradation
Zen 2010B SP1	Zeiss	release version 6.0	named "microscope software" in protocol; for use on Zeiss LSM-780
Multitime, 2010	Zeiss	v16.0	named "microscope macro" in protocol; for use on Zeiss LSM-780 (in conjunction with Zen)
Objective W Plan-Apochromat 20X/1.0 DIC D=0.17 M27 75 mm	Zeiss	421452-9880-000	for use on Zeiss LSM-780
Chameleon Vision II Modelocked Ti:S Laser	Coherent		named "high-powered pulsed laser" in protocol
Sodium chloride	Sigma-Aldrich	S5886-1KG	
HEPES	Sigma-Aldrich	H3375-250G	
Triethanolamine (TEOA)	Sigma-Aldrich	90279-100ML	flammable; skin and eye irritant; work with in a fume hood
Sodium hydroxide	Sigma-Aldrich	S5881-500G	
150 mL Vacuum Filtration Cups with 0.2 µm PES Membrane	VWR	10040-460	
PEGDA	synthesized in house		refer to source 33 for synthesis methods; store under argon
Eosin Y disodium salt	Sigma-Aldrich	E6003-25G	
1-vinyl-2-pyrrolidinone (NVP)	Sigma-Aldrich	V3409-5G	store under argon; carcinogenic; work with in a fume hood
3M Double Coated Tape, 9500PC, 6.0 mil	Thomas Goldkamp	37728	
Flexmark 90 PFW Liner	FLEXcon	FLX000620	backing for handling of double coated tape
Model SC Plotter (adhesive cutter)	USCutter	SC631E	used to cut adhesive in ring shapes to connect coverslips to petri dishes
60 mm Petri Dish with 20 mm Hole	MatTek Corporation	P60-20-F-NON	
High Intensity Illuminator (white light source)	Fiber-Lite	4715MS-12WB10	

Power Meter	Newport	1916-R	detect power at 524 nm when using white light source
Slim Profile Wand Detector	Newport	918D-ST	for use with power meter
Sylgard 184 Silicone Elastomer Kit	Dow Corning	3097358-1004	used to make PDMS molds; refer to source 7 for methods
TMPSA-Functionalized #1.5 Coverslips, 40 mm Round	synthesized in house		refer to source 7 for methods
Dextran, Fluorescein, 2,000,000 MW, Anionic, Lysine Fixable	Life Technologies	D7137	can use alternative tagged dextrans; 2,000 kDa does not diffuse readily into a 5% 3.4 kDa PEGDA hydrogel
1 mL Syringe, Luer-Lok	BD	309628	
Acrodisc Syringe Filter, 0.2 µm Supor Membrane, Low Protein Binding	Pall	PN 4602	
sticky-Slide VI ^{0.4}	Ibidi	80601	microfluidic devices that can be used to house hydrogels