

Materials List for:

A Versatile Method of Patterning Proteins and Cells

Anil B. Shrirao^{*1}, Frank H. Kung^{*2}, Derek Yip³, Bonnie L. Firestein², Cheul H. Cho³, Ellen Townes-Anderson⁴

¹Department of Biomedical Engineering, Rutgers University

²Department of Cell Biology and Neuroscience, Rutgers University

³Department of Biomedical Engineering, New Jersey Institute of Technology

⁴Department of Pharmacology, Physiology, and Neuroscience, Rutgers New Jersey Medical School

*These authors contributed equally

Correspondence to: Anil B. Shrirao at anilshrirao@gmail.com, Frank H. Kung at Frank.Kung@rutgers.edu

URL: <https://www.jove.com/video/55513>

DOI: [doi:10.3791/55513](https://doi.org/10.3791/55513)

Materials

Name	Company	Catalog Number	Comments
CorelDRAW X4 CAD Drawing Tools	Corel Corporation, Canada	X4 Version 14.0.0.701	CAD tool used to draw the layout of the microfluidic device
Laser Printer HP	Hewlett Packard, CA	1739629	Used to print the layout of microfluidic device for adhesive tape technique
Bel-Art Dessicator	Fisher Scientific, MA	08-594-16B	Used to degass the PDMS mixture
Adhesive Scotch Tape	3M Product, MN	Tape 600	Used to fabricate adhesive tape Master
PDMS Sylgard 184	Dow Corning, MI	1064291	Casting polymer
Petri Dish	Fisher Scientific, MA	08-772-23	Used to keep the mold to cast with PDMS
Stainless steel Scalpel (#3) with blade (# 11)	Feather Safety Razor Co. Ltd. Japan	2976#11	Used to cut the PDMS
Tweezers	Ted Pella, CA	5627-07	Used to handle the PDMS cast during peeling
Glass slides	Fisher Scientific, MA	12-546-2	Used as surface to pattern the Substrate
Glass slides	Fisher Scientific, MA	12-544-4	Used as surface to pattern the Substrate
Rubber Roller	Dick Blick Art Materials, IL	40104-1004	Used to attach adhesive tape on glass without trapping air bubbles
Laser Mask Writer	Heidelberg Instruments, Germany	DWL66fs	Used to fabricate quartz mask used in photolithography fabrication process
EVG Mask Aligner (Photolithography UV exposure tool)	EV Group, Germany	EVG 620T(B)	Used to expose the photoresist to UV light
Spin Coater Headway	Headway Research Inc, TX	PWM32-PS-CB15PL	Used to spin coat the photoresist on silicon wafer
Photoresists SU-8 50	MicroChem, MA	Y131269	Negative photoresist used for mold fabrication
SU-8 Developer	MicroChem, MA	Y020100	Photoresist developer
Tridecafluoro-1,1,2,2-Tetrahydrooctyl-1-Trichlorosilane	UCT Specialties, PA	T2492-KG	Coat mold to avoid PDMS adhesion
Isopropanol	Sigma-Aldrich, MO	190764	Cleaning Solvent
Ethanol	Sigma-Aldrich, MO	24102	Sterilization Solvent
Poly-D-Lysine hydrobromide (PDL)	Sigma-Aldrich, MO	P0899-10MG	PDL solution is made at 0.1 mg/mL in Sodium Tetraborate Buffer

Laminin	Sigma-Aldrich, MO	L2020	Laminin aliquoted into 10 μ L aliquots and diluted to 20 μ g/ μ L in PBS prior to use
BSA	Fisher Scientific, MA	BP1605100	Cell culture
C2C12 Myoblast cell line	ATCC, VA	CRL-1722	Used to demonstrate C2C12 patterning
PC12 Cell Line	ATCC, VA	CRL-1721	Used to demonstrate PC12 patterning
Collagen type 1, rat tail	BD Biosciences	40236	Cell culture
DMEM	GIBCO, MA	11965-084	Cell culture
Horse Serum, heat inactivated	Fisher Scientific, MA	26050-070	Cell culture
Phalloidin-tetramethylrhodamine B isothiocyanate (TRITC)	Sigma-Aldrich, MO	P1951	To label cells
Calcein-AM live dead cell Assay kit	Invitrogen, MA	L-3224	Cell viability Assay
Biopsy Hole Punch	Ted Pella, CA	15110-10	Punched hole in PDMS