

Materials List for:

# A Multilayer Microfluidic Platform for the Conduction of Prolonged Cell-Free Gene Expression

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URL: <https://www.jove.com/video/59655>

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## Materials

Name	Company	Catalog Number	Comments
<b>Reagents</b>			
Acetone	VWR	20063.365	
AZ 40 XT	Merck KGaA (Darmstadt, Germany)	-	Positive Photoresist
AZ 726 MIF Developer	Merck KGaA (Darmstadt, Germany)	-	Developer Positive Photoresist
Isopropanol	Merck KGaA (Darmstadt, Germany)	109634	
Microscope slides	VWR	ECN 631-1550	
mr Dev 600	Microresist Technology GmbH (Berlin, Germany)	-	Developer Negative Photoresist
Silicon Free Heat Sink Grease	Circuit Works	CW7270	Thermal Compound
Silicon wafers	Silicon Materials	-	<1-0-0> orientation, 100 mm diameter, 525 µm thickness
SU-8 3050	Microchem Corp. (Newton, MA)	-	Negative Photoresist
Sylgard 184 Elastomer Kit (PDMS)	The Dow Chemical Company	01317318	
trichloro(1H,1H,2H,2H-perfluorooctyl)silane	Sigma-Aldrich	448931-10G	
<b>Equipment</b>			
4 channel digital input/output module	WAGO Kontakttechnik GmbH	750-504	8x
Camera lens	The Imaging Source	-	
Compression fitting	Koolance, Inc.	FIT-V06X10	Fitting for tubing with 6mm ID and 10mm OD. 4x
Controller end module	WAGO Kontakttechnik GmbH	750-600	
Device connecting tubing	Saint-Gobain Performance Plastics	AAD04103	0.02" ID, 0.06" OD, Tygon Tubing (ND-100-80)
Device connector pins	Unimed SA (Lausanne, Switzerland)	200.010-A	AISI 304 tubing, 0.35mm ID, 0.65mm OD, 8mm L
Ethernet Controller	WAGO Kontakttechnik GmbH	750-881	
Female bus connector	Encitech	DTCK15-DBS-K	15 pole female bus connector
Fluid reservoirs	Fluigent	Fluiwell-4C	
Fluigent pressure system	Fluigent	MFCS-EZ	0 - 345 mbar
Hg short arc lamp	Advanced Radiation Corporation	-	350W

Hot plate	Torrey Pines Scientific	HP61	
Inverted microscope	Nikon Instruments	Eclipse Ti-E	
LabVIEW Software	de Greef Lab, Eindhoven University of Technology	<a href="https://github.com/tfadgreef/Microfluidic-Device-Control-Software">https://github.com/tfadgreef/Microfluidic-Device-Control-Software</a>	
Liquid coolant	Koolance, Inc.	LIQ-705CL-B	
Luer stubs	Instech Laboratories, Inc.	LS23	
Male Luer to barb connectors	Cole Parmer	45505-32	3/32" ID
Matlab Software	de Greef Lab, Eindhoven University of Technology	<a href="https://github.com/tfadgreef/Microfluidic-Device-Control-Software">https://github.com/tfadgreef/Microfluidic-Device-Control-Software</a>	
Microcamera	The Imaging Source	DMK 42AUC03	
Microscope camera	Hamamatsu Photonics	OrcaFlash4.0 V2 (C11440-22CU)	
Orbital shaker	Cole Parmer	EW-513000-05	
Oven	Thermo Scientific	Heraeus T6P 50045757	
Oxygen plasma asher	Quorum Technologies	K1050X	
PDMS puncher	SYNEO	Accu-Punch MP10	
PEEK tubing	Trajan	1301005001-5F	0.005" ID, 1/32" OD, Red
Peltier element	European Thermodynamics	APH-127-10-25-S	
Peltier temperature controller	Warner Instruments	CL-100	
Photomask	CAD/Art Services, Inc.	-	
Photomask Design	Maerkl Lab, EPFL	<a href="https://zenodo.org/record/886937#.XBzpA8-2nOQ">https://zenodo.org/record/886937#.XBzpA8-2nOQ</a>	
Pneumatic valve array	FESTO	-	1x 22 valve array and 1x 8 valve array, Normally closed valves.
Power adapter	Koolance, Inc.	ADT-EX004S	110/220V AC Power Adapter
PTFE tubing	Cole Parmer	06417-21	#24 AWG Thin Wall PTFE
Punching pin	SYNEO	CR0320245N21R4	OD: 0.032" (0.8128 mm), ID: 0.024" (0.6090 mm)
PVC Tubing	Koolance, Inc.	HOS-06CL	6 mm ID, 10 mm OD
Single edge blades	GEM Scientific	-	
Soft tubing	Fluigent	-	Supplied with fluid reservoirs. (1 mm ID, 3mm OD)
Spin coater	Laurell Technologies Corporation	WS-650MZ-23NPPB	
Stereo microscope	Olympus Corporation	SZ61	
Thermistor cable	Warner Instruments	TA-29	Cable with bead thermistor
UV exposure system	ABM, USA	-	Near UV Exposure System, 350W
Vacuum pump	Vacuubrand GmbH	MD1C	
Water cooled cold plate block	Koolance, Inc.	PLT-UN40F	
Water cooler	Koolance, Inc.	EX2-755	
Weighing scales	Sartorius	M-prove	