

Materials List for:

# Using a Microfluidics Device for Mechanical Stimulation and High Resolution Imaging of *C. elegans*

Holger Fehlauer<sup>1</sup>, Adam L. Nekimken<sup>1,2</sup>, Anna A. Kim<sup>1,2</sup>, Beth L. Pruitt<sup>1,2,3</sup>, Miriam B. Goodman<sup>1,2</sup>, Michael Krieg<sup>4</sup>

<sup>1</sup>Department of Molecular and Cellular Physiology, Stanford University

<sup>2</sup>Department of Mechanical Engineering, Stanford University

<sup>3</sup>Department of Bioengineering, Stanford University

<sup>4</sup>Group of Neurophotonics and Mechanical Systems Biology, The Institute of Photonic Sciences (ICFO)

\*These authors contributed equally

Correspondence to: Beth L. Pruitt at [pruitt@stanford.edu](mailto:pruitt@stanford.edu), Miriam B. Goodman at [mbgoodmn@stanford.edu](mailto:mbgoodmn@stanford.edu), Michael Krieg at [michael.krieg@icfo.eu](mailto:michael.krieg@icfo.eu)

URL: <https://www.jove.com/video/56530>

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## Materials

Name	Company	Catalog Number	Comments
Chrome mask	Compugraphics ( <a href="http://www.compugraphics-photomasks.com/">http://www.compugraphics-photomasks.com/</a> )		5", designed in AutoCAD (Autodesk, Inc.)
Chrome mask	Mitani-Micronics ( <a href="http://www.mitani-micro.co.jp/en/">http://www.mitani-micro.co.jp/en/</a> )		5", designed in AutoCAD (Autodesk, Inc.)
Chrome mask	Kuroda-Electric ( <a href="http://www.kuroda-electric.eu/">http://www.kuroda-electric.eu/</a> )		5", designed in AutoCAD (Autodesk, Inc.)
4" Silicon wafer (B-test)	Stanford Nanofabrication Facility		
SU-8 2002	MicroChem		
SU-8 2050	MicroChem		
Spin-coater	Laurell Technologies	WS-400BZ-6NPP/LITE	
Exposure timer	Optical Associates, Inc	OAI 150	
Illumination controller	Optical Associates, Inc	2105C2	
SU-8 developer	MicroChem		
2-Propanol	Fisher Scientific	A426F-1GAL	
Acetone	Fisher Scientific	A18-4	
Trichloromethylsilane (TCMS)	Sigma-Aldrich	92361-500ML	Caution: TCMS is toxic and water-reactive
Sylgard 184 Elastomer Kit	Dow Corning		PDMS prepolymer
Biopsy punch, 1 mm	VWR	95039-090	
Oxygen Plasma Asher	Branson/IPC		
Small metal tubing (0.635 mm OD, 0.4318 mm ID, 12.7 mm long); gage size 23TW	New England Small Tube Corporation	NE-1300-01	
Nalgene syringe filter, 0.22 µm	Thermo Scientific	725-2520	to filter all solution, small particles would clog the chip
Polyethylene tubing; 0.9652 mm OD, 0.5842 mm ID	Solomon Scientific	BPE-T50	
Syringe, 1 ml	BD Scientific	309628	for worm trapping and release
Syringe, 20 ml	BD Scientific	309661	for gravity-based flow
Gilson Minipuls 3, Peristaltic pump	Gilson		to suck solutions and worms out of the chip
Microfluidic flow controller, equipped with 0–800 kPa pressure channel	Elveflow	OB1 MK3	pressure delivery

Water-Resistant Clear Polyurethane Tubing, 4 mm ID and 6 mm OD	McMaster-Carr	5195 T52	connection from house air to pressure pump
Water-Resistant Clear Polyurethane Tubing, 2.6mm ID and 4mm OD	McMaster-Carr	5195 T51	connect pressure pump to small tubing
Push-to-Connect Tube Fitting for Air	McMaster-Carr	5111K468	metric - imperial converter
Straight Connector for 6 mm × 1/4" Tube OD	McMaster-Carr	5779 K258	
Leica DMI 4000 B microscopy system	Leica		
63×/1.32 NA HCX PL APO oil objective	Leica	506081	
Hamamatsu Orca-Flash 4.0LT digital CMOS camera	Hamamatsu	C11440-42U	
Lumencor Spectra X light engine	Lumencor		With cyan and green/yellow light source
Excitation beam splitter	Chroma	59022bs	in the microscope
Hamamatsu W-view Gemini Image splitting optics	Hamamatsu	A12801-01	to split green and red emission and project them on different areas on the camera chip
Emission beam splitter	Chroma	T570lpxr	in the image splitter
Emission filters GCamp6s	Chroma	ET525/50m	in the image splitter
Emission filters mCherry	Chroma	ET632/60m	in the image splitter