

Materials List for:

Taking Advantage of Reduced Droplet-surface Interaction to Optimize Transport of Bioanalytes in Digital Microfluidics

Sergio L. S. Freire¹, Nathaniel Thorne¹, Michael Wutkowski¹, Selina Dao¹

¹Department of Mathematics, Physics and Statistics, University of the Sciences

Correspondence to: Sergio L. S. Freire at s.freire@uscience.edu

URL: <https://www.jove.com/video/52091>

DOI: [doi:10.3791/52091](https://doi.org/10.3791/52091)

Materials

Name	Company	Catalog Number	Comments
Paraffin candle			Any paraffin candle
Sputtering system	Denton Vacuum, Moorestown, NJ		Sputter coater Desk V HP equipped with an Au target.
1-dodecanethiol	Sigma-Aldrich	471364	
Teflon	Dupont	AF-1600	
Fluorinert FC-40	Sigma-Aldrich	F9755	Fluorinated liquid: Prepare Teflon-AF resin in Fluorinert FC-40, 1:100 (w/w), to create the hydrophobic coating.
Graphic design software -Adobe Illustrator	Adobe Systems		Other softwares might be used as well.
Copper laminate	Dupont	LF9110	
Laser Printer	Xerox	Phaser 6360 or similar	Check for the compatibility with "rich black" or "registration black" (see text).
Copper Etchant	Transene	CE-100	
Perfluoroalkoxy (PFA) film	McMaster-Carr	84955K22	
Breadboard	Allied Electronics	70012450 or similar	Large enough to allow the assemble of 10 drivers.
Universal circuit board	Allied Electronics	70219535 or similar	
Connector	Allied Electronics	5145154-8 or similar	
Control board and control program (LabView software)	National Instruments	NI-6229 or similar	
High-voltage amplifier	Trek	PZD700	
Capacitors C and C1, 100 nF, 60 V	Allied	8817183	
Transistor T, NPN	Allied	9350289	
Diode D, 1N4007	Allied	2660007	
Relay	Allied	8862527	
Visualization system	Edmund Optics	VZM 200i or similar	System magnification 24X – 96X. It is combined with a Hitachi KP-D20B 1/2 in CCD Color Camera.
Recorder	Sony	GV-D1000 NTSC or similar	It is connected to the camera by an S-video cable.
Simulations	COMSOL Multiphysics	V. 4.4	