

Materials List for:

Automated Lipid Bilayer Membrane Formation Using a Polydimethylsiloxane Thin Film

Sangbaek Choi^{1,3}, Sunhee Yoon^{1,3}, Hyunil Ryu^{1,3}, Sun Min Kim^{2,3,4}, Tae-Joon Jeon^{1,3,4}

¹Department of Biological Engineering, Inha University

²Department of Mechanical Engineering, Inha University

³Biohybrid Systems Research Center (BSRC), Inha University

⁴Convergent Research Center for Metabolism and Immunoregulation (CRCMI), Inha University

Correspondence to: Sun Min Kim at sunmk@inha.ac.kr, Tae-Joon Jeon at tjeon@inha.ac.kr

URL: <https://www.jove.com/video/54258>

DOI: [doi:10.3791/54258](https://doi.org/10.3791/54258)

Materials

Name	Company	Catalog Number	Comments
Potassium Chloride	Sigma-Aldrich	P9333	For buffer solution
Tris-hydrochloride	Sigma-Aldrich	1185-53-1	For buffer solution
Ethylenediaminetetraacetic acid	Sigma-Aldrich	60-00-4	For buffer solution
<i>n</i> -decane	Sigma-Aldrich	44074-U	For lipid solution
Hexadecane	Sigma-Aldrich	544-76-3	For lipid solution
Squalene	Sigma-Aldrich	S3626	For lipid solution
Gramicidin A	Sigma-Aldrich	11029-61-1	Membrane protein
1,2-diphytanoyl- <i>sn</i> -glycero-3-phosphocholine	Avanti Polar Lipids, Inc.	850356	For membrae formation
Sylgard 184a and 184b elastomer kit	Dow Corning Asia		To produce PDMS thin film
0.2 μm filter	Satorius stedim	16534-----K	To filter buffer solution
Rotator	FinePCR	AG	To dissolve lipid homogeneously
Autoclave	Biofree	BF-60AC	To sterilize buffer solution
Spin coater	Shinu Mst	SP-60P	To spread PDMS prepolymer
Vaccum dessiccator	Welch	2042-22	To remove air bubble in PDMS prepolymer
500 μm punch	Harris Uni-Core	0.5	To create an aperture on the PDMS thin film
CNC machine	SME trading	SME 2518	To fabricate membrane formation chamber
Halogen fiber optic illuminator	Motic	MLC-150C	To illuminate the aperture of PDMS thin film for optical observation
Digital microscope	Digital blue	QX-5	To optically observe lipid bilayer membrane formation
Electrode	A-M Systems		To electrically observe membrane formation
Microelectrode amplifier (Axopatch amplifier)	Axon Instruments	Axopatch 200B Amplifier	To measure capacitance of the membrane (described as microelectrode amplifier in the manuscript)