

Two-Photon Polymerization 3D-Printing of Micro-scale Neuronal Cell Culture Devices

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Citation

 Hosseini, A., Noselli, G., Giugliano, M. Two-Photon Polymerization 3D-Printing of Micro-scale Neuronal Cell Culture Devices. *J. Vis. Exp.* (2024), e66142, doi:10.3791/66142 (2024).

Date Published

June 7, 2024

DOI

10.3791/66142

URL

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Materials

Name	Company	Catalog Number	Comments
2-Propanol	Sigma-Aldrich	650447	
BB cure compact polymerizer	PCube Srl		Wavelengths 365-405 nm, Power 120W
BioMed Amber Resin 1 L	formlabs		Resin used for mounting the 3D Printed mold to Petri dish
Bovine Serum Albumin	Sigma-Aldrich	A9418	
CAD application software SolidWorks	Dassault Systèmes SolidWorks Corporation, US		Fusion 360 (Autodesk Inc., US), AutoCAD (Autodesk Inc., US), PTC Creo (PTC corp., US), SolidWorks (Dassault Systèmes SolidWorks corp., US) and Tinkercad (Autodesk Inc., US). ----- Tutorials: https://www.mycadsite.com/tutorials.html Trainings: https://www.autodesk.com/training
CellTracker Green CMFDA	Invitrogen	C7025	
D-(+)-Glucose	Sigma-Aldrich	G8270	
D-AP5	Tocris	#0106	
Deoxyribonuclease I	Sigma-Aldrich	D5025	
DeScribe	Nanoscribe GmbH & Co. KG		
di-Sodium hydrogen phosphate	Sigma-Aldrich	106585	
Gentamicin	Thermo Fisher	15710049	
Hanks' Balanced Salts	Sigma-Aldrich	H2387	
HEPES	Sigma-Aldrich	H7523	
Horse Serum	Sigma-Aldrich	H1138	
in vitro MEA recording system MEA2000 mini	Multichannel Systems GmbH, Reutlingen, Germany		
IP-S Photoresist	Nanoscribe GmbH & Co. KG		
Kynurenic acid	Sigma-Aldrich	K3375	
L-Glutamine (200 mM)	Gibco	25030081	

Magnesium sulfate	Sigma-Aldrich	M2643	
MEA recording application software (Experimenter)	Multichannel Systems GmbH, Reutlingen, Germany		
Minimum Essential Medium	Sigma-Aldrich	51412C	
NanoWrite	Nanoscribe GmbH & Co. KG		
ophthalmic stab Knife 15°	HESTIA Medical		
Photonic Professional GT2 (PPGT2) 3D printer	Nanoscribe GmbH & Co. KG	SN617	
Plasma Cleaner	HARRICK PLASMA		
Poly(ethyleneimine) solution	Sigma-Aldrich	P3143	
Potassium chloride	Sigma-Aldrich	P3911	
Propylene glycol methyl ether acetate (PGMEA)	Sigma-Aldrich	484431	
Repel-silane ES	Sigma-Aldrich	GE17133201	
Soda lime ITO-coated substrates for 3D MF DiLL	Nanoscribe GmbH & Co. KG		
Sodium bicarbonate	Sigma-Aldrich	S6014	
Sodium chloride	Sigma-Aldrich	S9888	
Substrate-integrated planar MEAs (120MEA100/30iR-ITO-gr)	Multichannel Systems GmbH, Reutlingen, Germany		TiN electrodes, SiN isolator, 4 internal reference electrodes, 120 recording electrodes, Electrode spacing 100 µm, Electrode diameter 30 µm
SYLGARD 184 Kit	Dow Corning		
Trypsin	Sigma-Aldrich	T1005	
Trypsin inhibitor	Sigma-Aldrich	T9003	
vacuum pump Single phase asynchronous 2 poles	CIMAMOTORI		