

Materials List for:

# External Excitation of Neurons Using Electric and Magnetic Fields in One- and Two-dimensional Cultures

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## Materials

Name	Company	Catalog Number	Comments
APV	Sigma-Aldrich	A8054	Disconnect the network. Mentioned in Section 2.4.2
B27 supp	Gibco	17504-044	Plating medium. Mentioned in Section 1.1.1
bicuculline	Sigma-Aldrich	14343	Disconnect the network. Mentioned in Section 2.4.2
Borax (sodium tetraborate decahydrate)	Sigma-Aldrich	S9640	Borate buffer. Mentioned in Section 1.1.2
Boric acid	Frutarom LTD	5550710	Borate buffer. Mentioned in Section 1.1.2
CaCl <sub>2</sub> , 1 M	Fluka	21098	Extracellular recording solution. Mentioned in Section 1.5.2
CNQX	Sigma-Aldrich	C239	Disconnect the network. Mentioned in Section 2.4.2
COMSOL	COMSOL Inc	Multiphysics 3.5	Numerical simulation. Mentioned in Section 3.5.2
D-(+)-Glucose, 1 M	Sigma-Aldrich	65146	Plating medium, Extracellular recording solution. Mentioned in Sections 1.1.1 and 1.5.2
D-PBS	Sigma-Aldrich	D8537	Cell Cultures. Mentioned in Sections 1.2.4 and 1.2.6
FCS (FBS)	Gibco	12657-029	Plating medium. Mentioned in Section 1.1.1
Fibronectin	Sigma-Aldrich	F1141	Bio Coating. Mentioned in Section 1.2.6
Fluo4AM	Life technologies	F14201	Imaging of spontaneous or evoked activity. Mentioned in Sections 1.5.1, 1.5.3, and 1.5.5
FUDR	Sigma-Aldrich	F0503	Changing medium. Mentioned in Section 1.4.1
Gentamycin	Sigma-Aldrich	G1272	Plating medium, Changing medium, Final medium. Mentioned in Section 1.1.1
GlutaMAX 100x	Gibco	35050-038	Plating medium, Changing medium, Final medium. Mentioned in Section 1.1.1
Hepes, 1 M	Sigma-Aldrich	H0887	Extracellular recording solution. Mentioned in Section 1.5.2

HI HS	BI	04-124-1A	Plating medium, Changing medium, Final medium. Mentioned in Sections 1.1.1, 1.4.1, and 1.4.2
KCl, 3 M	Merck	1049361000	Extracellular recording solution. Mentioned in Section 1.5.2
Laminin	Sigma-Aldrich	L2020	Bio Coating. Mentioned in Section 1.2.6
MEM x 1	Gibco	21090-022	Plating medium, Changing medium, Final medium. Mentioned in Section 1.4.1 1.4.2
MgCl <sub>2</sub> , 1 M	Sigma-Aldrich	M1028	Extracellular recording solution. Mentioned in Section 1.5.2
NaCl, 4 M	Bio-Lab	19030591	Extracellular recording solution. Mentioned in Section 1.5.2
Octadecanethiol	Sigma-Aldrich	01858	Cleaning Cr-Au coated coverslips (1D cultures). Mentioned in Section 1.2.3
Pluracare F108 NF Prill	BASF Corporation	50475278	Bio-Rejection Coating, Bio Coating. Mentioned in Sections 1.2.4 and 1.2.6
Poly-L-lysine 0.01% solution	Sigma-Aldrich	P47075	Promote cell division. Mentioned in Section 1.1.4
Sucrose, 1 M	Sigma-Aldrich	S1888	Extracellular recording solution. Mentioned in Section 1.5.2
Thiol	Sigma-Aldrich	1858	Bio-Rejection Coating. Mentioned in Section 1.2.3
URIDINE	Sigma-Aldrich	U3750	Changing medium. Mentioned in Section 1.4.1
Sputtering machine	AJA International, Inc	ATC Orion-5Series	coating glass with thin layers of metal. Mentioned in Section 1.2.2
Pen plotter	Hewlett Packard	HP 7475A	Etching of pattern to the coated coverslip. Mentioned in Section 1.2.5
Electrodes wires	A-M Systems, Carlsborg WA	767000	Electric stimulation of neuronal cultures. Mentioned in Sections 2.1, 2.2, 2.3, and 2.4.5
Signal generator	BKPrecision	4079	Shaping of the electric signal. Mentioned in Section 2.3
Amplifier	Homemade		Voltage amplification of the signal from the signal generator to the electrodes. Mentioned in Section 2.3
Power supply	Matrix	MPS-3005 LK-3	Power supply to the sputtering machine. Mentioned in Section 1.2.2.3
Transcranial magnetic stimulation	Magstim, Spring Gardens, UK	Rapid 2	Magnetic stimulation of neuronal culture. Mentioned in Sections 3.1, 3.3, and 3.4
Epoxy	Cognis	Versamid 140	Casting of homemade coils. Mentioned in Section 3.4
Epoxy	Shell	EPON 815	Casting of homemade coils. Mentioned in Section 3.4
Platinum wires 0.005" thick; A-M Systems,	Carlsborg WA	767000	Electric stimulation of neuronal cultures. Mentioned in Section 2.1
Circular magnetic coil	Homemade		Magnetic stimulation of neuronal culture. Mentioned in Section 3.3

WaveXpress SW	B&K Precision		Waveform editing software. Mentioned in Section 2.1.32
Xion Ultra 897	Andor		Sensitive EMCCD camera. Mentioned in Section 2.4.4