

Materials List for

In Vitro Wedge Slice Preparation for Mimicking In Vivo Neuronal Circuit Connectivity

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Materials

Name	Company	Catalog Number	Comments
Experimental Preparations			
Agar, powder	Fisher Scientific	BP1423500	4% agar block used to stabilize brain tissue during vibratome sectioning
AlexaFluor Hydrazide 488	Invitrogen	A10436	Fluorophore used in internal solution to confirm successful MOC neuron patch
Analytical Balance	Geneses Scientific (Intramalls)	AV114	Weighing chemicals
Double edged razor blade	Ted Pella	121-6	Vibratome cutting blade
Kynurenic acid (5g)	Sigma Aldrich	K3375-5G	Slicing ACSF additive used to reduce neuron activity during dissection and slicing in order to improve tissue health for patch clamping
pH Meter	Fisher Scientific (Intramalls)	13-620-451	Solution pH tester
Plastic petri dishes 100mm dia X 20mm	Fisher Scientific (Intramalls)	12-556-002	4% Agar Prep
Stirring Hotplate	Fisher Scientific (Intramalls)	11-500-150	Heating for 4% Agar preparation
Dissection and Slicing			
Biocytin	Sigma Aldrich	B4261-250MG	Chemical used for axonal tracing (conjugated to Streptavidin 488)
Dissecting Microscope	Amscope	SM-1BN	For precision dissection during brain removal
Dumont #5 Forceps	Fine Science Tools	11252-20	Fine forceps dissection tool
Economy tweezers #3	WPI	501976	Forceps dissection tool
Glass Petri Dish 150mm dia x 15mm H	Fisher Scientific (Intramalls)	08-747E	Dissection dish
Interface paper (203 X 254mm PCTE Membrane 10um)	Thomas Scientific	1220823	Slice incubation/biocytin application
Leica VT1200S Vibratome	Leica	1491200S001	Vibratome for wedge slice sectioning
Mayo scissors	Roboz	RS-6872	Dissection tool
Single-edged carbon steel blades	Fisher Scientific (Intramalls)	12-640	Razor blade for dissection
Specimen disc, orienting	Leica	14048142068	Specialized vibratome stage for reproducible tilting

Spoonula	FisherSci	14-375-10	Dissection tool
Super Glue	Newegg	15187	Used for glueing tissue to vibratome stage
Vannas Spring Scissors	Fine Science Tools	91500-09	Dissection tool
Electrophysiology			
A1R Upright Confocal Microscope	Nikon Instruments		Electrophysiology and imaging microscope, can be any microscope compatible with electrophysiology
Electrode Borosilicate glass w/ Filament OD 1.5mm, ID 1.1mm, 10 cm long	Sutter Instrument	BF150-110-10	Patch clamping pipette glass
Electrode Filler MicroFil	WPI	CMF20G	Patch electrode pipette filler
In-line solution heater	Warner Instruments (GSAdvantage)	SH-27B	Slice perfusion system heater
Multi-Micromanipulator Systems	Sutter Intruments	MPC-200 with MP285	Micromanipulators for patch clamp and stimulation electrode placement
P-1000 horizontal pipette puller for glass micropipettes	Sutter instruments	FG-P1000	Patch clamp pipetter puller
Patch-clamp amplifier and Software	HEKA	EPC-10 / Patchmaster Next	Can be any amplifier/software
Recording Chamber	Warner Instruments	RC26G	Slice "bath" during recording
Recording Chamber Harp	Warner Instruments	640253	Stabilizes slice during electrophysiology recording
Slice Incubation Chamber	Custom Build		Heated, oxygenated holding chamber for slices during recovery after slicing
Stimulus isolation unit	A.M.P.I.	Iso-Flex	Stimulus isolation unit for electrophysiology
Syringe 60CC	Fischer Scientific (Intramalls)	14-820-11	Electrophysiology perfusion fluid handling
Temperature controller	Warner Instruments (GSAdvantage)	TC-324C	Slice perfusion system temperature controller
Tubing 1/8 OD 1/16 ID	Fischer Scientific (Intramalls)	14-171-129	Electrophysiology perfusion fluid handling
Tugsten concentric bipolar microelectrode	WPI	TM33CCINS	Stimulating electrode for electrophysiology
Histology			
24 well Plate	Fisher Scientific (Intramalls)	12-556006	Histology slice collection and immunostaining
Alexa Fluor 488 Streptavidin	Jackson Immuno labs	016-540-084	Secondary antibody for biocytin visualization
Corning Orbital Shaker	Sigma	CLS6780FP	Shaker for immunohistochemistry agitation
Cresyl Violet Acetate	Sigma Aldrich (Intramalls)	C5042-10G	Cellular stain for histology
Disposable Microtome Blades	Fisher Scientific	22-210-052	Sliding microtome blade
Filter-syringe Nalgene 4mm Cellulose Acetate 0.2um	Fisher Scientific (Intramalls)	09-740-34A	Syringe filter for filling recording pipettes with internal solution
Fluoromount-G Slide Mounting Medium	Fisher Scientific	OB100-01	Immunohistochemistry fluorescence mounting medium
glass slide staining dish with rack	Fisher Scientific (Intramalls)	08-812	Cresyl Violet staining chamber
Microm HM450 Sliding Microtome	ThermoFisher	910020	Freezing microtome for histology
Microscope Cover Glasses: Rectangles 50mm X 24mm	Fisher Scientific (Intramalls)	12-543D	Histochemistry slide cover glass
Permount mounting medium	Fisher Scientific	SP15-100	Cresyl violet section mounting medium
Superfrost Slides	Fisher Scientific	22-034980	Histology slides