

Materials List for

Ex Vivo Optogenetic Interrogation of Long-Range Synaptic Transmission and Plasticity from Medial Prefrontal Cortex to Lateral Entorhinal Cortex

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Materials

Name	Company	Catalog Number	Comments
0.2 mL tube	Fisher Scientific Ltd	12134102	
10 µL pipette	Gilson	FD10001	
24 well plate	SARSTEDT	83.3922	
3 way luer valve	Cole-Parmer	WZ-30600-02	
3,3'-Diaminobenzidine (DAB) substrate	Vector Laboratories	SK-4105	
40x objective	Olympus	LUMPLFLN40XW	
4-aminopyridine	Hello Bio	HB1073	
4x objective	Olympus	PLN4X/0.1	
AAV9-CaMKiia-hChR2(E123T/T159C)-mCherry	Addgene	35512	Viral titre: 3.3×10^{13} GC/ml
Achromatic lens	Edmund Optics	49363	Focusses visual spectrum and near-IR
Benchtop microcentrifuge	Benchmark Scientific	C1005*	
Biocytin	Sigma-Aldrich	B4261	
Borosilicate glass capillary	Warner Instruments	G150F-6	
Burr	Fine science tools	19008-07	
CaCl ₂	Sigma-Aldrich	C5670	
Camera - Qimaging Retiga Electro	Photometrics	01-ELECTRO-M-14-C	
Carbachol	Tocris	2810	
Chlorhexidine surgical scrub	Vetasept	XHG008	
Clippers	Andis	22445	AGC Super 2-Speed Detachable Blade Clipper
Collimation condenser lens	ThorLabs	ACL2520-A	
Coverslips	Fisher Scientific Ltd	10011913	
Cryostat	Leica	CM3050 S	
CsMeSO ₄	Sigma-Aldrich	C1426	

Cyanoacrylate glue	Rapid Electronics Ltd	84-4557	
Data acquisition device	National Instruments	USB-6341 BNC	
D-glucose	Sigma-Aldrich	G8270	
Dichroic mirror 500 nm long-pass	Edmund Optics	69899	
Dichroic mirror 600 nm long-pass	Edmund Optics	69901	
Dichroic mirror cube	ThorLabs	CM1-DCH/M	
EGTA	Millipore	324626	
Electrode holder with side port	HEKA	895150	
Emission filter	Chroma	59022m	
Excitation filter	Chroma	ET570/20x	
Eye gel	Dechra	Lubrital	
Fine paint brush	Scientific Laboratory Supplies	BRU2052	
Guillotine	World Precision Instruments	DCAP	
HEPES	Sigma-Aldrich	H3375	
Hydrogen peroxide solution	Sigma-Aldrich	H1009	30% (w/w)
Isoflurane	Henry Schein	988-3245	
Isopentane	Sigma-Aldrich	M32631	
KCl	Sigma-Aldrich	P3911	
k-gluconate	Sigma-Aldrich	G4500	
Kinematic fluorescence filter cube	ThorLabs	DFM1T1	
LED driver	ThorLabs	LEDD1B	
Lidocaine ointment	Teva	80007150	
MgATP	Sigma-Aldrich	A9187	
MgCl	Sigma-Aldrich	M2670	
MgSO ₄	Sigma-Aldrich	M7506	
Micro drill	Harvard Apparatus	75-1887	
Microelectrode puller	Sutter instruments	P-87	
Microinjection syringe	Hamilton	7634-01/00	
Microinjection syringe needle	Hamilton	7803-05	Custom specification: gauge 33, length 15mm, point style 4 - 12°
Microinjection syringe pump	World Precision Instruments	UMP3T-1	
Mounted blue LED	ThorLabs	M470L5	
Mounted green LED	ThorLabs	M565L3	
Na ₂ HPO ₄ ·7H ₂ O	Sigma-Aldrich	S9390	
NaCl	Sigma-Aldrich	S9888	
NaGTP	Sigma-Aldrich	G8877	
NaH ₂ PO ₄	Sigma-Aldrich	S0751	
NaH ₂ PO ₄ ·H ₂ O	Sigma-Aldrich	S9638	
NaHCO ₃	Sigma-Aldrich	S5761	
NIR LED	OSRAM	SFH4550	Used for refracted IR imaging of slice, differential interference contrast (DIC) optics is another commonly used method
OCT medium	VWR International	RAYLLAMB/OCT	Optimal cutting temperature medium
Paraformaldehyde	Sigma-Aldrich	158127	
Paraformaldehyde	Sigma-Aldrich	P6148	
Patch clamp amplifier	Molecular Devices	700A	
Peristaltic pump	World Precision Instruments	Ministar	

Poly-L-lysine coated microscope slides	Fisher Scientific Ltd	23-769-310	
Recording chamber	Warner Instruments	RC-26G	
Scalpel blade	Swann Morton	#24	
Slice anchor	Warner Instruments	SHD-26-GH/15	
Stereotaxic frame	Kopf	Model 902	
Stereotaxic holder for micro drill	Harvard Apparatus	75-1874	
Sucrose	Sigma-Aldrich	S0389	
Surgical Microscope	Carl Zeiss	OPMI 1 FR pro	
Suture	Ethicon	W577H	
Syringe filter for intracellular recording solution	Thermo Scientific Nalgene	171-0020	
Tetrodotoxin citrate	Hello Bio	HB1035	
Transfer pipettes	Fisher Scientific Ltd	10458842	
Triton X-100	Sigma-Aldrich	X100	
Upright fluorescence microscope	Leica	DM6 B	
VECTASHIELD Antifade Mounting Medium with DAPI	Vector Laboratories	H-1200-10	
VECTASTAIN ABC-HRP kit	Vector Laboratories	PK-4000	
Vibratome	Camden Instruments	7000smz-2	
WinLTP	https://www.winltp.com/	Version 2.32	Data acquisition software
Solution			
aCSF			
sucrose cutting solution			
PFA			
Intracellular?			