

Materials List for:

***In vivo* Optogenetic Stimulation of the Rodent Central Nervous System**

Michelle M. Sidor¹, Thomas J. Davidson², Kay M. Tye³, Melissa R. Warden⁴, Karl Diesseroth^{2,5}, Colleen A. McClung¹

¹Department of Psychiatry, University of Pittsburgh Medical Center

²Department of Bioengineering, Stanford University

³Department of Brain and Cognitive Sciences, Picower Institute for Learning and Memory, Massachusetts Institute of Technology

⁴Department of Neurobiology and Behavior, Cornell University

⁵Department of Psychiatry and Behavioral Sciences, Stanford University

Correspondence to: Michelle M. Sidor at sidormm@upmc.edu

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Materials

Name	Company	Catalog Number	Comments
1. Laser Set-up			
100 mW 473nm or 488nm Diode Laser System , <2% Stability (quantity: 1)	Omicron	Luxx/Phoxx 473/488-100	Optional accessory includes a remote control box with key switch and LED Display
100 mW 594nm DPSS laser (quantity: 1)	Colbolt	0594-04-01-0100-300	04-01 series yellow laser; sensitive to back reflection from fibers
200 mW 532 nm DPSS laser; 5% power stability (quantity: 1)	Shanghai Lasers	GL532T3-200	Cost-effective alternative to yellow DPSS laser for activation of halorhodopsins and archaerhodopsins
Non-contact style laser to multimode fiber coupler (quantity: 1)	OZ Optics	HPUC-23-400/700-M-20AC-11	For use with dual laser set-up; Specs: 33 mm OD for 400 - 700 nm; FC receptacle, f = 20 mm lens with post mount laser head adapter #11
Aluminum breadboard, 12" x 18" x 1/2", 1/4"-20 Threaded (quantity: 1)	Thorlabs	MB1213	For dual laser system
Aluminum breadboard, 10" x 12" x 1/2", 1/4"-20 Threaded (quantity: 1)	Thorlabs	MB1012	For single laser system
Aluminum breadboard, 4" x 6" x 1/2", 1/4"-20 Threaded (quantity: 2)	Thorlabs	MB4	For blue laser; dual laser system
Compact variable height clamp, 1/4"-20 Tapped (quantity: 4)	Thorlabs	CL3	
3/4" stainless post (quantity: 1)	Thorlabs	TR075	
1" stainless post (quantity: 4)	Thorlabs	TR1	
Post holder with spring-loaded hex-locking thumbscrew (quantity: 2)	Thorlabs	PH1	
Pedestal Base Adapter (quantity: 3)	Thorlabs	BE1	
Small Clamping Fork (quantity: 3)	Thorlabs	CF1253	
Kinematic mount for 1" optics with visible laser quality mirror (quantity: 3)	Thorlabs	KM100-E02	
Neutral filter density wheel (quantity: 1)	Thorlabs	NDC-50C-2M	
1" Longpass dichroic mirror 50% (quantity: 1)	Thorlabs	DMLP505	
Kinematic mount for 1" optics (quantity: 1)	Thorlabs	KM100	For dichroic mirror

20-piece hex wrench kit with stand (quantity: 1)	Thorlabs	TC2	
1/4"-20 cap screw and hardware kit (quantity: 1)	Thorlabs	HW-KIT2	
Mounting base 1" x 2.3" x 3/8" (quantity: 1)	Thorlabs	BA1S	
FC/PC to FC/PC L-Bracket mating sleeve (quantity: 2)	Thorlabs	ADAFB1	Dual FC/PC L-bracket also available
Breadboard lifting handles (quantity: 3)	Thorlabs	BBH1	
Ø1" Bandpass Filter, CWL = 450 ± 2 nm, FWHM = 10 ± 2 nm (quantity: 1)	Thorlabs	FB450-10	For use with diode lasers that spontaneously emit
2. Laser Coupling			
! Laser protective eyewear (quantity: 1 for every user at each wavelength)	Various		! Consult with laser provider to ensure proper selection of eyewear that will provide maximal light attenuation for the purchased laser
Fiber optic cable tester (quantity: 1)	Eclipse	902-186N	
One-step fiber connector cleaner (quantity: 1)	Thorlabs	FBC1	
Coupler patch cord (0.75 meter) (quantity: 1)	Thorlabs		0.75 m 200 µm core, 0.22 NA, FC/PC connectors multimode fibers; for dual laser system
Coupler patch cord (0.5 meter) (quantity: 1)	Thorlabs		0.5 m 200 µm core, 0.22 NA, FC/PC connectors, multimode; for single laser system
Doric mini cube (quantity: 2)	DORIC	DMC_1x2_FC-2FC	
Compact power and energy meter console (quantity: 1)	Thorlabs	PM100D	Digital 4" LCD
C-series slim power sensor 5 - 500 mW (quantity: 1)	Thorlabs	S130C	Multiple detectors types are available; check with vendor
3. <i>In vivo</i> Optogenetic Stimulation			
Multimode fiber splitters (quantity: 2)	FONT Canada		Large core fiber optic 1 x 2 splitter, 50/50 ratio, FC connectors, ruggedized. Length, core size and numerical aperture can be specified when ordering; cost-effective smaller core sizes available
Arbitrary waveform function generator (2 channel) (quantity: 1)	Rigol	DG1022	Can control up to 2 lasers at once
Fiber optic rotary joint (commutator) (quantity: 6 - 8)	DORIC*	FRJ_1X1_FC-FC	*Also available through Thorlabs and Prizmatix
Animal patch cords (Custom Mono Fiberoptic Cannula with 10mm ferrules, FC/PC connector) (quantity: 8)	DORIC	MFP_200/240/900-0.22_2m_FC-MF2.5	Length, core size and numerical aperture can be specified when ordering; alternatively, these can be made custom made in-house (see Sparta <i>et al.</i> 2012) ⁹ .
PFP ceramic split sleeve, 2.5mm ID, 11.40mm length (25/pkg) (quantity: 1)	Precision fiber Products	SM-CS1140S1	Used for attaching implanted fiber optic on animal to a light-delivering fiber patch cord with flat cleave (FC) end
Clear dust caps for Ø2.5 mm ferrules (25/pkg) (quantity: 1)	Thorlabs	CAPF	
Metal cap for FC/PC and FC/APC mating sleeves (quantity: 1)	Thorlabs	CAPF1	

Thick-jacketed patch cords (custom order) (quantity: 4)	Thorlabs		200 μm core, 0.22 NA, FC/PC connectors multimode fibers; length, core size, and numerical aperture can be specified when ordering
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