

Materials List for:

Visualizing Protein Kinase A Activity In Head-fixed Behaving Mice Using In Vivo Two-photon Fluorescence Lifetime Imaging Microscopy

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Materials

Name	Company	Catalog Number	Comments
0.2 µm cellulose acetate syringe filter	Nalgene	190-2520	Step 3.2.2.
16x 0.8 NA water-immersion objective	Nikon	MRP07220	Step 5.5.
3-pin cable	US digital	CA-MIC3-SH-NC	Step 2.5. To connect rotation sensor to the DAQ input of the microscope
Aluminum bread board	Thorlabs	MB1012	Step 2.5.
AnimalTracker MATLAB software	N/A	N/A	Step 2.5 and sections 5 - 6. Will be provided upon request to the lead author
Band-pass barrier filter	Chroma	ET500-40m	Step 1.4.
Cage plate	Thorlabs	CP01	Step 2.4. Used as mount for rotation sensor
Carbon steel burrs for micro drill, 0.5 mm tip diameter	FST	19007-05	Steps 3.2.3. and 4.4.
Circular coverslip (5 mm diameter)	VWR	101413-528	Step 4.5.
Custom-made injection needle holder	N/A	N/A	Step 3.2.4. Technical details provided upon request to the lead author
Dental acrylic	Yates Motloid	44114	Steps 4.3. and 4.5.
Dental drill; Microtorque ii	Ram products	66699	Steps 3.2.3. and 4.4.
Dowsil transparent polymer	The Dow Chemical Company	3-4680	Step 4.5. Artificial dura
Electroporation electrode	Bex	LF650P5	Step 3.1.4.
Electroporator	Bex	CUY21	Step 3.1.4.
Fast green FCF	Sigma-aldrich	F7258-25G	Step 3.1.1.
FLIMimage MATLAB software	N/A	N/A	Section 5. Kindly provided by Dr. Ryohei Yasuda, Max Planck Florida
FLIMview MATLAB software	N/A	N/A	Sections 5. and 6. Will be provided upon request to the lead author
Foam-compatible glue (Gorilla White Glue)	Gorilla	5201204	Step 2.3.
Headplate	N/A	N/A	Step 4.3. Technical details provided upon request to the lead author
Headplate holder	N/A	N/A	Step 2.6. Technical details provided upon request lead author, used in combination with mounting

			post bracket and right-angled bracket
Hydraulic micromanipulator	Narishige	MO-10	Step 3.2.4.
Krazy glue	Krazy glue	KG82648R	Step 4.3. Cyanoacrylate-based glue
Low-noise fast photomultiplier tube	Hamamatsu	H7422PA-40 or H10769PA-40	Step 1.3.
MATLAB 2012b	Mathworks	N/A	Steps 2.6, and sections 5, and 6. Used to run microscope acquisition and data analysis software
Motor	Zhengke	ZGA37RG	Step 2.4.
Motor speed controller	Elenker	EK-G00015A1-1	Step 2.5.
Motorized micromanipulator	Sutter	MP-285	Step 3.2.4.
Mounting base	Thorlabs	BA1S	Step 2.5. Used for posts for motor and sensor in combination with PH4 and TR2
Mounting post	Thorlabs	P14	Step 2.6. Used for headplate holder post in combination with PB2
Mounting post base	Thorlabs	PB2	Step 2.6. Used for headplate holder post in combination with P14
Mounting post bracket	Thorlabs	C1515	Step 2.6. Used in combination with right-angle bracket and headplate holder
Optical post	Thorlabs	TR2	Step 2.5. Used for posts for motor and sensor in combination with BA1S and PH4
Phosphate-buffered saline	N/A	N/A	Step 3.2.2. Protocol: Cold Spring Harbor Protocols 2006, doi: 10.1101/pbd.rec8247
Photodiode	Thorlabs	FDS010	Step 1.2.
Photon timing counting module	Becker and Hickl	SPC-150	Step 1.1.
Plasmid: tAKARα (CAG-tAKARα-WPRE)	Addgene	119913	Step 3.1.3.
Post holder	Thorlabs	PH4	Step 2.5. Used for posts for motor and sensor in combination with BA1S and TR2
Right-angle bracket	Thorlabs	AB90	Step 2.6 Used in combination with mounting post bracket and headplate holder
Rotation encoder	US digital	MA3-A10-250-N	Step 2.4.
Rubber mat	Rubber-Cal	B01DCR5LUG	Step 2.1.
Shaft coupling (1/4 inch x 1/4 inch)	McMaster	6208K433	Steps 2.3. and 2.4.
ScanImage 3.6	Svoboda Lab/Vidrio Technology	N/A	Steps 5.9. and 6.1.
Signal splitter	Becker and Hickl	HPM-CON-02	Step 1.3.1.
Stainless steel axle (diameter 1/4 inch, L = 12 inch)	McMaster	1327K66	Step 2.3.
Stereotaxic alignment systsem	David kopf	1900	Steps 3.2. and 4.1. modified; Sutter micromanipulator, custom-made injection needle holder, hydraulic micromanipulator
Two-photon microscope	N/A	N/A	Section 5. Built based on Modular in vivo multiphoton microscopy system (MIMMS) from HHMI Janelia Research Campus (https://

			www.janelia.org/open-science/mimms
Vetbond tissue adhesive	3M	14006	Step 3.2.6.
Virus: tAKAR α (AAV2/1 hSyn-tAKAR α -WPRE)	Addgene	119921	Step 3.2.2.
White PE foam roller (8 inch x 12 inch)	Fabrication enterprises INC.	30-2261	Step 2.1.1.
White polystyrene fom ball halves	GrahamSweet	200mm diameter 2 hollow halves	Step 2.1.1.
Zipkicker	PACER	PT29	Step 4.3. Hardening accelerator