

Materials List for

Low-Cost Electroencephalographic Recording System Combined with a Millimeter-Sized Coil to Transcranially Stimulate the Mouse Brain *In Vivo*

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Materials

Name	Company	Catalog Number	Comments
3D printer	Zhejiang Flashforge 3D Technology Co., Ltd	FFD-101	The printer used for 3D-printing the donut-shaped disks
ATROPINE SULFATE 0.5 mg	NIPRO ES PHARMA CO., LTD.	-	Atropine sulfate
Bipolar amplifier	NF Corp.	KIT61380	For amplifying waveforms for coil input
Butorphanol	Meiji Seika Pharma Co., Ltd., Tokyo, Japan	-	For anathesis of animals
Commercial manufacturer of flexible 2D array	p-ban.com Corp.	-	URL: https://www.p-ban.com/
Computer prograom to analyze output signals	Natinal Instruments	NI-DAQ and NI-DAQmx Python	To analyze output signals from the hall-effect sensor
Connector	Harwin Inc.	G125-FV12005L0P	For connector to conect to the measuring system
Copper pad	p-ban.com Corp.	copper	Copper pad on each substrate
Copper wire	Kyowa Harmonet Ltd.	P644432	The windings of the coil
DAQ board	National Instruments Corp.	USB-6343	For measuring the magnitic flux density of the coil
Dental cement	SHOFU INC.	Quick Resin	Self-Curing Orthodontic Resin
ECoG electrode	NeuroNexus Inc.	HC32	For reference to design of the flexible 2D array
Epoxy resin	Konishi Co. Ltd.	#16123	For coil construction
Ethyl Carbamate	FUJIFILM Wako Pure Chemical Corp.	050-05821	For urethan anesthesia
Flat ribbon cable	Oki Electric Cable Co., Ltd.	FLEX-B2(20)-7/0.1 20028 5m	For cable to connect between surface-mount connector and measuring ssystem
flexible substrate	p-ban.com Corp.	polyimide	Baseplate of flexible substrate

Function generator	NF Corp.	WF1947	For generating waveforms for coil input
Hall-effect sensor	Honeywell International Inc.	SS94A2D	For measuring the magnetic flux density of the coil
IDC crimping tool	Pro'sKit Industries Co.	6PK-214	To crimp the IDC and one end of the flat ribbon cable; Flat cable connector crimping tool
Instant glue	Konishi Co. Ltd.	#04612	For coil construction
Insulation-displacement connector (IDC)	Uxcell Japan	B07GDDG3XG	2 × 10 pins and a 1.27 mm pitch
LCR meter	NF Corp.	ZM2376	For measuring the AC properties of the coil
Manipulator	NARISHIGE Group.	SM-15L	For manipulating the coil
Medetomidine	Kobayashi Kako, Fukui, Japan	-	For anesthesia of animals
Midazolam	Astellas Pharma, Tokyo, Japan	-	For anesthesia of animals
Miniature screw	KOFUSEIBYO Co., Ltd.	S0.6*1.5	For EEG-sensing and reference electrode
Mouse	Japan SLC, Inc.	C57BL/6J (C57BL/6JmsSlc)	Experimental animal
Permalloy-45 rod	The Nilaco Corp.	780544	The core of the coil
Recording system	Plexon Inc.	OmniPlex	For EEG data acquisition
Stainless wire	Wakisangyo Co., Ltd.	HW-136	For grasp by manipulator
Stereotaxic apparatus	NARISHIGE Group.	SR-5M-HT	To fix a mouse head
Surface-mount connector	Useconn Electronics Ltd.	PH127-2x10MG	For connector to mount on the flexible 2D array
Testing equipment (LCR meter)	NF Corp.	ZM2372	Contact check and impedance measurements
White PLA filament	Zhejiang Flashforge 3D Technology Co., Ltd	PLA-F13	The material used for 3D-printing the donut-shaped disks
Xylocaine Jelly 2%	Sandoz Pharma Co., Ltd.	-	lidocaine hydrochloride