

Materials List for:

A Procedure for Implanting Organized Arrays of Microwires for Single-unit Recordings in Awake, Behaving Animals

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Materials

Name	Company	Catalog Number	Comments
Table 1. List of Surgical Materials.			
Gauze	Fisher (MooreBrand)	19-898-144	
Cotton Swabs	Fisher (Puritan)	S304659	
Nembutal (Pentobarbital)	Sigma Aldrich	P3761	
Atropine Methyl Nitrate	Sigma Aldrich	A0382	
Baytril (Enrofloxacin)	Butler Shein (Bayer)	1040007	
Ketamine Hydrochloride	Butler Shein	SKU# 023061	
Betadine (Povidone-Iodine)	Fisher (Perdue)	19-066452	
Stereotax	Kopf	Model 900	
Cauterizing Tool	Stoelting	59017	
Dissecting Microscope	Nikon	SMZ445	
Dental Drill	Buffalo	37800	
Bacteriostatic Saline	Bulter Schein	8973	
Jewelers Screws	Stoelting	51457	
Microwire Array	Microprobes	Custom (Flexible)	
Ground Wire	Omnetics	Custom Plug	
Dental Acrylic	Fisher (BAS)	50-854-402	
Absorbable Sutures	Fisher (Ethicon)	NC0258473	
Puralube (Ophthalmic Ointment/ Lubricant)	Fisher (Henry Schein)	008897	
Table 2. List of Surgical Instruments.			
2x Microforceps	George Tiemann Co.	#160-57	Multi-use (e.g. clearing debris in skull window)
2x Forceps	George Tiemann Co.	#160-93	Multi-use (e.g. tying sutures)
6x Hemostats	George Tiemann Co.	#105-1125	Clamp and open incision
1x Small scissors	George Tiemann Co.	#105-411	Cut sutures after tying
1x Tissue forceps	George Tiemann Co.	#105-222	Holding tissue while suturing
1x Needle holder	George Tiemann Co.	#105-1259	Holding suture needle
1x Scalpel holder (with #11 blade)	George Tiemann Co.	#105-80 (w/ #105-71 blade)	Making skull incision
1x #22 Scalpel blade	George Tiemann Co.	#160-381	Shaving scalp
1x Surgical Spatula	George Tiemann Co.	#160-718	Scraping skull to clear tissue on skull
Machine/Jewelers Screws	Various	N/A	0/80 x 1/8"

Table 3. List of Equipment for Recording Electrophysiological Signals.			
Micewire Array & Connector	Micro Probe, Inc. (Gaithersburg, MD)	N/A (Part No. based on array characteristics)	Cranially implanted in target recording region. Arrays are customized based on desired wire spacing, length, <i>etc.</i>
Unity-Gain Harness/Headstage	M.B. Turnkey Designs (Hillsborough, NJ)	Proj 1200	Initial amplification of neural signal; allows for propagation of small neural signals.
Commutator (and Optional Fluid Swivel)	Plastics One, Inc. (Roanoke, VA)	SL18C	Allows animals to freely rotate while propagating electrical signal to preamp
Pre-amplifier	M.B. Turnkey Designs (Hillsborough, NJ)	Proj 1198	Differentially amplifies neural signals against a reference electrode.
Filter and Amplifier	M.B. Turnkey Designs (Hillsborough, NJ)	Proj 1199	Band-pass filters and further amplifies the differentially amplified signal.
Acquisition Computer	EnGen (Phoenix, AZ)	N/A (Custom Build)	Runs software and hardware for behavioral and neural data acquisition.
A/D Card	Data Translation (Marlboro, MA)	DT-3010	Digitizes neural signals for computer sampling.
Digital I/O Card	Measurement Computing (Norton, MA)	PCI CTR-05	Acquires behavioral inputs and outputs