

Materials List for

# Targeting the Corticospinal Tract in Neonatal Rats with a Double-Viral Vector using Combined Brain and Spine Surgery

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## Materials

Name	Company	Catalog Number	Comments
#11 scalpel blades	Roboz	RS-9801-11	For use with the scalpel.
#10 Scalpel Blades	Roboz	RS-9801-10	For use with the scalpel.
1 mL Syringes	Becton, Dickinson and Company	309659	For anesthetic SC injection and fluid bolus
4.0 silk suture	Ethicon	771-683G	For skin closure
4.0 Chromic Catgut Suture	DemeTECH	NN374-16	To re-bind muscle during closing.
48000 Micropipette Beveler	World Precision Instruments	32416	Used to bevel the tips of the pulled glass capillary tubes to form functional glass needles.
5% Iodine Solution	Purdue Products L.P.	L01020-08	For use in sterilization of the surgical site.
70% Ethanol	N/A	N/A	For sterilization of newly prepared glass needles, animal models during surgical preparation
Ketamine (Ketaset)	Zoetis	240048	For keeping the animal in the correct plane of consciousness during surgery.
Bead Sterilizer	CellPoint	5-1450	To heat sterilize surgical instruments.
Digital Scale	Ohaus	REV.005	For weighing the animal during surgical preparation.
Flexible Needle Attachment	World Precision Instruments	MF34G-5	For cleaning glass needles and loading red oil into glass needles.
Glass Capillary Tubes	World Precision Instruments	4878	For pulled glass needles - should be designed for nanoliter injectors.
Hemostats	Roboz	RS-7231	For general use in surgery.
Medium Point Curved Forceps	Roboz	RS-5136	For general use in surgery.
Micromanipulator with a Vernier Scale	Kanetec	N/A	For precise targeting during surgery.
Microscissors	Roboz	RS-5621	For cutting glass whisps off of freshly pulled glass capillary tubes.

Lab Standard Stereotaxic Instrument	Stoelting	51600	To hold the neonatal stereotaxic holder in place
Lab Standard with Mouse & Neonates Adaptor	51615	For neonatal skull fixation during cranial surgery and spinal injections	
Microscope with Light and Vernier Scale Ocular	Leitz Wetzlar	N/A	Used to visualize and measure beveling of pulled glass capillary tubes into functional glass needles.
MicroSyringe Pump Controller	World Precision Instruments	62403	To control the rate of injection.
Nanoliter 2000 Pump Head Injector	World Precision Instruments	500150	To load and inject virus in a controlled fashion.
Needle Puller	Narishige	PC-100	To heat and pull apart glass capillary tubes to form glass needles.
pAAV-CMV-scCre	Wu lab		Cre plasmid
pAAV-hSyn-DIO-hM3Dq-mCherry (plasmid #44361)	Bryan Roth's lab through Addgene		DREADD plasmid
Parafilm	Bemis	PM-996	To assist with loading virus into the nanoinjector.
PrecisionGlide Needles (25G x 5/8)	Becton, Dickinson and Company	305122	For use with the 1mL and 10 mL syringes to allow injection of the animal model.
Rat Tooth Forceps	Roboz	RS-5152	For gripping spinous processes.
Red Oil	N/A	N/A	To provide a front for visualization of virus entering tissue during injection.
Retractors	Roboz	RS-6510	To hold open the surgical wound.
Rongeurs	Roboz	RS-8300	To remove muscle from the spinal column during surgery.
Scalpel Blade Handle	Roboz	RS-9843	To slice open skin and fat pad of animal model during surgery.
Scissors	Roboz	RS-5980	For general use in surgery.
Staple Removing Forceps	Kent Scientific	INS750347	To remove the staples, should they be applied incorrectly.
Sterile Cloth	Phenix Research Products	BP-989	To provide a sterile surface for the operation.
Sterile Cotton-Tipped Applicators	Puritan	806-WC	To soak up blood in the surgical wound while maintaining sterility.
Sterile Gauze	Covidien	2146	To clean the surgical area and surgical tools while maintaining sterility.
Sterile Saline	Baxter Healthcare Corporation	281324	For use in blood clearing, and for replacing fluids post-surgery.
Surgical Gloves	N/A	N/A	For use by the surgeon to maintain sterile field during surgery.
Surgical Heating Pad	N/A	N/A	For maintaining the body temperature of the animal model during surgery.
Surgical Microscope	N/A	N/A	For enhanced visualization of the surgical wound.
Surgical Stapler	Kent Scientific	INS750546	To apply the staples.
Water Convection Warming Pad	Baxter Healthcare Corporation	L1K018	For use in the post-operational recovery area to maintain the body temperature of the unconscious animal.
Weighted Hooks	N/A	N/A	To hold open the surgical wound.
Liquid bandage	NewSkin	985838	To apply along sutures following surgery and encourage wound healing

Wire Cage Lamp	ZooMed	LF10EC	To help animals recover from anesthesia and retain warm body temperature naturally
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