

Materials List for:

Tracking Superparamagnetic Iron Oxide-labeled Mesenchymal Stem Cells using MRI after Intranasal Delivery in a Traumatic Brain Injury Murine Model

Rami Ahmad Shahrour^{1,2,3}, Chung-Che Wu^{2,3,4,5}, Yung-Hsiao Chiang^{1,2,3,4,5}, Kai-Yun Chen^{1,2,3}

¹Ph.D. Program for Neural Regenerative Medicine, College of Medical Science and Technology, Taipei Medical University and National Health Research Institutes

²Center for Neurotrauma and Neuroregeneration, Taipei Medical University

³TMU Neuroscience Research Center, Taipei Medical University

⁴Department of Neurosurgery, Taipei Medical University Hospital

⁵Department of Surgery, School of Medicine, College of Medicine, Taipei Medical University

Correspondence to: Chung-Che Wu at johnwu@tmu.edu.tw, Kai-Yun Chen at kychen08@tmu.edu.tw

URL: <https://www.jove.com/video/60450>

DOI: [doi:10.3791/60450](https://doi.org/10.3791/60450)

Materials

Name	Company	Catalog Number	Comments
Cell culture supplies (Plastics)	ThermoFisher Scientific	Varies	Replaceable with any source
Disposable Microtome Blade	VWR	95057-832	
D-MEM/F-12 (1x) with GlutaMAX	GIBCO	10565-018	
Embedding medium for frozen tissue specimens (O. C. T.)	Sakura Finetek	4583	
Fetal Bovine Serum (FBS)	GIBCO	12662-029	
Fluorescence Wild Field Microscope	Olympus	Olympus BX43	
Forcept	Fine Science Tools	11293-00	Surgery
Gentamicin (10 mg/mL)	GIBCO	15710-064	
Hair clipper	Pet Club	PC-400	
Head Trauma Contusion device	Precision Systems and Instrumentation	Model TBI-0310	
Hyaluronidase from bovine testes	MilliporeSigma	H3506	
ITK-SNAP Software	Penn Image Computing and Science Laboratory (PICSL) at the University of Pennsylvania, and the Scientific Computing and Imaging Institute (SCI) at University of Utah	ITK-SNAP 3.8.0	
Ketamine (Ketavet)	Pfizer	778-551	
Mice	National Laboratory Animal Center, Taiwan	C57BL6	Wild type mice strain used in the study
Microdrill	Nakanishi	NE50	Combine with Burrs for generating the bone window
Microtome	Leica	RM2265	
Mouse (C57BL/6) Mesenchymal Stem Cells	GIBCO	S1502-100	
MRI scanner	Bruker Biospec		
Phosphate Buffer Saline (PBS)	Corning Cellgro/ThermoFisher	21-031-CV	
Povidone-iodine 7.5%	Purdue product L.P.		Surgical scrub
Prussian Blue Stain	Abcam	ab150674	
Scissor	Fine Science Tools	14084-08	Surgery
Stereotaxic frame	Kopf Instruments	Model 900	

Superparamagnetic iron oxide (SPIO) nanoparticles	BioPAL	Molday ION EverGreen, CL-50Q02-6A-51	stem cells labeling for in vivo tracking using MRI
Suture monofilament	Ethicon	G697	Suture
Timer	Wisewind		Replaceable with any source
TrypLE	GIBCO	12604-013	
Xylazine (Rompun)	Bayer	QN05 cm92	