

Materials List for

Isolation of Cerebral Capillaries from Human Brain: An Optimized Method to Extract Cerebral Capillaries from Human Brain Tissue

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Materials

Name	Company	Catalog Number	Comments
Personal Protective Equipment (PPE)			
Diamond Grip Plus Latex Gloves, Microflex Medium	VWR, Radnor, PA, USA	32916-636	PPE
Disposable Protective Labcoats	VWR, Radnor, PA, USA	470146-214	PPE; due to the nature of the human source material, the use of a disposable lab coat is recommended
Face Shield, disposable	Thermo Fisher Scientific, Pittsburgh, PA, USA	19460102	PPE; due to the nature of the human source material, the use of a disposable face shield is recommended
Safety Materials			
Clavies High-Temperature Autoclave Bags 8 x 12	Thermo Fisher Scientific, Pittsburgh, PA, USA	01-815-6	
Versi Dry Bench Paper 18" x 20"	Thermo Fisher Scientific, Pittsburgh, PA, USA	14-206-32	To cover working areas
VWR Sharps Container Systems	Thermo Fisher Scientific, Pittsburgh, PA, USA	75800-272	For used scalpels
Bleach 8.2% Clorox Germicidal 64 oz.	UK Supply Center, Lexington, KY, USA	323775	
Equipment			
4 °C Refrigerator	Thermo Fisher Scientific, Pittsburgh, PA, USA	13-986-148	
Accume BASIC AB15 pH Meter	Thermo Fisher Scientific, Pittsburgh, PA, USA	AB15	
Heidolph RZR 2102 Control	Heidolph, Elk Grove Village, IL, USA	501-21024-01-3	
Sorvall LEGEND XTR Centrifuge	Thermo Fisher Scientific, Pittsburgh, PA, USA	75004521	
Leica L2 Dissecting Microscope	Leica Microsystems Inc, Buffalo Grove IL, USA		Used to remove meninges
POLYTRON PT2500 Homogenizer	Kinematica AG, Luzern, Switzerland	9158168	
Scale P-403	Denver Instrument, Bohemia, NY, USA	191392	
Standard mini Stir	Thermo Fisher Scientific, Pittsburgh, PA, USA	1151050	
Thermo-Flasks Liquid Nitrogen Dewar	Thermal Scientific, Mansfield, TX, USA	11-670-4C	Used to freeze the tissue
Voyager Pro Analytical Balance	OHAUS, Parsippany, NJ, USA	VP214CN	
ZEISS Axiovert Microscope	Carl Zeiss, Inc Thornwood, NY, USA		Used to check isolated capillaries

Tools and Glassware			
Finnpipette II Pipette 1-5 mL	Thermo Fisher Scientific, Pittsburgh, PA, USA	21377823T1	Wash capillaries off filter
Finnpipette II Pipette 100-1,000 µL	Thermo Fisher Scientific, Pittsburgh, PA, USA	21377821T1	Resuspend pellet in BSA
Pipet Boy	Integra, Hudson, NH, USA	739658	
50 mL Falcon tubes 25/rack - 500/ cs	VWR, Radnor, PA, USA	21008-951	
EISCO Scalpel Blades	Thermo Fisher Scientific, Pittsburgh, PA, USA	S95938C	To mince brain tissue
PARAFILM	VWR, Radnor, PA, USA	52858-000	To cover beaker and volumetric flask
Thermo Scientific Finntip Pipet Tips 5 mL	Thermo Fisher Scientific, Pittsburgh, PA, USA	21-377-304	To wash capillaries off filter
60 mL syringe with Luer-Lok	Thermo Fisher Scientific, Pittsburgh, PA, USA	BD309653	Used with connector ring to filter capillaries
Scalpel Handle #4	Fine Science Tools, Foster City, CA, USA	10060-13	Used for mincing
Dumont Forceps #5	Fine Science Tools, Foster City, CA, USA	11251-10	Used to remove meninges
Potter-Elvehjem Tissue Grinder	Thomas Scientific, Swedesboro, NJ, USA	3.43E+28	50 mL volume, clearance: 150-230 µm
Dounce Homogenizer	VWR, Radnor PA USA	62400-642	15 mL volume, clearance: 80-130 µm
Spectra/Mesh Woven Filters (300 µm)	Spectrum Laboratories, Rancho Dominguez, CA, USA	146424	Used to filter capillary suspension to remove any meninges that may be left
pluriStrainers (pore size: 30 µm)	pluriSelect Life Science, Leipzig, Germany	43-50030-03	
Connector Ring	pluriSelect Life Science, Leipzig, Germany	41-50000-03	Reuse multiple time
1 L Volumetric Flask			For preparation of Isolation Buffer
1 L Beaker			For preparation of 1% BSA
Stir Bar			For preparation of 1% BSA and Ficoll®
Schott Bottle (60 mL)			For preparation of Ficoll®
Ice Bucket			To keep everything cold
100 mm Petri dish			For mincing of brain tissue
Tissue Culture Cell Scraper	VWR, Radnor, PA, USA	89260-222	To remove supernatant after centrifugation
Chemicals			
BSA Fraction V, A-9647	Sigma-Aldrich, St. Louis, MO, USA	A9647-500g	Prepare in DPBS with Ca ²⁺ & Mg ²⁺ the day before. Avoid bubbles during preparation. Store in the refrigerator. Slowly stir for 10 min before use.
DPBS with Ca ²⁺ & Mg ²⁺	Hyclone	SH30264.FS	DPBS - part of the Isolation Buffer
Ficoll PM400	Sigma-Aldrich, St. Louis, MO, USA	F4375	Exact measurement is important here. Weigh out in bottle with stir bar. Shake vigorously after adding DPBS. Keep in the fridge O/N. It will be clear in the morning. Stir gently for 10-15 min before use. Keep on ice until use.

Glucose (D-(+) Dextrose)	Sigma-Aldrich, St. Louis, MO, USA	G7528	Glucose (D-(+) Dextrose) Concentration: 5 mM
Sodium Hydroxide Standard Solution	Sigma-Aldrich, St. Louis, MO, USA	71474	To adjust pH of the DPBS
Sodium Pyruvate	Sigma-Aldrich, St. Louis, MO, USA	P2256	Concentration: 1 mM