

Materials List for

Isolation of Mouse Retinal Capillaries and Subendothelial Matrix for Stiffness Measurement Using Atomic Force Microscopy

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Materials

Name	Company	Catalog Number	Comments
Retinal Capillary Isolation			
0.22 µm PVDF syringe filter	Merck Millipore	SLGVM33RS	Low Protein Binding Durapore
10X Dulbecco's Phosphate Buffered Saline without calcium % magnesium	Corning	20-031-CV	Final concentration 1X, pH 7.4
12-well plate	Falcon Corning	353043	
15 mL centrifuge tube	Corning	430791	Rnase-Dnase-free, Nonpyrogenic
20 mL Luer-Lok TIP syringe	BD	302830	
5 3/4 inch Disposable Borosilicate Glass/Non-sterile Pasteur pipette	FisherBrand	13-678-20A	
60x15 mm Tissue Culture Dish	Falcon Corning	353002	
6-well plate	Falcon Corning	353046	
Aqua-Hold 2 Pap - 13 mL Pen	Scientific Device Laboratory	9804-02	
Blade holder	X-ACTO		
Carbon Steel Surgical Blade #10	Bard-Parker	371110	
Dental Wax	Electron Microscopy Sciences	50-949-027	
Dissecting microscope	Am-scope		
Formalin solution, neutral buffered, 10%	Millipore Sigma	HT501128-4L	Final concentration 5% (v/v)
Kimwipes - wiper tissue	Kimtech Science	34133	
Micro spatula	Fine Science Tools	10089-11	
Orbital Shaker	Lab Genius	SK-O180	
PELCO Economy #7 Stainless Steel 115mm Tweezer	Ted Pella, Inc.	5667	
Phase contrast microscope	Nikon TS2		
Purifier Logic+ Class II, Type A2 Biosafety Cabinet	Labconco	302380001	

Safe-Lock microcentrifuge tubes 2 mL	Eppendorf	22363352	
Stereoscope	AmScope	SM-3 Series Zoom Trinocular Stereomicroscope 3.5X-90X	
Superfrost Plus microscopy slide - White tab - Pre-cleaned - 25x75x1.0 mm	FisherBrand	1255015	
Tris Buffer, 0.1M solution, pH 7.4 - Biotechnology Grade	VWR	E553-500ML	pH 8 for trypsin solution
Trypsin 1:250 powder Tissue Culture Grade	VWR	VWRV0458-25G	10 % (w/v) trypsin solution
Water Molecular Biology Grade	Corning	46-000-CM	
Subendothelial Matrix			
10X PBS	Corning	20-031-CV	
1X PBS with calcium and magnesium	Thermo Fisher Scientific	14040-117	pH 7.4
Ammonium hydroxide	Sigma-Aldrich	338818	
Ascorbic Acid	Sigma-Aldrich	A4034	
Collagen IV antibody	Novus Biologicals	NBP1-26549	
DNase I	Qiagen	79254	
Ethanolamine	Sigma-Aldrich	398136	
Fibronectin antibody	Sigma-Aldrich	F6140	
Fluoromount	Invitrogen-Thermo Fisher Scientific	00-4958-02	
Gelatin	Sigma-Aldrich	G1890	
Glass coverslips (12mm)	Fisher	12-541-000	
Glutaraldehyde	Electron microscopy Sciences	16220	
Human retinal endothelial cells (HREC)	Cell Systems Corp	ACBRI 181	
MCDB131 medium	Corning	15-100-CV	
Mouse retinal endothelial cells (mREC)	Cell Biologics	C57-6065	
Triton X-100	Thermo Fisher Scientific	BP151-100	
Trypsin	Gibco-Thermo Fisher Scientific	25200-056	
AFM Measurement			
1 μ m Probe	Bruker	SAA-SPH-1UM	A 19 micron tall hemispherical probe with 1 micron end radius, Spring constant 0.25N/m
70 nm LC probe	Bruker	PFQNM-LC-V2	A 19 micron tall hemispherical probe with 70nm end radius, Spring constant 0.1N/m
camera	XCAM family	Toupcam	1080P HDMI
Desktop to run the camera	Asus	Asus desktop	Intel i5-6600 CPU , 8GB RAM
Dish holder for coverslip	Cellvis	D29-14-1.5-N	29mm glass bottom dish with 14 mm micro-well
Nanowizard 4	Bruker	Nanowizard 4	Bioscience atomic force microscope mounted on an optical microscope for sensitive measurement of the mechanostructural properties (stiffness and topography) of soft biological samples
Phase contrast microscope	Zeiss	Axiovert 200	Inverted microscope with 10X objective