

Materials List for:

Electrophysiological Recordings of Single-Cell Ion Currents Under Well-Defined Shear Stress

Ibra S. Fancher¹, Irena Levitan¹

¹Department of Medicine, Division of Pulmonary, Critical Care, Sleep and Allergy, University of Illinois at Chicago

Correspondence to: Ibra S. Fancher at ifancher@uic.edu

URL: <https://www.jove.com/video/59776>

DOI: [doi:10.3791/59776](https://doi.org/10.3791/59776)

Materials

Name	Company	Catalog Number	Comments
0.2 µm sterile syringe filters	VWR	28145-501	Used for filtering electrophysiological pipette solution
5 grade forceps	Fine Scientific Tools	1252-30	Used for transferring digested arteries to fresh solution
9" Pasteur Pipet	Fisher Scientific	13-678-20D	Used for mechanically disrupting digested arteries and transferring freshly isolated endothelial cells
12 mm diameter Cover glass circles	Fisher Scientific	12-545-80	For use with studies involving cultured cells and multiple treatments. Cells adhered to the cover glass are used for patch clamp analyses
24 x 40 mm Rectangular Cover glass	Sigma-Aldrich	CLS2975224	Cover glass to be added to MPP flow chamber pieces C (Figure 1)
24 x 50 mm Rectangular Cover glass	Sigma-Aldrich	CLS2975245	Cover glass to be added to MPP flow chamber E (Figure 1)
20 gauge syringe needles	Becton Dickinson and Co	305175	For use in mechanical disruption of digested mesenteric arteries
35 mm Petri dish	Genesee Scientific	32-103	For use in mechanical disruption of digested mesenteric arteries
Amphotericin B solubilized	Sigma-Aldrich	A9528-50MG	Used for generating the perforated whole-cell patch configuration.
collagenase, type I	Worthington Biochemical	100 mg - LS004194	Enzyme used in our laboratory as a brief digestion following the initial cocktail of neutral protease and elastase
Dimethyl Sulfoxide (DMSO)	Fisher Scientific	67-68-5	Solvent for Amphotericin B used in perforated whole-cell patch clamp
elastase, lyophilized	Worthington Biochemical	25 mg - LS002290	Enzyme used in our laboratory in a cocktail with neutral protease/ dispase to begin digestion of arteries for endothelial cell isolation.
Falcon Tissue culture Plate, 6-well, Flat Bottom with Low Evaporation Lid	Corning	353046	For use with studies involving cultured cells and multiple treatments
neutral protease/dispase	Worthington Biochemical	10 mg- LS02100 50 mg - LS02104	Enzyme used in our laboratory in a cocktail with elastase to begin digestion of arteries for endothelial cell isolation
SylGard	World Precision Instruments	SYLG184	Silicone elastomer for adhering the rectangular cover slip to the

			MPP flow chamber pieces C and E (Figure 1)
Tygon ND 10-80 tubing	Microbore Tubing	AAQ04133	ID: 0.05 in, OD: 0.09 in, inlet perfusion tubing for administering flow to the chamber