

Materials List for:

A Method of Targeted Cell Isolation via Glass Surface Functionalization

Ali Ansari¹, Reema Patel², Kinsey Schultheis¹, Vesna Naumovski³, P. I. Imoukhuede¹

¹Department of Bioengineering, University of Illinois at Urbana-Champaign

²Department of Liberal Arts & Sciences, University of Illinois at Urbana-Champaign

³Department of Biomedical Engineering, Illinois Institute of Technology

Correspondence to: P. I. Imoukhuede at pji@illinois.edu

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Materials

Name	Company	Catalog Number	Comments
(3-Aminopropyl) triethoxysilane (APTES)	Acros Organics	919-30-2	Used to make 2% APTES solution
Plasma Cleaner Pico	Diener	Model 1	Cleans surfaces and allows for bonding of PDMS to glass
d-Desthiobiotin (DSB)	Sigma	D20655	Used as the releasing mechanism in the cellular capture surface.
dimethyl sulfoxide (DMSO)	British Drug Houses (BDH)	BDH1115-1LP	Dissolves the DSB into solution
1-Ethyl-3-(3-dimethylaminopropyl) carbodiimide (EDC)	Thermo-Scientific	5g: 22980 25g: 22981	Activates carboxylic acids and allows binding of proteins to glass surface.
uncoated 8-well culture slide	BD Falcon	Case of 24: 354118 Case of 96: 354108	Used in cellular experiments involving Zeiss fluorescence microscope such as initial capture and release quantification experiments
Glass bottom 24-well plates	MatTek	P24G-0-13-F	Used in cellular experiments involving the plate reader such as antibody and cellular titration experiments
Mercaptoethanol	Science Lab	60-24-2	Used to quench reaction between EDC and DSB
4-Morpholinoethanesulfonic acid hydrate (MES Hydrate 99%)	Fisher Scientific	AC172590250	Used to make 0.1 M MES Buffer for use in EDC reaction
Precision Oven	Thermo Scientific	11-475-153	Used in curing of PDMS and APTES layer.
Titramax 1000 Shaker	Heidolph	13-889-420	Used to ensure even distribution of APTES on surfaces.
1x Streptavidin 5 mg [e7105-5mg]	Proteo Chem	9013-20-1	Biotin-binding protein. May cause irritation.
5 cm Glass Dish	Fisher Scientific	08748A	Used in HUVEC studies as well as future profiling studies.
14 cm Petri Dish with Cover	Sigma-Aldrich	Z717231	Used to hold samples being functionalized and transport them.
MCF7-GFP cells	Cell Biolabs	AKR211	Stored in liquid nitrogen
RAW264.7 mouse macrophages	ATCC	TIB-71	Gifted to us from Smith lab at the University of Illinois. Stored in liquid nitrogen.
TrypLE	Life Technologies	12605036	Stored in 100 ml at room temperature
Dulbecco's modified Eagle medium	Cell Media Facility at School of Chemical Sciences at UIUC	50003PC	Supplier: Corning

Nonessential amino acids	Cell Media Facility at School of Chemical Sciences at UIUC	25-025-CI	Already added into DMEM by facility. Supplier: Corning.
Cell scraper	Fisher Scientific	12-565-58	Small 23 cm 50 pack
Cell Dissociation Solution	Corning	MT-25-056CI	Used to lift cells non-enzymatically for the use in cell experiments
Hemocytometer	Hausser	02-671-54	Used to count cells for quantification of cell solutions and capture and release effectivity.
Biotin	Amresco	58-85-5	Used to release cells from surface.
HBSS	Created from Recipe	N/A	Used to keep cells alive in suspension as well as wash surfaces of non-specific binding. Adapted from Cold Spring Harbor Protocols: In 500 ml, use 4 g NaCl, 0.2 g KCl, 0.0402 g Na ₂ PO ₄ •7H ₂ O, 0.03 g KH ₂ PO ₄ and 0.5 g glucose. Add DI water to get to 500 ml, filter, and then refrigerate.
HLA-ABC Antibody	BioLegend	311402	Antibody used to capture MCF7gfp cells
hIgG Antibody	BioLegend	HP6017	Antibody used to capture MCF7gfp cells
MCF7 GFP cells	Cell Biolabs	AKR-211	Luminal Breast Cancer line that has been transfected with green fluorescent protein.
Assorted Conicals	Thermo-Scientific	15mL: 12-565-268	50/15 ml plastic conicals for storing solutions and aliquots.
Mini-Tube Rotators (End over End Mixer)	Fisher Scientific	05-450-127	Used to incubate antibody and mix other cellular solutions in order to mix
Axiovert 200M (Fluorescence Microscope)	Zeiss	N/A	Zeiss Axiovert 200 M inverted fluorescence microscope.
Zeba Desalting columns	Thermo-Scientific	PI-87770	Used to purify newly biotinylated antibodies after the use of the Biotinylation Kit. Instructions provided at: http://www.funakoshi.co.jp/data/datasheet/PCC/89894.pdf
EZ Link Sulfo NHS Low Weight Biotinylation Kit	Thermo- Scientific		Used to biotinylate antibodies to allow them to integrate with the capture surface
Plate Reader	BioTek	Synergy HTX Multimode Reader	Used to quantitatively measure fluorescent intensity in the titration experiments.