

Materials List for:

Electronic Measurements of Cellular Adhesion Using Field-Effect Transistor Cell-Substrate Impedance Sensing (FETCIS)

Jessica Ka-Yan Law¹, Anna Susloparova^{*1}, Dieter Koppenhöfer^{*1}, Xuan Thang Vu¹, Felix Hempel¹, Sven Ingebrandt¹

¹Department of Informatics and Microsystem Technology, University of Applied Sciences Kaiserslautern

*These authors contributed equally

Correspondence to: Sven Ingebrandt at sven.ingebrandt@fh-kl.de

URL: <http://www.jove.com/video/52430>

DOI: [doi:10.3791/52430](https://doi.org/10.3791/52430)

Materials

Name	Company	Catalog Number	Comments
Chip fabrication and encapsulation			
n-type silicon wafer	Active business company GmbH	WS104-1011002	
68 Lead Ceramic Chip Carrier	Global Chip Materials	LCC6830002	
Acetone	ChemSolute	2659.5000	
Aluminum wire	Heraeus		
Buffered hydrofluoric acid	MicroChemicals	BOE 7-1	HF:NH ₄ F = 1 : 7 (v/v), VLSI Grade
Epoxy 377 1LB Kit	Epoxy Technology	PB 044542	Degas after mixing; eliminate air bubbles
Glass rings	Becker Glas		
Hydrogen Peroxide (30 %)	Sigma-Aldrich		VLSI Grade
Isopropanol	Merck	8.18766.2500	
Photoresist AR-P3100	All resist	AR-P3100	Mask positive photoresist
Photoresist AR-U4040	All resist	AR-U4040	Image reversal photoresist
Photoresist developer AR 300-26	All resist	AR 300-26	Photoresist developer
Piranha solution			H ₂ SO ₄ :H ₂ O ₂ = 2:1 (v/v)
Silicon adhesive	Dow Corning	96-083	Degas after mixing; eliminate air bubbles
Sulphuric Acid (98 %)	Sigma-Aldrich		VLSI Grade
Wire bonder	West Bond Inc.	7602C-79C	
Impedance measurement with cells			
Ethanol	ChemSolute	22.465.000	
BioMol software			Read-out software implemented in Delphi 5.0 (Borland Software Corporation)
Differential Interface Contrast microscope	Carl Zeiss	180218	
Dulbecco's Modified Eagle's Medium	PAN Biotech GmbH	P04-02500	
Fetal Calf serum	PAN Biotech GmbH	P30-3702	
Fibronectin	AppliChem GmbH	A8350	
G418	Carl Roth GmbH	239.3	
Hellmanex III	Hellma Analytics	320003	Prepare 2 % Hellmanex III with distilled water
Incubator	NUAIR	NU-5500E	
Laminar-flow clean bench	Heraeus Instruments	HB 2448	

L-Glutamine	PAN Biotech GmbH	P04-80100	
Minimal Essential Medium	PAN Biotech GmbH	P04-08250	
NexSil20 nanoparticles	NYACOL Nanotechnologies Inc.		
Non-Essential Amino Acid	PAN Biotech GmbH	P08-32100	
Patch-Clamp Pipette Puller	Sutter Instrument Co.	P-2000	
Patch-Clamp Pipettes	Science Products	GB150F-8P	
Penicillin/Streptomycin	PAN Biotech GmbH	P06-07100	
Roswell Park Memorial Institute Medium	PAN Biotech GmbH	P04-17500	
Sonicator	Sonovex	RK 100H	
Sulfuric acid	AppliChem GmbH	A2762	
Topotecan hydrochloride	Sigma-Aldrich	T2705	
Trypsin with EDTA	PAN Biotech GmbH	P10-024100	