

Materials List for:

Investigating Single Molecule Adhesion by Atomic Force Spectroscopy

Frank W. S. Stetter^{1,2}, Sandra Kienle^{1,2}, Stefanie Krysiak^{1,2}, Thorsten Hugel^{1,2}

¹Physik-Department E22a, Technische Universität München

²IMETUM, Technische Universität München

Correspondence to: Thorsten Hugel at thugel@mytum.de

URL: <https://www.jove.com/video/52456>

DOI: [doi:10.3791/52456](https://doi.org/10.3791/52456)

Materials

Name	Company	Catalog Number	Comments
Materials			
Hellmanex III alkaline liquid concentrate (detergent solution)	Hellma		
RCA (ultrapure water, hydrogen peroxide (35%), ammonia (32%); 5:1:1 (v/v/v))	Sigma		
Vectabond reagent / APTES (3-Aminopropyl)triethoxysilane	Vectorlabs		
Dry acetone (< 50 ppm H ₂ O)	Sigma		
Dry chloroform (> 99.9%)	Sigma		
Triethylamine	Sigma		
Ultrapure water	Biochrom, Germany		
Di-sodium tetraborate (> 99.5%)	Biochrom, Germany		
Boric Acid	Biochrom, Germany		
Monofunctional α -methoxy- ω -NHS PEG, 5 kDa, "methyl-PEG-NHS"	Rapp, Germany		
Heterobifunctional α, ω -bis-NHS PEG, 6 kDa, "NHS-PEG-NHS"	Rapp, Germany		
Heterobifunctional α -maleimidohexanoic- ω -NHS PEG, 5 kDa, "Mal-PEG-NHS"	Rapp, Germany		
Probe molecule (polymer, lipid, etc.)			
Equipment			
Sufficient amount of glass crystallising dishes with spout (10 ml), glass Petri dishes (500 μ l) and glass lids	VWR International GmbH, Germany		
Materials			
Laboratory oven model UF30	Memmert, Germany		
Temperature controlled sonicator	VWR International GmbH, Germany		
Plasma system "Femto", 100 W	Diener, Germany		
One separate glass syringe for each organic solvent	VWR International GmbH, Germany		
Vortex mixer	VWR International GmbH, Germany		

Microcentrifuge tubes (0.5 ml or 1.5 ml)	Eppendorf		
Pipettes: 10-100 μ l, 50-200 μ l and 100-1,000 μ l	Eppendorf		
AFM with temperature controlled fluid cell (e.g. MFP-3D with BioHeater)	Asylum Research, Santa Barbara		
Soft SiN cantilevers cantilever, typically made from silicon nitride (SiN) (spring constant less than 100 pN/nm, e.g. MLCT)	Bruker AXS, Santa Barbara		