

Materials List for:

Surface Passivation for Single-molecule Protein Studies

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Materials

Name	Company	Catalog Number	Comments
1. Slide preparation and cleaning			
Acetone	Sigma	32201	1 L
Coverslips	VWR	631-0136 631-0144 631-0147	24 x 32 mm ² , 22 x 40 mm ² , 24 x 50 mm ² (No. 1½, Rectangular)
Diamond drill bits	MTN-Giethoorn, The Netherlands	LA-0564-00DB	3/4 mm
Duran slide holder	LGS, The Netherlands	213170003	
Glass staining dishes	Fisher Scientific	300101	
H ₂ O ₂	Boom	6233905	1 L, hydrogen peroxide 30%. Opened bottles should be stored at 4 °C.
H ₂ SO ₄	Boom	80900627.9010	Sulfuric acid 95-98%
KOH	Sigma	30603	Potassium hydroxide
Methanol	Sigma	32213	1 L
Sonicator	Branson		Tabletop ultrasonic cleaner, 3510
Quartz slides	Finkenbeiner		1" x 3", 1 mm thick
2. Coverslip cleaning			
Duran slide holder	LGS, The Netherlands	213170003	
KOH	Sigma	30603	Potassium hydroxide
Sonicator	Branson		Tabletop ultrasonic cleaner, 3510
3. Amino-silanization of slides and coverslips			
Acetic acid	Sigma	320099-500ML	Acetic acid, glacial
APTES	Sigma-Aldrich	281778-100ML	3-aminopropyl trimethoxysilane. Store at the room temperature under N ₂ . Replace once in a month.
Flask (200 ml)	VWR	Flask (200 ml)	Pyrex flask. Have one flask dedicated for aminosilanization.
Methanol	Sigma	32213	1 L
Sonicator	Branson		Tabletop ultrasonic cleaner, 3510
4. Surface passivation using polymer (the first round)			
Biotin-mPEG	Laysan Bio	Biotin-PEG-SVA-5000-100mg	Biotin-PEG-SVA, MW 5,000 Da. Store aliquots of 1-2 mg (enough for 10 slides) at -20 °C under N ₂ .
mPEG	Laysan Bio	MPEG-SVA-5000-1g	mPEG-succinimidyl valerate (SVA), MW 5,000 Da. Store aliquots of 80 mg (enough for 10 slides) at -20 °C under N ₂ .

Sodium bicarbonate	Sigma	S6014-500G	
5. Surface passivation (the second round)			
DMSO	Sigma-Aldrich	D8418-100ML	Dimethyl sulfoxide BioReagent, for molecular biology, ≥99.9%
DST	Pierce	20589	Disuccinimidyl tartarate
MS4-PEG	Pierce	22341	Short NHS-ester PEG, MW 333 Da. Dissolve 100 mg MS4-PEG in 1.1 ml DMSO. Store 20 µl aliquots at -20 °C.
Sodium bicarbonate	Sigma	S6014-500G	
6. Assembling a microfluidic chamber			
Double sticky tape	Scotch		10 mm wide
Epoxy	Thorlabs	G14250	Devcon 5 minute epoxy
NaCl	Sigma-Aldrich	S9888-1 KG	Sodium chloride
Neutravidin	Pierce	31000	ImmunoPure NeutrAvidin Biotin-Binding protein. Stock in 5 mg/ml in H ₂ O at 4 °C.
Streptavidin	Invitrogen	S-888	Stock 5 mg/ml in H ₂ O or T50 at 4 °C.
Trizma base	Sigma-Aldrich	T1503-1 KG	Tris