

Materials List for:

# Structural Information from Single-molecule FRET Experiments Using the Fast Nano-positioning System

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## Materials

Name	Company	Catalog Number	Comments
<b>Flowchamber preparation</b>			
Customized metall sample holder	self-built	n/a	
quartz-glass slides, 76 mm x 26 mm	Technical Glass Products	26007	
coverslips, 60 mm x 24 mm	Marienfeld	101242	
detergent, Hellmanex II	Hellma	320.001	
ultra-pure water from Synergy UV	Millipore	2512600	
Zepto plasma cleaner	Diener	n/a	
(3-aminopropyl)-triethoxysilane, p.a.	Sigma-Aldrich	A3648	
methoxy PEG-succinimidyl valerate, 5 kDa	Laysan Bio Inc.	MPEG-SVA-5000-1g	
biotinylated PEG-succinimidyl valerate, 5 kDa	Laysan Bio Inc.	BIOTIN-PEG-SVA-5000	
Sodium biocarbonate	Sigma-Aldrich	S5761 Sigma	
Sodium carbonate	Sigma-Aldrich	S2127 Sigma-Aldrich	
sealing film (Nescofilm)	Fisher Scientific	12981805	
Tygon Flexible Silicone Tubing, 0.8 mm ID, 2.4 mm OD	Saint-Gobain Performance Plastics	720958	
Fine-Bore Polyethylene Tubing, 0.58 mm ID, 0.96 mm OD (Smiths Medical)	Fisher Scientific	12665497	
Neutraavidin	Life Technologies	A2666	
<b>Total internal reflection fluorescence microscope</b>			
Nd:YAG Laser, 532 nm	Newport Spectra-Physics	EXLSR-532-100-CDRH	
diode-pumped solid-state laser, 491 nm, Calypso	Cobolt	904010050	
diode laser 643 nm, iBeam smart	Toptica	iBEAM-SMART-640-S	
dichroic mirror, 532 RDC	Chroma	F33-540	
dichroic mirror, 476 RDC	Chroma	F33-476z	
acousto-optic tunable filter	AA Opto-Electronic	AOTFnC-VIS	
plano-convex cylindrical lens, f = 75 mm	Thorlabs	LJ1703L1-A	
plano-concave cylindrical, f = -300 mm	Thorlabs		
prism, PS 991	Thorlabs	PS991	

focusing lens, f = 75 mm	Thorlabs	LA1608-B	
syringe pump, PHD 2000	Harvard Apparatus	70-2002	
2 stepper motors, Z812B	Thorlabs	Z812B	
piezoelectric actuator, PE4	Thorlabs	PE4	
IR diode laser	Edmund Optics	CPS808	part of the autofocus system
dichroic mirror, 775 DCXR	Chroma	775 DCXR	
position-sensing detector (PSD), PDP90A	Thorlabs	PDP90A	part of the autofocus system
water-immersion objective, Plan Apo 60X WI, NA 1.2	Nikon		MRD07601
dichroic mirror, 645 DCXR	Chroma	645 DCXR	part of the emission pathway
emission filter, 3RD550-510	Omega Optical	3RD550-510	green channel in the emission pathway
emission filter, 3RD660-760	Omega Optical	3RD660-760	red channel in the emission pathway
EMCCD camera, iXon+ DU897EBV	Andor	AND-20-00032	
EMCCD camera, iXon3 DU897D-BV	Andor	AND-20-000141	
<b>Miscellaneous</b>			
Varian 50	Cary		UV-VIS spectrometer
Fluorolog2	SPEX		fluorescence spectrometer
Solis (V4.15)	Andor		control software for the EM-CCD camera
Apt user utility (V1.022)	Thorlabs		control software for the piezo-motors
Norland Optical Adhesive 68	Thorlabs		adhesive
PC-AFN-0.8 Nile red	Kisker Biotech		avidin-coated fluorescent multispec beads
Matlab	Mathworks		technical computing language for custom written software
Origin (V9.0)	Originlab		scientific graphing and data analysis software
Hellma 105-202-15-40	Hellma	105-202-15-40	absorption cuvette of 1 cm path length
Hellma 105-251-15-40	Hellma	105-251-15-40	fluorescence cuvette with 3 mm path length