

Materials List for:

High Precision FRET at Single-molecule Level for Biomolecule Structure Determination

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Materials

Name	Company	Catalog Number	Comments
charcoal	Merck KGaA	K42964486 320	
syringe filter	Fisherbrand	09-719C	size: 0.20 µm
chambered coverglass	Fisher Scientific	155409	1.5 borosilicate glass, 8 wells
microscope cover glass	Fisher Scientific	063014-9	size: 24 x 60-1.5
Nuclease free water	Fisher Scientific	148859	nuclease free
tween-20	Thermo Scientific	28320	10% solution of Polysorbate 20
acceptor DNA strand (High FRET)	Integrated DNA Technologies	178124895	5'-d(CGG CCT ATT TCG GAG TTG TAA ACA GAG AT(Cy5)C GCC TTA AAC GTT CGC CTA GAC TAG TCC AAG TAT TGC)
acceptor DNA strand (Low FRET)	Integrated DNA Technologies	177956424	5'-d(CGG CCT ATT TCG GAG TTG TAA ACA GAG ATC GCC TT(Cy5)A AAC GTT CGC CTA GAC TAG TCC AAG TAT TGC)
donor DNA strand	Integrated DNA Technologies	177951437	5'-d(GCA ATA CTT GGA CTA GTC TAG GCG AAC GTT TAA GGC GAT CTC TGT TT(Alexa488)A CAA CTC CGA AAT AGG CCG)
DNA strand (No FRET)	Integrated DNA Technologies		5'-d(CGG CCT ATT TCG GAG TTG TAA ACA GAG ATC GCC TTA AAC GTT CGC CTA GAC TAG TCC AAG TAT TGC)
thermal cycler	Eppendorf	E6331000025	nexus gradient
Alexa Fluor 488 C5 Maleimide	Thermo Scientific	A10254	termed cyan-green fluorophore in the manuscript
Alexa Fluor 647 C2 Maleimide	Thermo Scientific	A20347	termed far-red fluorophore in the manuscript
Rhodamine 110	Sigma-Aldrich	83695-250MG	
Rhodamine 101	Sigma-Aldrich	83694-500MG	
LB Broth, Miller	Fisher Scientific	BP1426	For culture of <i>E. coli</i>
Ampicillin	Sigma-Aldrich	A0166	Used at 100 µg/mL final concentration in selective LB medium to maintain plasmid selection
Tetracycline	Calbiochem	58346	Used at 12.5 µg/mL final concentration in selective LB medium to maintain gor (flutathione reductase) mutation in Origami

			B(DE3) strains to facilitate disulfide bond oxidation
Kanamycin	Fisher Scientific	BP906-5	Used at 15 µg/mL final concentration in selective LB medium to maintain <i>trxB</i> (rhioedoxin reductase) mutation in B(DE3) stains to facilitate disulfide bond oxidation
Origami B(DE3) Competent Cells	Millipore	70837-3	Competent <i>E. coli</i> cells for expression of protein with disulfide bridges
Isopropyl-β-D-thiogalactopyranoside (IPTG)	Fisher Scientific	BP1755	For induction of <i>E. coli</i> protein expression
HiTrap Chelating HP	GE Life Sciences	17-0409-01	For Large-scale FPLC Purification of His-tagged protein
Imidazole	Sigma-Aldrich	56749	
Ni-NTA Agarose	Qiagen	30210	
PD-10 Desalting Column	GE Life Sciences	17-0851-01	
AktaPurifier	GE Life Sciences	28406264	FPLC Instrument
Dialysis tubing	Spectrum labs	132562	15 kD MWCO 24 mm Flath width, 10 meters/roll
Dichroics	Semrock	FF500/646-Di01-25x36	500/646 BrightLight
50/50 Beam splitter polarizer	Qioptiq Linos	G33 5743 000	10 x 10 film polarizer
Green pass filer	Chroma	ET525/50m	ET525/50m 25 mm diameter mount
Red pass filter	Chroma	ET720/150m	ET720/150m 25 mm diameter mount
Power Meter	ThorLabd	PM200	
UV-Vis spectrophotometer	Varian	Cary300Bio	
Fluorolog 3 fluorometer	Horiba	FL3-22-R3	
Fluorohub TCSPC controller	Horiba	Fluorohub-B	TCSPC electronics for ensemble measurements
NanoLed 485L	Horiba	485L	Blue diode laser
NanoLed 635L	Horiba	635L	Red diode laser
Olympus IX73 Microscope	Olympus	IX73P2F	Microscope frame
PMA 40 Hybrid Detector	PicoQuant GmbH	932200, PMA 40	Optimized for green detection
PMA 50 Hybrid Detector	PicoQuant GmbH	932201, PMA 50	Optimized for ed shifter sensitivity
485 nm laser	PicoQuant GmbH	LDH-D-C-485	
640 nm laser	PicoQuant GmbH	LDH-D-C-640	
Hydraharp 400 and TTTR acquisition software	PicoQuant	930021	Picosecond event timer and Time Correlated Single Photon Counting Unit, includes TTTR acquisition software
SEPIA II SLM 828 and SEPIA software	PicoQuant	910028	Laser driver for picosecond pulses , includes SEPIA software controller.
computer	Dell	optiplex 7010	cpu: i7-3770 ram:16GB
FRET Positioning and Screening (FPS) software	Heinrich Heine Unviersity		It include the Accesibel Volume clacualtor available at http://www.mpc.hhu.de/software/fps.html
MFD suite	Heinrich Heine Unviersity		It includes the BIFL software package Paris; Margarita for visualization of the multiparameter hisotrams, and

		Probability Distribution Analysis software available at http://www.mpc.hhu.de/software/software-package.html
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