

Materials List for:

Visualizing the Interaction Between the Qdot-labeled Protein and Site-specifically Modified λ DNA at the Single Molecule Level

Huijun Xue^{*1,2}, Zhengyan Zhan^{*1}, Kaining Zhang^{1,2}, Yu Vincent Fu^{1,2}

¹State Key Laboratory of Microbial Resources, Institute of Microbiology, Chinese Academy of Sciences

²Savaid Medical School, University of Chinese Academy of Sciences

*These authors contributed equally

Correspondence to: Yu Vincent Fu at fuyu@im.ac.cn

URL: <https://www.jove.com/video/57967>

DOI: [doi:10.3791/57967](https://doi.org/10.3791/57967)

Materials

Name	Company	Catalog Number	Comments
Lambda DNA	New England Biolabs	N3011	Store 25 μ L aliquots at -20 °C.
<i>Xho</i> I enzyme	Thermo Fisher Scientific	FD0694	
Quick-fusion cloning kit	Biotool	B22611	
MaxPlax Lambda Packaging Extracts	Epicentre	MP5110	Bacterial strain LE392MP is included in this package.
MgSO ₄	Sinopharm Chemical Reagent Co.,Ltd	10013092	Any brand is acceptable.
Tris	Amresco	0497-5KG	
NaCl	Beijing Chemical works	N/A	Any brand is acceptable.
MgCl ₂	Sinopharm Chemical Reagent Co.,Ltd	10012818	
Chloroform	Beijing Chemical works	N/A	Any brand is acceptable.
NZ-amine	Amresco	J853-250G	
Casamino acids	Sigma-Aldrich	22090-500G	
PEG8000	Beyotime	ST483	
Magnetic stirring apparatus	IKA	KMO2 basic	
15 mL Eppendorf tube	Eppendorf	30122151	15 mL, sterile, bulk, 500pcs
Rnase	SIGMA	R4875-100MG	
Dnase	SIGMA	D5319-500UG	
Proteinase K	Amresco	0706-100MG	
Biotinylated primers	Thermo Fisher Scientific	N/A	
T4 DNA ligase, T4 DNA Ligase, Reaction Buffer (10x)	New England Biolabs	M0202	
Coverslip	Thermo Fisher Scientific	22266882	
Ethanol	Sinopharm Chemical Reagent Co.,Ltd	10009259	
Potassium hydroxide (KOH)	Sigma-Aldrich	306568-100G	
Acetone	Thermo Fisher Scientific	A949-4	
H ₂ SO ₄	Sinopharm Chemical Reagent Co.,Ltd	80120891	sulfuric acid
H ₂ O ₂	Sinopharm Chemical Reagent Co.,Ltd	10011218	30% Hydrogen peroxide
Methanol	Sigma-Aldrich	322415-2L	
Acetic acid	Sigma-Aldrich	V900798	

APTES	Sigma-Aldrich	A3648	
mPEG (methoxy-polyethylene glycol)	Lysan	mPEG-SVA-5000	
biotin-PEG (biotin-polyethylene glycol)	Lysan	Biotin-PEG-SVA-5000	
NaHCO ₃	Sigma-Aldrich	31437-500G	
Vacuum desiccator	Tianjin Branch Billion Lung Experimental Equipment Co., Ltd.	IPC250-1	
Vacuum sealer	MAGIC SEAL	WP300	
Diamond-tipped glass scribe	ELECTRON MICROSCOPY SCIENCES	70036	
Glass slide	Sail Brand	7101	
Inlet tubing	SCI (Scientific Commodities INC.)	BB31695-PE/2	inner diameter 0.38 mm; outer diameter 1.09 mm.
Outlet tubing	SCI (Scientific Commodities INC.)	BB31695-PE/4	inner diameter 0.76 mm; outer diameter 1.22 mm.
Double-sided tape	Sigma-Aldrich	GBL620001-1EA	
Epoxy	LEAFTOP	9005	five minutes epoxy
Streptavidin	Sigma-Aldrich	S4762	
Fluorescence Microscope	Olympus	IX71	
Infusion/withdrawal programmable pump	Harvard apparatus	70-4504	
532 nm laser	Coherent	Sapphire-532-50	
640 nm laser	Coherent	OBIS-640-100	
EMCCD Camera	Andor	DU-897E-CS0-BV	
W-View Gemini Imaging splitting optics	Hamamatsu photonics K.K.	A12801-01	
TIRF illumination system	Olympus	IX2-RFAEVA2	
60×TIRF objective	Olympus	APON60XOTIRF	
Quad-edge laser dichroic beamsplitter	Semrock	Di01-R405/488/ 532/635-25x36	
Quad-band bandpass filter	Semrock	FF01-446/510/ 581/703-25	
Dichroic beamsplitter	Semrock	FF649-Di01-25x36	
Emission filter	Chroma Technology Corp	ET585/65m	
Emission filter	Chroma Technology Corp	ET665lp	
FocalCheck fluorescence, microscope test slide #1	Thermo Fisher Scientific	F36909	
SYTOX Orange	Thermo Fisher Scientific	S11368	
Qdot ₇₀₅ Streptavidin Conjugate	Thermo Fisher Scientific	Q10163MP	Store at 4 °C, do not freeze.
ATP	Amresco	0220-25G	Prepare 200 mM ATP solution, using ddH ₂ O, adjust pH to 7.0, and store 10 μL aliquots at -20 °C.
DTT	Amresco	M109-5G	Prepare 1 M solution using ddH ₂ O, and store 10 μL aliquots at -20 °C.