

Materials List for

DNA Tension Probes to Map the Transient Piconewton Receptor Forces by Immune Cells

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Materials

Name	Company	Catalog Number	Comments
3-hydroxypicolinic acid (3-HPA)	Sigma	56197	maldi-TOF-MS matrix
mPEG-SC	Biochempeg	MF001023-2K	surface prep
(3-Aminopropyl)triethoxysilane	Acros	AC430941000	surface prep
10x Red blood cell lysis buffer	Biolegend	00-4333-57	buffer
8.8 nm gold nanoparticles, tannic acid	Nanocomposix	customized order	surface prep
Atto647N NHS ester	Sigma	18373-1MG-F	fluorophore, oligo prep
Attofluor Cell Chamber, for microscopy	Thermo Fisher Scientific	A7816	imaging
BD Syringes only with Luer-Lok	BD bioscience	309657	cells
biotinylated anti-mouse CD3e	ebioscience	13-0031-82	antibody/ligand
Biotinylated pMHC ovalbumin (SIINFEKL)	NIH Tetramer Core Facility at Emory University	NA	antibody/ligand
bovine serum albumin	Sigma	735078001	block non-specific interactions
Cell strainers	Biologix	15-1100	cells
Coverslip Mini-Rack, teflon	Thermo Fisher Scientific	C14784	surface prep
Cy3B NHS ester	GE Healthcare	PA63101	fluorophore, oligo prep
Dulbecco's phosphate-buffered saline (DPBS)	Corning	21-031-CM	buffer
ethanol	Sigma	459836	surface prep
Hank's balanced salts (HBSS)	Sigma	H8264	buffer
hydrogen peroxide	Sigma	H1009	surface prep
LA-PEG-SC	Biochempeg	HE039023-3.4K	surface prep
Midi MACS (LS) startup kit	Miltenyi Biotec	130-042-301	cells
mouse CD8+ T cell isolation kit	Miltenyi Biotec	130-104-075	cells
Nanosep MF centrifugal devices	Pall laboratory	ODM02C35	oligo prep
No. 2 round glass coverslips	VWR	48382-085	surface prep
NTA-SAM	Dojindo Molecular Technologies	N475-10	surface prep

P2 gel	Bio-rad	1504118	oligo prep
sulfuric acid	EMD Millipore Corporation	SX1244-6	surface prep
Sulfo-NHS acetate	Thermo Fisher Scientific	26777	surface prep
Equipment			
Agilent AdvanceBio Oligonucleotide C18 column, 4.6 x 150 mm, 2.7 μm	653950-702		oligonucleotide preparation
Barnstead Nanopure water purifying system	Thermo Fisher		water
CFI Apo 100× NA 1.49 objective	Nikon		Microscopy
Cy5 cube	CHROMA		Microscopy
evolve electron multiplying charge coupled device (EMCCD)	Photometrics		Microscopy
High-performance liquid chromatography	Agilent 1100		oligonucleotide preparation
Intensilight epifluorescence source	Nikon		Microscopy
Matrix-assisted laser desorption/ionization time-of-flight mass spectrometer (MALDI-TOF-MS)	Voyager STR		oligonucleotide preparation
Nanodrop 2000 UV-Vis Spectrophotometer	Thermo Fisher		oligonucleotide preparation
Nikon Eclipse Ti inverted microscope	Nikon		Microscopy
Nikon Perfect Focus System	Nikon		Microscopy
NIS Elements software	Nikon		Microscopy
quad band TIRF 405/488/561/647 cube	CHROMA		Microscopy
RICM cube	CHROMA		Microscopy
TIRF launcher with 488 nm (50 mW), 561 nm (50 mW), and 640 nm	Coherent		Microscopy
TRITC cube	CHROMA		Microscopy
oligo name	5' modification / 3' modification	sequence (5' to 3')	Use
15mer amine locking strand	5' modification: no modification 3' modification: /3AmMO/	AAA AAA CAT TTA TAC CCT ACC TA	locking real-time tension signal
15mer Atto647N locking strand	5' modification: Atto647N 3' modification: /3AmMO/	AAA AAA CAT TTA TAC CCT ACC TA	locking real-time tension signal
15mer non-fluorescent locking strand	5' modification: no modification 3' modification: no modification	A AAA AAC ATT TAT AC	locking real-time tension signal for quantitative analysis
4.7 pN hairpin strand	5' modification: no modification 3' modification: no modification	GTGAAATACCGCACAGATGCGT TTGTATAAATGTTTTTTCATTTAT ACTTTAAGAGCGCCACGTAGCC CAGC	hairpin probe
amine ligand strand	5' modification: /5AmMC6/ 3' modification: /3Bio/	CGCATCTGTGCG GTA TTT CAC TTT	hairpin probe
BHQ2 anchor strand	5' modification: /5ThioIMC6-D/ 3' modification: /3BHQ_2/	TTTGCTGGGCTACGTGGCGCTCTT	hairpin probe
Cy3B ligand strand	5' modification: Cy3B 3' modification: /3Bio/	CGCATCTGTGCG GTA TTT CAC TTT	hairpin probe
unlocking strand	5' modification: no modification 3' modification: no modification	TAG GTA GGG TAT AAA TGT TTT TTT C	unlocking accumulated tension signal