

Materials List for

Bioorthogonal Chemical Imaging of Cell Metabolism Regulated by Aromatic Amino Acids

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jove.com/video/65121

Materials

Name	Company	Catalog Number	Comments
10 mL Serological Pipettes	Avantor (by VWR)	75816-100	https://us.vwr.com/store/product?keyword=75816-100
15 mL Conical Centrifuge Tube	VWR	89039-664	https://mms.mckesson.com/product/1001859/VWR-International-89039-664
16% Formaldehyde, Methanol-free	ThermoFisher Scientific	28906	https://www.thermofisher.com/order/catalog/product/28906
24-well plate	Fisherbrand	FB0112929	https://www.fishersci.com/shop/products/24-well-tc-multidish-100-cs/FB012929#?keyword=FB012929
25 mm Syringe Filter, 2 µm PES	Foxx Life Sciences	381-2216-OEM	https://www.foxxlifesciences.com/collections/pes-syringe-filters/products/381-2216-oem?variant=16274336003
460 nm Filter Cube	Olympus		OCT-ET460/50M32
AC Adapters of the Power Supply for LD OBIS 6 Laser Remote	Olympus		Supply power to the laser
Band-pass Filter	KR Electronics	KR2724	8 MHz
BNC 50 Ohm Terminator	Mini Circuits	STRM-50	
BNC Cable	Thorlabs	2249-C	Coaxial Cable, BNC Male/Male
Broadband Dielectric Mirror	Thorlabs	BB1-E03	750 - 1100 nm
Centrifuge			
Condenser	Olympus		
Cover Glass	Corning	2850-25	https://ecatalog.corning.com/life-sciences/b2b/NL/en/Glassware/Cover-Glass/Corning%C2%AE-Square-%231%C2%BD-Cover-Glass/p/2850-25
DC power supply	TopWard	6302D	
Dichroic Mount	Thorlabs	KM100CL	
Dimethyl Sulfoxide Cell Culture Reagent	mpbio	196055	https://www.mpbio.com/0219605525-dimethyl-sulfoxide-cf

Dulbecco's Modified Eagle's Medium without Methionine, Threonine, and Sodium Pyruvate	MilliporeSigma	38210000	https://www.usbio.net/media/D9800-22/dulbeccorsquos-mem-dmem-wsodium-bicarbonate-wo-methionine-threonine-sodium-pyruvate-powder With Sodium Bicarbonate and without Methionine, Threonine, and Sodium Pyruvate
Dulbecco's Modified Eagle's Medium	Corning	MT10027CV	https://www.fishersci.com/shop/products/dmem-dulbecco-s-modified-eagle-s-medium-4/ MT10027CV#:~:text=Dulbecco's%20Modified%20Eagle's%20Medium%20
FIJI ImageJ	ImageJ	Version 1.53t 24 August 2022	https://imagej.net/software/fiji/downloads
Heavy Water (Deuterium Oxide)	Cambridge Isotope Laboratories, Inc.	7732-18-5	https://shop.isotope.com/productdetails.aspx?itemno=DLM-4-1L
Hela Cells	ATCC	CCL-2	https://www.atcc.org/products/ccl-2
Hemocytometer	MilliporeSigma	Z359629-1EA	https://www.sigmaaldrich.com/US/en/product/sigma/z359629?gclid=Cj0KCQiA37KbBhDgARIsAlzce15A5Fiy0WS7l6ec2KVkQPXVMEqIAnYis_bKB6P6lrSIZ-wAXOyAELIaAhEEALw_wcB&gclid=aw.ds
High O.D. Bandpass Filter	Chroma Technology	ET890/220m	Filter the Stokes beam and transmit the pump beam
HyClone Fetal Bovine Serum (FBS)	Cytiva	SH300880340	https://www.fishersci.com/shop/products/hyclone-fetal-bovine-serum-u-s-standard-4/SH300880340
HyClone Trypsin 0.25% (1x) Solution	Cytiva	SH30042.02	https://www.cytivalifesciences.com/en/us/shop/cell-culture-and-fermentation/reagents-and-supplements/cell-disassociation-reagents/hyclone-trypsin-protease-p-00445
Integrated SRS Laser System	Applied Physics & Electronics, Inc.	picoEMERALD	picoEMERALD provides an output pulse at 1031 nm with 6-ps pulse width and 80-MHz repetition rate, which serves as the Stokes beam. The frequency doubled beam at 532 nm is used to synchronously seed a picosecond optical parametric oscillator (OPO) to produce a mode-locked pulse train with five~6 ps pulse width (the idler beam of the OPO is blocked with an interferometric filter). The output wavelength of the OPO is tunable from 720–950 nm, which serves as the pump beam. The intensity of the 1031 nm Stokes beam is modulated sinusoidally by a built-in EOM at 8 MHz with a modulation depth of more than 90%. The pump beam is spatially overlapped with the Stokes beam by using a dichroic mirror inside picoEMERALD. The temporal overlap between pump and Stokes pulses are achieved with a built-in delay stage and optimized by the SRS signal of pure D2O at the microscope.
Inverted Laser-scanning Microscope	Olympus	FV1200MPE	

IX3-CBH Control box	Olympus		Control the laser-scanning microscope
Kinematic Mirror Mount	Thorlabs	POLARIS-K1-2AH	2 Low-Profile Hex Adjusters
L-Phenylalnine	Sigma	P5482-25G	https://www.sigmaaldrich.com/US/en/product/sigma/p5482
L-Tryptophan	Sigma	T8941-25G	https://www.sigmaaldrich.com/US/en/product/sigma/t8941
LabSpec 6	Horiba XploRA	N/A	https://www.horiba.com/gbr/scientific/products/detail/action/show/Product/labspec-6-spectroscopy-suite-software-1843/
Lock-In Amplifier	Zurich Instruments	N/A	https://www.zhinst.com/americas/en/products/shfli-lock-in-amplifier
Long-pass Dichroic Beam Splitter	Semrock	Di02-R980-25x36	980 nm laser BrightLine single-edge laser-flat dichroic beamsplitter
MATLAB	MathWorks	Version: R2022b	https://www.mathworks.com/products/new_products/latest_features.html
Microscope Slides	Fisherbrand	12-550-003	https://www.fishersci.com/shop/products/fisherbrand-selectfrost-microscope-slides-9/12550003#?keyword=12-550-003
Microscopy Imaging Software	Olympus	FluoView	
MPLN 100x, Olympus	Olympus	MPLAPON	https://www.olympus-ims.com/en/microscope/mplapon/#!cms[focus]=cmsContent11364
MPLN 50x, Olympus	Olympus	MPLAPON	https://www.olympus-ims.com/en/microscope/mplapon/#!cms[focus]=cmsContent11363
NA Oil Condenser	Olympus	6-U130	https://www.hitechinstruments.com/Product-Details/olympus-achromatic-aplanatic-high-na-condenser
Nail Polish	Wet n Wild	B01EO2G5O4	https://www.amazon.com/dp/B01EO2G5O4/ref=cm_sw_r_api_i_E609VVDWWHHQP38FXXDC_0
Origin	OriginLab	Origin 2022b (9.95)	https://www.originlab.com/index.aspx?go=PRODUCTS/Origin
Parafilm	Fisher Scientific	S37440	https://www.fishersci.com/shop/products/parafilm-m-wrapping-film-3/p-2379782
PBS 1x (Dulbecco's Phosphate Buffered Saline)	ThermoFischer - Gibco	14040117	https://www.thermofisher.com/order/catalog/product/14040117?SID=srch-hj-14040117
Penicillin/Streptomycin	ThermoFischer - Gibco	15140122	https://www.thermofisher.com/order/catalog/product/15140122
Periscope Assembly	Thorlabs	RS99	Includes the top and bottom units, Ø1" post, and clamping fork.
picoEmerald System	A.P.E	N/A	https://www.ape-berlin.de/en/cars-srs/
Shielded Box with BNC Connectors	Pomona Electronics	2902	Aluminum Box with Cover, BNC Female/Female
Si Photodiode Detector	Home Built	N/A	DYI series
Silicon Wafer			
Spacers	Grace Bio-Labs	654008	https://gracebio.com/product/secureseal-imaging-spacers-654008/
Spontaneous Raman spectroscopy	Horiba XploRA	N/A	https://www.horiba.com/int/products/detail/action/show/Product/xploratm-plus-1528/

Stimulated Raman Scattering Microscopy	Home Built	N/A	
Touch Panel Controller	Olympus		Control the X-Y direction of the laser-scanning microscope
Trypan Blue 0.4% (0.85% NaCl)	Lonza	17-942E	https://bioscience.lonza.com/lonza_bs/US/en/Culture-Media-and-Reagents/p/000000000000181876/Trypan-Blue%2C-0-4%25-Solution
Tweezers	Kaverme - Amazon	B07RNVXXV1	https://www.amazon.com/Precision-Anti-Static-Electronics-Laboratory-Jewelry-Making/dp/B07RNVXXV1
Two Photon Excitation Fluorescence Microscopy	Home Built	N/A	
Weighing Paper	VWR	12578-165	https://us.vwr.com/store/product/4597617/vwr-weighing-paper
Zurich LabOneQ Software	Zurich Instruments		Control the Zurich lock-in amplifier