

Materials List for

Biomolecular Imaging of Cellular Uptake of Nanoparticles using Multimodal Nonlinear Optical Microscopy

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jove.com/video/63637

Materials

Name	Company	Catalog Number	Comments
APE SRS Detection Unit	APE (Angewandte Physik & Elektronik GmbH)	APE Lock-in Module	Combined system containing a large area Si photo-diode for detecting the pump beam along with a Lock-In amplifier for detecting the beam modulations
Confocal Scanning Unit	Olympus	FV 3000	Confocal scanning unit used for imaging
CML Latex Beads, 4% w/v, 1.0 μ m	Invitrogen	C37483	Polystyrene microspheres
Coverslips	Thorlabs	CG15CH2	22 mm x 22 mm coverslips for seeding cells
FBS	Gibco	10500-064	Foetal Bovine Serum (Heat Inactivated)
Flouview	Olympus	FV31S-SW	Laser scanning microscope control software
Function Generator	BX precision	40543	Used to generate square wave function which is fed to EOM in SF-TRU to produce modulations in the stokes beam
Gold Nanoparticles	Nanopartz	A11-60	Spherical gold nanoparticles, 60 nm diameter
Input Output Interface	Olympus	FV30 ANALOG	This unit allows voltage readouts from PMT and LockIn to be fed into the confocal scanning software and allows timing pulses to be sent between the olympus microscope and the SF-TRU unit.
InSight X3	Newport	Spectra-Physics	Dual-output femtosecond pulsed laser. Tunable (680–1300 nm) and fixed (1045 nm) laser outputs with the repetition rate of 80 MHz.
Microscope Frame	Olympus	IX83	Inverted microscope
Mouse 4T1 cells	ATCC	CRL-2539	Mouse breast cancer cells

NA 1.2 Water Immersion Objective	Olympus	UPLSAPO60XW/IR	The multiphoton 60x Objective has a 0.28 mm working distance. Other similar objectives can be used.
NA 1.4 Condenser	Nikon	CSC1003	Other condensers with NA higher than the excitation objective can also be used.
PMT	Hamamatsu	R3896	PMT used for detecting anti-stokes photos for CARS microscopy
PMT Connector	Hamamatsu	C13654-01-Y002	Connector for PMT
Power Supply	RS	RSPD-3303 C	Programmable power supply which is used for providing the correct voltage to the PMT
RPMI-1640	Gibco	A10491-01	Roswell Park Memorial Institute (RPMI) 1640 Medium has since been found suitable for a variety of mammalian cells.
SF-TRU	Newport Spectra Physics	SF-TRU	System designed for controlling the time delay and dispersion of the 2 laser outputs and for performing the beam modulations required for SRS