

Materials List for

A Raman Spectroscopy-Based Direct Immunoassay to Detect a Specific Antigen

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URL: <https://www.jove.com/video/21470>

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Materials

Name	Company	Catalog Number	Comments
60 nm Gold Nanoparticle	Ted Pella, Inc.	15708-6	These are citrate-capped gold nanoparticles. Please see Discussion for relationship between Raman reporter and AuNP surface charge and its importance to proper selection of AuNP and/or Raman reporter.
Sodium Bicarbonate	Fisher Scientific	S233-500	
Methanol	Pharmco-Aaper	339000000	
Tris-Buffered Saline (10x) pH 7.5	Scy Tek	TBD999	
Bottle Top Filtration Unit	VWR	97066-202	
Tween 20 (polysorbate 20)	Scy Tek	TWN500	Used as an emulsifying agent for washing steps.
Phosphate-Buffered Saline 10x Concentrate, pH 7.4	Scy Tek	PBD999	
Protein LoBind Tube 2.0 ml	Eppendorf Tubes	22431102	LoBind tubes prevent binding of proteins and AuNPs to surfaces of the tubes.
Protein LoBind Tube 0.5 ml	Eppendorf Tubes	22431064	LoBind tubes prevent binding of proteins and AuNPs to surfaces of the tubes.
Microplate Devices UniSeal	GE Healthcare	7704-0001	Used for sealing and storing functionalized plates.
Assay Plate, With Low Evaporation Lid, 96 Well Flat Bottom	Costar	3370	
HPLC-grade water	Sigma Aldrich	270733-4L	
3,3'-Diethylthiatricocyanine iodide (DTTC)	Sigma Aldrich	381306-250MG	Raman reporter
mPEG-Thiol, MW 5,000 - 1 gram	Laysan Bio, Inc.	MPEG-SH-5000-1g	
OPSS-PEG-SVA, MW 5,000 - 1 gram	Laysan Bio, Inc.	OPSS-PEG-SVA-5000-1g	OPSS-PEG-SVA has an NHS end.
Mouse IgG, Whole Molecule Control	Thermo Fisher Scientific	31903	Antigen
Goat anti-Mouse IgG (H+L) Cross Adsorbed Secondary Antibody	Thermo Fisher Scientific	31164	Antibody
Human Serum Albumin Blocking Solution	Sigma Aldrich	A1887-1G	Bovine serum albumin can be used instead.
UV-Vis Spectrophotometer	Thermo Scientific	Nanodrop 2000c	
UV-Vis Spectrophotometer	BioTek	Synergy 2	
In-house built 785 nm inverted Raman microscope unit	N/A	N/A	An inverted Raman microscope is best for proper focusing onto surface of the well plate. Otherwise a very low magnification will be

			<p>used due to height of the 96-well plate. An in-house built system was used as it was cheaper than buying from a vendor. However, any commercially available inverted Raman microscope system can be used.</p>
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