

Materials List for:

# In Situ Detection and Single Cell Quantification of Metal Oxide Nanoparticles Using Nuclear Microprobe Analysis

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## Materials

Name	Company	Catalog Number	Comments
<b>Cell culture</b>			
U2OS	ATCC, LGC STANDARDS	ATCC HTB-96	
Medium MCCOY 5A w/o L-Glutamine	Dominique DUTSCHER	L0211-500	
FBS 500 mL	Dominique DUTSCHER	500105U	
Penicillin/Streptomycin	ThermoFisher Scientific	11548876	
L-Glutamine 200 mM, 100 mL	Invitrogen	25030024	
Geneticin, 20 mL	ThermoFisher Scientific	10092772	
Trypsin-EDTA 0.25% (v/v) 500 mL	ThermoFisher Scientific	11570626	
Viromer Red	Lipocalyx	VR-01LB-01	
Matrix-roGFP Plasmid	AddGene	#49437	
Hoechst 33342	ThermoFisher Scientific	H3570	Handle with care
<b>NPs preparation</b>			
TiO <sub>2</sub> P25 AEROXIDE	Degussa/Evonik		
Tetramethylrhodamine isothiocyanate (TRITC)	SIGMA-ALDRICH	T3163	Surface modification of NPs
<b>Sample preparation</b>			
Polycarbonate foil	Goodfellow	CT301020	
Polyether Ether Ketone support (PEEK)	Matechplast	A-239-4047	
Ethanol, ACS absolute	SIGMA-ALDRICH	02860-6x1L	
Chloroform, Anhydrous, 99%	SIGMA-ALDRICH	372978-1L	Caution toxic
Formvar 100 g	Agar Scientific	AGR1201	Harmful. Use in a concentration of 10 µg per mL of chloroform
NaOH	SIGMA-ALDRICH	S5881-500G	
<b>Sample fixation</b>			
Powder, 95% Paraformaldehyde	SIGMA-ALDRICH	158127-500G	Caution toxic. Use as a 4% solution in PBS
PBS (pH 7.4, without Ca <sup>2+</sup> and Mg <sup>2+</sup> )	ThermoFisher Scientific	11503387	
Prolong Gold Antifade Reagent	ThermoFisher Scientific	P36934	
Triton X-100	SIGMA-ALDRICH	93443	Harmful

<b>Sample cryofixation</b>			
Liquid nitrogen	air liquids sante		Harmful
Methylbutane>=99%	SIGMA-ALDRICH	M32631-1L	Caution toxic
Aluminium transfer plate	Home-made		
Distilled and deionized water	Home-made		Produced in the laboratory using the Barnstead Smart2Pure system
Parafilm	VWR	52858-000	
<b>Equipment</b>			
Barnstead Smart2Pure	ThermoFisher Scientific	50129870	
Biosafety bench, class II	ThermoFisher Scientific	MSC-Advantage	
TC20 automated cell counter	Biorad	145-0102SP	
Counting slides 2 wells	Biorad	1450016	
PIPS detector, 25 mm2, 12 keV energy resolution @5.5 MeV	Canberra	PD25-12-100AM	
High-resolution Si (Li) solid-state detector,145-eVenergy resolution, @Mn-Kα	Oxford Instruments		
Everhart-Thornley type secondary electron detector (SED)	Orsay Physics	1-SED	
XRF Calibration Standard sodium or Chlorine as NaCl	Micromatter	34381	
XRF Calibration Standard Magnesium as MgF2	Micromatter	34382	
XRF Calibration Standard Aluminium as Al metal	Micromatter	34383	
XRF Calibration Standard Silicon as SiO	Micromatter	34384	
XRF Calibration Standard Sulfur as CuSx	Micromatter	34385	
XRF Calibration Standard Calcium as CaF2	Micromatter	34387	
XRF Calibration Standard Titanium as Ti metal	Micromatter	34388	
XRF Calibration Standard Iron as Fe metal	Micromatter	34389	
Sonicator 750W	Sonics Materials	11743619	
3MM microprobe	Bioblock scientific	220-05	
Lyophilizer in vacuum	Elexience	EK3147	
Optical microscope Zeiss AxioObserver Z1	Carl Zeiss MicroImaging, GmbH	431006-9901	
Motorized stage xy	Carl Zeiss MicroImaging, GmbH	432031-9902	
EC Plan-Neofluar 20X, NA 0.50 Ph2 M27 objective	Carl Zeiss MicroImaging, GmbH	420351-9910	
Plan-Apochromat 63X, NA 1,40 Ph3M27 objective	Carl Zeiss MicroImaging, GmbH	420781-9910	
Zeiss filterset 02	Carl Zeiss MicroImaging, GmbH	488002-9901	
Zeiss filterset 38HE	Carl Zeiss MicroImaging, GmbH	489038-9901	
Zeiss filterset 31	Carl Zeiss MicroImaging, GmbH	000000-1031-350	
Chemical fume hood	Erlab	Captair SD321	
Particle accelerator	HVEE	singletron	
<b>Software</b>			

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ImageJ software	National Institutes of health, USA	ImageJ 1.51	
SimNRA software	Max-Planck-Institut für Plasmaphysik, Germany	SIMNRA 6.06	
Gupix software	Guelph university, Canada	GUPIXWIN 2.2.4	