[**JRC Nanobiotechnology Laboratory**](https://ec.europa.eu/jrc/en/research-facility/nanobiotechnology-laboratory)

**Requested facilities/instrumentation form**

(Version March 2024)

**Note**

This form must be sent by e-mail to: JRC-OPEN-NANOBIOTECH@ec.europa.eu with copy to pascal.colpo@ec.europa.eu

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| **Call** |  |
| **Proposal acronym** |  |
| **Lead user** |  |
| **Date of submission** |  |

| **PHYSICAL CHEMICAL Characterisation**  | **Number Instrument days requested** | **Training needed to users to perform the experiments** **Y/N** | **User team performs the experiments** **Y/N** |
| --- | --- | --- | --- |
| Microfluidic nano-synthesizer | Synthesis of lipid nanoparticles, liposomes |  |  | \* n/a |
| Particle Tracking Analyser  | Particle sizing  |  |  |  |
| Dynamic light scattering  | Particle sizing and/or z-potential analyser |  |  |  |
| Disc centrifuge sedimentation | Particle sizing  |  |  |  |
| Single Particle Extinction and Scattering | Particle characterisation and sizing |  |  |  |
| BET instrument | NP surface area characterisation |  |  |  |
| Analytical Ultracentrifuge | Particle and protein sizing  |  |  | \* n/a |
| Static light scattering | Particle sizing |  |  |  |
| Tuneable Resistive Pulse Sensing Particle Sizer | Particle sizing |  |  |  |
| Centrifugal Flow Field Fractionation  | Particle separation and sizing |  |  |  |
| Asymmetric Flow-Field Flow Fractionation (AF4) | Nanoparticle separation and sizing with online coupled detectors (MALS, DLS, UV/VIS, RI) |  |  |  |
| UV/Vis spectro-photometer | Nanoparticle and protein characterisation |  |  |  |
| Circular dichroism | Protein characterisation |  |  |  |
| Inductively coupled Mass spectroscopy(ICP-MS) with Single particle (spICP-MS) and single cell (scICP-MS) analysis mode. | Trace element analysis (normal mode);Particle counting and sizing (single particle mode) |  |  | \* n/a |
| Total Reflection X-ray Fluorescence Spectrometer (TXRF)  | Trace element analysis |  |  |  |
| Enhanced Dark field Microscope | Nanoparticle Hydrophobicity determination |  |  |  |
| Transmission Electron Microscope with EDAX chemical analysis TEM | Electronic Microscopy |  |  | \* n/a |
| Raman-microscope | Material characterisation |  |  |  |
| FTIR-Microscope with focal-plane array technology | Material characterisation |  |  |  |
| FT-IR spectroscopy | Material characterisation |  |  |  |
| X-ray Diffractometer for structural analysis | Crystal structural analysis |  |  | \* n/a |
| TOF-SIMS surface analysis system | Surface chemistry Analysis |   |  | \* n/a |
| XPS surface analysis system | Surface chemistry Analysis |  |  | \* n/a |
| Liquid chromatography (HPLC-DAD, , CAD) | Quantification and identification of organic non-volatile analytes |  |  |  |
| Gas chromatography (GC-MS, GC-FID) | Quantification and identification of organic volatile analytes |  |  |  |
| Pyrolysis GC-MS | Identification and quantification of e.g. polymers |  |  |  |
| Total Organic Carbon (TOC) analyser | Quantification of inorganic and organic carbon in aqueous samples |  |  |  |
| Climatic environmental chambers | Emission studies under controlled conditions (temperature, RH and air exchange rate) & gaseous exposure studies |  |  |  |

| **Surface chemistry, sAMple preparation,****micro-nano fabrication, molecular detection** | **Number Instrument days requested** | **Training to users required to perform the experiments****(checkbox)** | **User team performs the experiments****(checkbox)** |
| --- | --- | --- | --- |
| Cryo-milling device. | Plastic particle size refinement |  |  |  |
| Microarray scanner | Multiplex detection of biomolecules |  |  |  |
| Micro-spotter  | Robot for biomolecule microspotting |  |  |  |
| Surface Plasmon Resonance Imaging Biosensor  | Multiplexed Biomolecular real-time detection |  |  |  |
| Quartz crystal microbalance  | Biomolecular real-time detection |   |  |  |
| Surface Plasmon Resonance Biosensor  | Biomolecular real-time detection |  |  |  |
| Microplate Reader | Modulus Microplate / Fluorimeter |  |  |  |
| Atomic Force Microscope | Surface characterisation  |  |  |  |
| Field Emission Scanning Electron Microscope + Focused-Ion-Beam (FESEM+FIB) + EDX  | Surface characterisation and nanopatterning |  |  | \* n/a |
| Ellipsometer | Thin film characterisation |  |  |  |
| Langmuir-Blodgett system  | Surface functionalisation |  |  |  |
| 3D Bioprinting | Fabrication of bioscaffolds and microphysiological systems |  |  |  |

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| **BIOLOGY** | **Number Instrument days requested** | **Training to users required to perform the experiments (checkbox)** | **User Teams performs the experiments (checkbox)** |
| Cell culture facilities | In vitro assays (MTT, CFE, ...) | Not available | Not available | Not available |
| Confocal fluorescence Microscope | 3D image analysis |  |  | \* n/a |
| Microscope for high content analysis | Imaging system for live cells | Not available | Not available | Not available |
| Multimode plate reader | Absorbance Fluorescent and luminescence measurements |  |  |  |
| Flow cytometer | Flow cytometer |  |  |  |
| Real time PCR | Real Time PCR |  |  |  |
| Impedance Spectrometer | Impedance Spectroscopy system for real-time cell analysis | Not available | Not available | Not available |

**Legend**

\* n/a: not applicable – usually this instrument is operated in collaboration with JRC specialists.