Cell Observer (Axio Observer Zeiss)	**Category:** **A. Particle Synthesis and/or** **B. Particle Labelling and/or** **C. Particle Characterisation in and ex-situ and/or** **D. In-vitro toxicity studies** **Institute: CIC biomaGUNE** **Location: Paseo Miramón 182 C** **20009 San Sebastian, Gipuzkoa, Spain** **Contact Details of Technology Expert:** **Name, Dr. Irantzu Llarena, Dr.Boguslaw Sczchupak** **Phone,** **Fax,** **E-mail illarena@cicbiomagune.es;** **boguslaw@cicbiomagune.es**

Short technology description/Overview:

The cell observer allows qualitative and quantitative analysis of fast and slow processes in live cells under biological conditions. The system is fitted with an Axio observer Microscope (Zeiss) which incorporates Colibri LED illumination (365, 470, 530, and 590 nm), EMCCD camera, and incubator for precise control of temperature, CO_2 and humidity. The system has also ApoTome module for 3D imaging, and TIRF slider for total internal reflection fluorescence applications. ApoTome module allows the very fast production of extremely high-quality optical sections through fluorescence-labeled specimens. With TIRF slider only the structures in closest proximity to the coverslip (~100 nm) are visible, never the entire cell nor the entire supporting surface of the cell. TIRF thus produces extremely high contrast, low background images, ideal for the study of single molecules and membrane related cell function, including adhesion, motility, endo- and exo-cytosis. The system design allows also epi-fluorescence and TIRF to be used simultaneously. Axiovision software (Zeiss) is used for data acquisition and analysis.

Main Features (Equipment Capabilities):

- Colibri LED illumination (365, 470, 530, and 590 nm) and various emission filter sets
- Objectives (10X (air) EC Planar Neofluar, 20X (air) Plan Apochromat, 40X (air) LD Plan Neofluar, 40X (oil) EC Plan Neofluar, 63X (water/glycerine) LCI Plan Neofluar, 100X (oil) α Plan Apochromat
- ApoTome module for fast and high-quality Z-sectioning
- TIRF ability with 458, 488 and 514 nm laser excitations
- Precise control of temperature, CO_2 and humidity

Typical Samples & Images:

- Complex Live Cell imaging using fluorescence, brightfield, and darkfield
- Long term observation for applications such as cell division and development
- High speed applications such as calcium imaging
- Exocytosis, endocytosis or the display of individual molecules in the cell membrane possible with TIRF module

Any further Information: