ERA-Shuttle offers academics secondments opportunities to [CERIC's Italian](https://www.ceric-eric.eu/) Partner Facility. CERIC is a European Research Infrastructure Consortium (ERIC) that integrates and provides access to some of the most advanced analytical facilities in Europe for academia and industry to make progress in all areas of materials, biomaterials and nanotechnologies. The Italian Partner Facility of CERIC offers access to several laboratories and beamlines at Elettra Sincrotrone, a multidisciplinary research center of excellence, open to the international research and developing excellence by providing state-of-the-art services for high-quality, internationally recognized research, thus contributing to enhance the positive impact and relevance of science on society. In the framework of the ERA Shuttle Secondment programme we offer the opportunity to work temporarily at Elettra Sincrotrone NanoInnovation Lab (NIL). The NanoInnovation operates in the application of advanced nanotechnologies to biology and medicine, as well as to the study of novel biomaterials. NIL main activities are based on Atomic Force Microscopy/Fluorescence Microscopy integrated setup to study biological interactions at the molecular, cellular and tissue scales, with the full control of physiological parameters. Through nanoindentation spectroscopy, we obtain detailed information on cell and tissue biomechanics at high resolution (i.e. with subcellular details), to study the progression of diseases, such as cancer, and to evaluate the effect of specific therapies. Also, the lab has developed biomimetic models of plasma membranes with increasing level of complexity, synergistically studied with AFM, X-ray and neutron scattering techniques, for the evaluation of nanovesicles (in particular extracellular vesicles, EVs) and nanoparticles uptake mechanisms, in relation to membrane parameters as order and fluidity. In the framework of the PNRR PRP@CERIC upgrade project, NIL has recently been equipped with a Chiaro Optics11 Nanoindenter for high-throughput biomechanical studies, and with a state-of-the-art, high-resolution, fast scanning AFM (Cypher VRS 1250, Asylum Research, Oxford Instrument). See <https://www.pathogen-ri.eu/platforms/mechanobiology/> and <https://www.ceric-eric.eu/lab-instrument/nanoinnovation-laboratory/> for more information.

**Description of the secondment:**

* **Open Places: 1**
* **Duration:** 6 months. The exact dates and duration will be agreed between the Secondee and CERIC´s Italian Partner Facility.
* **Period:** beginning of 2025 – December 2026
* **Location:** Trieste, Italy
* **Roles and responsibilities:**

The seconded person will be instructed on protocols of sample preparation for AFM, HT-nanoindentation and fluorescence microscopy studies, as well as on data analysis protocols. The successful candidate will be inserted in the lab environment contributing to in-house scientific projects and to technological developments in the context of human diseases, with specific focus on cancer mechanobiology, in 2D and 3D in vitro models.

**Requirements:** A degree in Physics, Biology, Biotechnology or related disciplines. Proven expertise in cell culture techniques, florescence and/or AFM imaging and data analysis. For data analysis, good knowledge of Origin and Igor-Pro would be desirable.

**Benefits:** The candidate will have the opportunity to deepen his/her knowledge of advanced cell cultures and of correlated microscopies as AFM and fluorescence for evaluation of anticancer cancer therapies at the level of cell morphology/machanica. He/she will also be able to exploit the resources available in the laboratory to improve his/her skills in image analysis by working in the complex, synergistic environment of Elettra.

**Application Process:**

Please apply through: *ERA shuttle platform web*

Should you require further information regarding the research at NanoInnovation Lab, please contact: [*Loredana.casalis@elettra.eu*](mailto:Loredana.casalis@elettra.eu)

Should you require further information regarding the functioning of the secondment, please contact your home university at:

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