MSCA-DN:
End-to-end multidisciplinary optimal design for improved personalized bioactive glass/ceramic bone substitute implants

Project title: ***Tissue-scaffold biological interaction***

Recruiting and hosting institution: Università del Piemonte Orientale

Country: Italy

PhD enrollment: Università del Piemonte Orientale

Supervisors: Università del Piemonte Orientale (I): L. Rimondini, University of Salzsburg (AU), J. Dunlop.

Objectives: To study the effect of physical-chemical, morphological and micromechanical properties of the scaffolds on the cell functionality and tissue healing and regeneration

Expected Results: New knowledge about surface microtopography; materials, the morphology and micromechanical properties on cytofuctionality of bone cells, new knowledge on stem cells secretome in relation to topography-driven mechano-transduction. Protocols to optimize materials for clinical application.

Description: DC4 position is about investigating the following aspects

- **i)** To develop novel alternative methods to test the safety and the efficacy of bone implantable devices
- **ii)** to analyse in-vitro the links between physical-chemical, morphological and micromechanical material properties of the scaffolds including chemistry, surface morphology, and cells and tissues functionality including the formation of extracellular matrix, progenitors differentiation, macrophages polarization and interactions with the scaffolds;
- **iii)** to optimize materials for specific cells and tissues responses and healing;
- **iv)** To optimize materials for specific cells and tissues responses tissue healing under external physical stimulus
- **v)** **t**o produce data to feed and validate in-silico models.

The Doctoral Candidates will interact with other members of the project's DCs in a multidisciplinary setting by taking part in training sessions and workshops. Each DC will also conduct secondments in order to broaden her/his scientific understanding of the project's subject and develop soft skills.

Required profile/research interests:

- ✓ Master's degree in Biology, Biotechnology, Biomedical Engineering, Medicine, Dentistry or related fields.
- ✓ The degree must be completed with good grades, latest by the start of the recruitment.
- ✓ Proficiency in the English language (both written and spoken): CAMBRIDGE ≥ FCE grade B (or equivalent).
- ✓ Good communication skills and the ability to work as a part of a team and independently.

Monthly salary:

The successful candidates will receive an attractive salary in accordance with the MSCA regulations for Doctoral Researchers for a 3-year contract (full time employment). The salary includes a living allowance (gross amount : €3 311,60/month, plus a mobility allowance (€600 per month), and a family allowance (€650 per month if applicable). The precise (net) salary will be confirmed upon appointment.
In addition, such a monthly salary, all REBONE fellows will benefit from a wide range of training and mentoring activities, which includes secondments to be organised at the premises of the REBONE Beneficiaries and Associated Partners, as well as of a wide variety of training modules (related to both scientific and transferable skills).

Where to request additional information for this position:

Prof. LIA RIMONDINI EMAIL ADDRESS. lia.rimondini@uniupo.it
Prof. ANDREA COCHIS EMAIL ADDRESS: andrea.cochis@uniupo.it

The application will be submitted to the Project Coordinator (see Recruitment procedure).