New PREMUROSA project set to improve treatment of musculoskeletal disorders

*A group of international partners from Italy, Finland, Portugal, Ireland, Latvia, Serbia and Switzerland launched an EU funded project **Precision Medicine for Musculoskeletal Regeneration, Prosthetics,and Active Ageing – PREMUROSA. The 4-year programme main objective is to train a new generation of tissue engineering scientists from multiple European countries to develop new technologies and new therapies for musculoskeletal disorders.***

PREMUROSA is part of the Marie Sklodowska-Curie Innovative Training Network - European Joint Doctorates programme, funded by the European research and innovation programme Horizon 2020. The project's aim is to train a new generation of creative, entrepreneurial and innovative early-stage researchers, able to face current and future challenges and to convert knowledge and ideas into products and services for economic and social benefit.

Musculoskeletal diseases are reported to affect roughly half of those over 60, strongly impacting the quality of life and posing a major burden on healthcare and welfare systems. Treatment of musculoskeletal disorders is currently based either on prosthetic or regenerative surgical procedures, often involving "one-size-fit-all" medical device implantation, compromising the effectiveness of treatments.

A significant improvement could be achieved by precision medicine, specifically designed on patient's individual characteristics. This requires new and highly skilled professionals who will develop new strategies for translating tissue engineering innovations into useful information to customize therapies, taking into account the characteristics of each patient.

The project aims at training **a new generation of scientists** with an integrated vision of the whole value chain in musculoskeletal regeneration technologies and able to boost the necessary innovations to achieve precision principles in developing innovative devices and optimized clinical applications.

Prof. **Lia Rimondini** Coordinator of the Project declared «Till now traditional medical approach was to apply the most effective treatment for each disease. The identification of the most effective treatment has been done statistically looking at the outcomes coming from wide groups of patients. From the practical point of view the approach "one-size-fit all" is not optimal. Each patient responds in a different way to therapy and therefore it is necessary to adjust the effective treatment to each patients characteristics. The future is to use effective therapies, fit to each patient and using scientific-based decision supporting system to decide the fitness».

A total of 13 students from the field of medical and health sciences, clinical medicine, surgery and surgical procedure will be selected to take part in the interdisciplinary project and earned their PhD

degrees. Students will be hosted by a member of a European consortium of universities, research institutions and companies in Italy, Switzerland, Portugal, Finland, Latvia, Ireland and Serbia.

In the frame of the project, Politecnico di Torino will be the host institution of one of the PhD student and its role will be the development and characterization of model biomaterials for the musculoskeletal regeneration, under the scientific responsibility of Prof. **Enrica Verné,** GLANCE research group (http://www.disat.polito.it/research/research_groups/glance), Institute of Materials Physics and Engineering, Applied Science and Technology Department.

Young researchers will gain advanced knowledge and skills, through an innovative combination of academic, industrial and clinical experience and training. They *will benefit from an excellent scientific environment, up-date technologies and supervision by international leaders in the field.*

The successful implementation of PREMUROSA will not only set the ground for innovative PhD training but will also contribute in meeting important SOCIAL CHALLENGES, such as optimization of clinical choices and therefore improvement of quality of life of patients and reduction of healthcare system costs. Moreover, industrial competitiveness will be substantially boosted due to medical devices optimization and the development of new products in the project.

The consortium comprises **11 European partner institutions** led by the University of Eastern Piedmont (Alessandria, Novara and Vercelli, Italy), and several non-academic partners and companies specializing in the biomedical field.

Among the 11 partner organizations are: University of Eastern Piedmont (Alessandria, Novara and Vercelli, Italy), Rizzoli Orthopaedic Institute (Bologna, Italy), Aalto University Foundation (Aalto, Finland), AO Research Institute Davos (Davos, Switzerland), Riga Technical University (Riga, Latvia), Faculty of Technology and Metallurgy, University of Belgrade (Belgrade, Serbia), INEB— National Institute of Biomedical Engineering, University of Porto (Porto, Portugal), Polytechnic University of Turin (Turin, Italy), EnginSoft SpA (Trento, Italy), Tampere University of Technology, (Tampere, Finland), National University of Ireland Galway (Galway, Ireland).

LinkedIn: Premurosa Project
Twitter: @ThePremurosa

Details about the 13 PhD positions and application procedure are available at the following links:

https://www.scuolamed.uniupo.it/tutto-studenti/post-laurea/dottorato-di-ricerca/project-premurosa

https://euraxess.ec.europa.eu/jobs/482103

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