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OPEN PhD POSITION in Innovative Training Networks

We are looking for a dedicated and highly motivated Early Stage Researcher (ESR), who will join our team to build multidisciplinary expertise for fostering future medical solutions applied to tendon repair and diagnosis.

P4 FIT description (4 years MCSA-ITN-EJD project starting January 2021)

Perspectives For Future Innovation in Tendon repair (P4 FIT) fosters to build a new generation of ESRs with adequate skills to explore non-conventional therapeutic and diagnostic solutions by exploiting the technological advances in nanomedicine. The translation of innovative nanodevices carried out on integrated pre-clinical and vet/human clinical settings are expected to produce solid evidence-based datasets able to reduce fragmentation still limiting the impact of biomedical discoveries and to offer a unique opportunity for identifying new predictive biomarkers through the use of AI and deep learning data analysis. Working across disciplines and sectors, **P4 FIT** will foster the 15 ESRs to be creative, critical, autonomous intellectual risk takers at the frontiers of research with the R&I mind-set necessary for thriving careers. **P4 FIT** will allow to fill the EU gap in tendon healthcare, building up a generation of researchers able to develop nano-based biomedical devices by integrating biology advances to technology innovation, and to computational revolution. The **P4 FIT** cross-disciplinary approach includes 6 beneficiaries and 21 partner organizations (10 academic and 11 non-academic) from across Europe.

ESR1 – UNITE (double degree with University of Helsinki) Stem cell-based immune modulation and regeneration

Objectives: To study in depth how amniotic membrane cells and how the bioactive factors can foster tissue resolution by dampening proinflammatory signals (cytokines and cells), thus enhancing anti-inflammatory immune components and contributing to the fabrication of innovative nanovectors (NVs) to develop immune targeting strategies for tendon regeneration.

Expected Results: (1) Small scale production of immune-modulatory secretomes collected from amniotic derived stem cells/membranes. (2) *In vitro* immune-modulatory testing of different secretomes on culture of human macrophages. (3) Identification of intracellular signalling-mediating immune mechanism. (4) Molecular characterization of stem cell-derived secretomes. (5) Identification of storage methods for preserving the immune-influence of secretomes. (6) Fabrication of NVs enriched with secretomes or their derivatives. (7) Spatio-temporal pharmacokinetics of secretome-derived NV. (8) *In vitro* immune-modulatory testing of NV on culture of human macrophage.

Keywords: nanomedicines, immunology, nanoparticles, tendon regeneration, amniotic derived stem cells, secretome.

Applicant Profile: Master level in biology, biomedical biotechnology, medicine, veterinary medicine or related field, ideally with background in eukaryote cell biology and biotechnology, immunology, biomedical engineering, biochemistry or tissue engineering. Excellent communication skills (both written and oral) in English.

PhD main locations: The recruited ESR is given the opportunity to conduct 3-years of PhD studies at [Faculty of Bioscience, Agri-Food and Environmental Technology, University of Teramo \(UNITE, Italy\)](#) and at [Faculty of Pharmacy, University of Helsinki \(UH, Finland\)](#), and secondments at [Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale" \(Italy\)](#), and at [Biouniversa s.r.l. \(Italy\)](#),

Double PhD Tutors: Prof. B. Barboni and Prof. E. Dainese (Doctoral Programme in Cellular and Molecular Biotechnologies, UNITE) and Prof. H. A. Santos (Doctoral Programme in Drug Research, UH).

Main contacts:

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More details about P4 FIT project, requirements for the candidates and recruitment procedure:

www.p4fit.eu/jobs