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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.

ESR13 – UNITE (double degree with University of Helsinki) Personalized diagnosis for orienting tendon clinics

Objectives: To identify and characterize *in vivo* models for the protein profiles during spontaneous vs. stem cell/nanodrug delivery systems-treated tendon healing involving healthy and metabolically diseased/aged animals, and to compare the expression of the potential biomarkers with the profile obtained in microdialysis collected from patients and with patient-reported clinical outcome.

Expected Results: (1) Experimental model of tendon defect on metabolic diseased mice undergoing spontaneous or amniotic epithelial stem cells or nanodrug delivery systems induced healing to characterize the profiles of neuronal mediators, growth factors and inflammatory molecules. (2) Characterize the proteomic profiles of *ex vivo* tissues. (3) Correlate the tissue profiles with the movement and vital data of the housed mice in the DVC Digi-Lab cages. (4) Compare the expression of the potential biomarkers in tendon explants collected from experimental animals and human healthy, and metabolically diseased/aged tendon explants. (5) Compare the tissue identified biomarkers profile with the profile obtained in microdialysis collected from patients and with patient-reported clinical outcome. (6) Test nanobiosensors to detect the prognostic biomarkers finalized for medical health.

Keywords: nanomedicines, nanoparticles, biomedical engineering, tendon, tendon regeneration, tendon biomarkers, stem cells, amniotic epithelial stem cells.

Applicant Profile: Master level in biology, biomedical biotechnology, medicine, veterinary medicine or related field, ideally with background in eukaryote cell biology and biotechnology, immunology, 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 [Department of Molecular Medicine and Surgery, Karolinska Institutet \(KI, Sweden\)](#), at [Consiglio Nazionale delle Ricerche \(CNR-EMMA, Italy\)](#), and [Tecniplast \(Italy\)](#).

Double PhD Tutors: Prof. B. Barboni, Prof. V. Russo, and Prof. L. Valbonetti (Doctoral Programme in Cellular and Molecular Biotechnologies, UNITE); 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