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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.

### ESR6 – UH (double degree with University of Salerno)

#### Hydrogels containing nanotheranostic systems (NanoTher) for personalized tendon medicine

**Objectives:** To design and to develop hydrogels containing NanoTher bioactive molecules and to monitor the progression of disease for a personalized treatment of tendinopathies.

**Expected Results:** (1) Design, develop and characterize customized NanoTher suitable for hydrogel inclusion for the treatment of tendinopathies. (2) Load immune-modulatory and tenoinductive molecules for NanoTher. (3) Evaluate NanoTher physicochemical and biopharmaceutical properties. (4) Test the release kinetic, biochemical and biophysical properties of NanoTher. (5) Evaluate the stability and biopharmaceutical properties of NanoTher before and after inclusion inside the hydrogels. (6) Test *in vitro* the biocompatibility and tenoinductive potential of hydrogels. (7) *In vivo* test of the biocompatibility and therapeutic activity of NanoTher on mice model pre-clinical studies. (8) Recording mice movement and vital data in the DVC Digi-Lab cages. (9) *Ex vivo* assessment of tendon therapeutic effect of NanoTher on preclinical mice models.

**Keywords:** nanoparticles, nanomedicines, immunotherapy, drug delivery, *in vitro*, *in vivo*, theranostics.

**Applicant Profile:** Master level in Pharmaceutical Sciences, Biotechnology, Biomedical Engineering, Nanotechnology, Nanomedicine, Pharmacy, Pharmaceutical chemistry and Technology, or related field, ideally with a multidisciplinary background in nanoparticles, animal studies, and immunotherapy. 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 Pharmacy, University of Helsinki \(UH, Finland\)](#) and [Department of Information and Electrical Engineering and Applied Mathematics, University of Salerno \(UNISA, Italy\)](#), and secondments at [Dipartimento di Medicina Sperimentale e Clinica, Università degli Studi "Magna Graecia" di Catanzaro \(UNICZ, Italy\)](#), [University of Teramo \(Italy\)](#), [Consiglio Nazionale delle Ricerche \(CNR-EMMA, Italy\)](#), and [Capsamedix Oy \(Finland\)](#).

**Double PhD Tutors:** Prof. H. A. Santos (Doctoral Programme in Drug Research, UH); Prof. G. Della Porta (Doctoral Programme in Translational Medicine, UNISA).

#### Main contact:

Professor Hélder A. Santos ([helder.santos@helsinki.fi](mailto:helder.santos@helsinki.fi))

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

[www.p4fit.eu/jobs](http://www.p4fit.eu/jobs)