

Research and Development Request

Field

To be completed

Title	Design and fabrication of multifunctional novel scaffolds based on smart materials.
Summary	In this project, we will design, model and develop smart materials for effective bone regeneration. High precision material processing techniques and computational design techniques will be employed to develop surface functionalized composite scaffolds with tailored stiffness and surface topography.
Stage of Development	<input checked="" type="checkbox"/> Proposal under development
Description	<p>A Turkish University is preparing a proposal for the EURONANOMED 2021 call. The aim of the project is to design, model and develop smart materials for effective bone regeneration. Turkish group has expertise in biomaterial design, synthesis and fabrication with emphasis on the following sub-fields:</p> <ul style="list-style-type: none"> • Computational design and modeling of tissue scaffolds using Finite Element Analysis, topology optimization and Multi-Disciplinary design algorithms. • Solid Free Form Fabrication including 3D printing of biocomposites, functional coatings for surface modification of scaffolds, Polymeric Nanoparticle design and synthesis for targeted drug delivery, • micro-CT characterization <p>Equipments: High Performance Computing Center SEM, TEM, confocal microscopy, UTM, chemical vapor deposition systems, physical vapor deposition systems, bioplotter (inkredible and EnvisionTEC)</p> <p>Partners sought from Call Participation Countries*:</p> <ul style="list-style-type: none"> • Medical doctors with specialty in musculoskeletal injuries and disorders or relevant fields to support the project in all phases to define and revise clinically relevant design and testing requirements. • SMEs or academic institutions for <i>in vitro testing</i> and <i>ex-vivo modeling of bone regeneration</i>

*Belgium, Bulgaria, Czech Republic, Israel, Egypt, Estonia, France, Italy, Latvia, Lithuania, Poland, Romania, Slovakia, Spain, Taiwan, Turkey

The Deadline for Preproposal Submission: 21st January 2021

Deadline for EOI: 15th January 2021

Sector Group Healthcare

Type and Size of Client University

Type and Role of Partner Sought

- Medical doctors with specialty in musculoskeletal injuries and disorders or relevant fields to support the project in all phases to define and revise clinically relevant design and testing requirements.
- SMEs or Academic Institutions for *in vitro testing* and *ex-vivo modeling of bone regeneration*