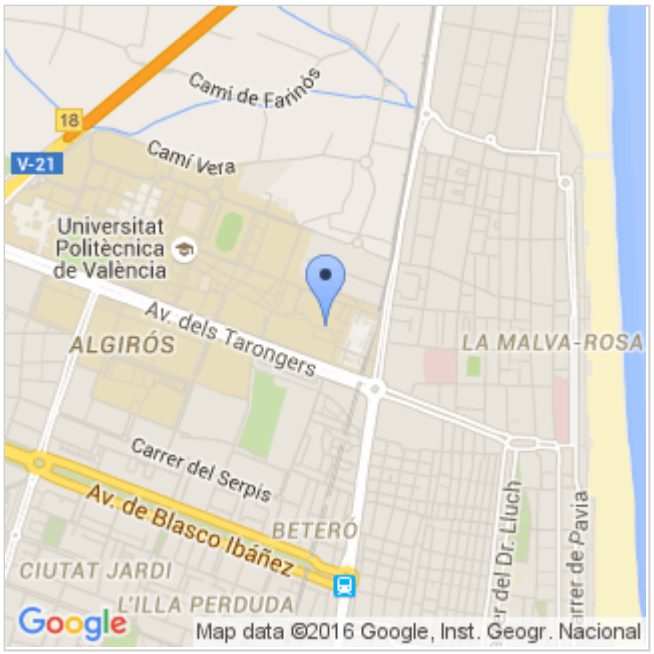
Expression of Interest



Contact Person/Scientist in Charge

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Universitat Politècnica de València (UPV)

Department / Institute / Centre

- **Name:** Centre for Biomaterials and Tissue Engineering - Universitat Politècnica de València
- **Address:** Campus de Vera; Camino de Vera, s/n; Valencia (46022)
- **Province:** Valencia

Research Area

- Chemistry (CHE)
- Information Science and Engineering (ENG)
- Life Sciences (LIF)
- Physics (PHY)

Brief description of the institution:

Universitat Politècnica de València (UPV) is the single Spanish Technical University that features in the main University world rankings. It is within the top 5 Spanish Universities with the highest revenue from both public research and knowledge transfer activities, and a national leader in patent license income and start up creation. Constituted in 1971, it comprises nearly 30.000 students, over 2500 academics, and 17 university research centres of excellence.

UPV has a relevant experience in the participation in international research programmes, with over 100 FP7 projects and 40 H2020 projects in the period 2014-2015. UPV researchers are also actively involved all

H2020 life program stages, from workprogramme drafting discussions, to project coordination. It is also taking part in several major partnering initiatives (JTIs, PPPs, KICs…).

Brief description of the Centre/Research Group (including URL if applicable):

The Centre for Biomaterials and Tissue Engineering (CBIT) is a multidisciplinary Research Institution dedicated to the development of new materials for biomedical applications focused on regenerative medicine. Since 2007 CBIT is one of the excellence groups of the Biomedical Research National Networking Centre in Bioengineering, Biomaterials and Nanomedicine (CIBER-BBN). Currently, the group is formed by 48 researchers (23 faculty and senior members and 25 Master and PhD students). It has three fully equipped research laboratories (materials synthesis and processing, physicochemical and morphological characterization and a biological lab for in vitro cell culture). Details of our Centre are described in www.upv.es/cb.

The team involved in this project has long experience in the synthesis of scaffolds with different geometries and compositions for the regeneration of cartilage, bone, corneal epithelium and skin.

The team of the project consists of three senior researchers of the CBIT, in collaboration with a clinical group from the Universidad Carlos III de Madrid, focused in the treatment of different skin diseases. Prof. Gloria Gallego Ferrer is Associated Professor with more than 75 scientific papers, 1 patent and 7 PhDs. Prof. José Luis Gómez Ribelles is Full Professor, Director of the CBIT and Group Leader in Ciber-BBN. He has more than 280 scientific papers, 5 patents and has supervised 24 PhDs. Prof. José Antonio Gómez-Tejedor is Associated Professor with more than 45 scientific papers and 1 PhDs.

Project description:

New wound dressings with antimicrobial and wound promoting peptides for the topical treatment of hard-to-heal wounds

Chronically infected wounds are an important healthcare problem. A meaningful factor in the failure of actual treatments is the presence of bacterial biofilms that inhibit wound healing and promote infection. Examples are open wounds in chronic diabetes foot ulcers, usually infected by Pseudomonas aeruginosa and Staphylococcus aureus. New treatments use a combinatorial approach by delivering systemic antibiotics plus the application of topical anti-biofilm agents. Recently, the antimicrobial peptide LL-37 has been proposed as a potential therapeutic agent in polymicrobial infected wounds. The major difficulty of LL-37 administration in the form of cream is its immediate degradation in the wound, requiring high dose treatments and frequent application for therapeutic effect. Incorporation of LL-37 in biocompatible matrices seems to be an excellent strategy to overcome the difficulties of direct administration. The matrix protects the peptide from degradation and is a carrier for the sustained release of the peptide in therapeutic dose.

The aim of this project is the development of new wound dressings based on electrospinning meshes of polylactic acid, polyglycolic acid and polyvinyl alcohol composites for the local sustained release of the LL-37 peptide in hard-to-heal wounds, to improve their healing and prevent bacterial infection. New materials with therapeutic proteins will be manufactured and the in vitro and in vivo potential in hard-to-heal wounds will be analyzed.

Applications

Complete CV and letter of motivation.

Deadline: 01/09/2016