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| **Title** | **Peptide functionalisation of natural polysaccharides for wound treatment** |
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**Project description:**

The aim of the project is to functionalise natural polysaccharides with peptides to develop materials for wound regeneration, such as dressings or plasters.

Depending on their amino acid sequence, peptides can express different biological activities: antibacterial, antiviral, anti-inflammatory or collagen regeneration. Their versatility and intrinsic biocompatibility make them excellent candidates for the development of new materials for wound treatment. While, polysaccharide matrix fabrics are interesting for their low environmental impact and easy availability.

The work to be developed in the context of the thesis will be the synthesis and characterisation of active peptides capable of combating bacterial infections, regenerating damaged skin and promoting skin reconstruction. The peptides will be synthesised by solid phase peptide synthesis and characterised by HPLC-MS, one and two dimensional NMR and circular dichroism. Once their properties have been determined, selected peptides will be anchored to the biopolymer of interest, e.g. cellulose, chitosan or hyaluronic acid.

This project is carried out in collaboration with the Department of Biology of the University of Trieste, which will carry out the biological tests of peptides and peptide-polysaccharide conjugates, and in collaboration with local pharmaceutical and cosmetic companies interested in the application part of the project.