RESEARCHPROJECT

Institute
Life Technologies

BIOFLEX

Partners HEIG-VD [Laboratory of Applied NanoSciences]

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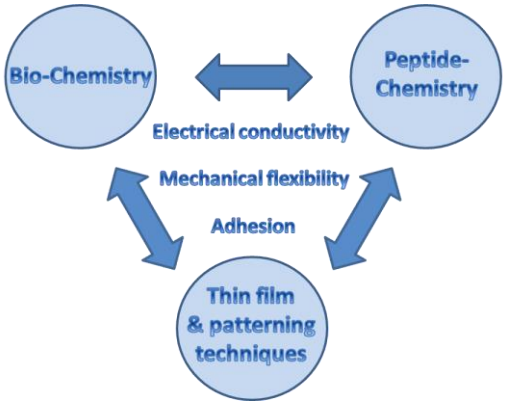
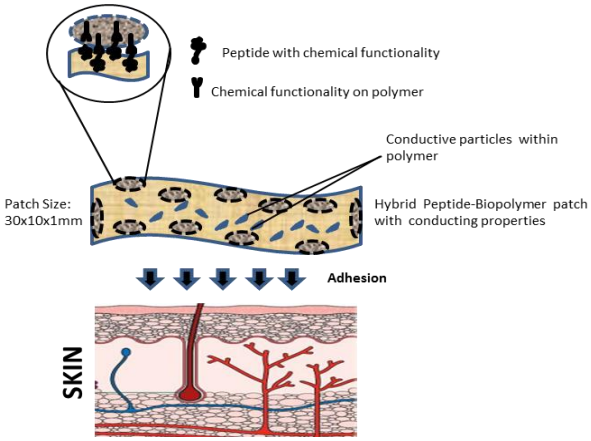
Description Our aim is to develop a new class of hybrid biomaterials by grafting peptides onto biopolymers in order to generate a novel generation of electrodes for medical and therapeutic applications.
In order to address this aim, our novel biomaterial will be provided with conductive properties, offer adjustable flexibility and have unique adhesive properties. Thus addressing the serious limitations of current electrodes in respect to their mechanical rigidity, corrosiveness and skin irritability.
Our peptides will contain derma-compatible units and their conjugation will be performed photochemically following selective spotting onto biopolymer films; conductivity and adhesion will be measured using micro-current techniques and atomic force microscopy, respectively. Our Novel class of biomaterials will be of interest for many medical and therapeutic applications, including stimulation of nerve growth and pain relief.



Strategic interplay of Biochemistry, Peptide-Chemistry, and thin film deposition and patterning techniques for the development of conductive, flexible, adhesive hybrid-biopolymers.



Schematic prototype concept: functionalized peptide dermal adhesion of conductive biopolymer thin films: Thin films and micro-patterned structures are designed for tuning the dermal adhesion and electrical conductivity of the novel flexible bio-electrodes.

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