



MASTER THESIS IN TISSUE ENGINEERING

designing functional muscle tissue for cardiac repair

Based on custom tailored scaffold development, appropriate cell type choice and sophisticated culturing condition, tissue engineering aims to construct functional tissues in vitro. The possibility to regenerate diseased or lost human tissue bears without doubt tremendous benefits for numerous patients. A joint project of the Empa St. Gallen and the Department of Cardiovascular surgery at the University of Bern focus on the development and functionalisation of electrospun scaffolds for cardiac repair. The interdisciplinarity of the project and the crosstalk between medical doctors, engineers, material scientist and biologist, favours not only the development of new materials and therapies, but also contributes to a general understanding of cell-material interactions and possibly to a deeper knowledge of human body functions.

In the current master thesis, the response of different cell types (skeletal muscle cells and mesenchymal stem cells) to electrospun scaffolds will be investigated.

Techniques: Classical cell culture on TCPS culture substrates and three dimensional fibrous constructs. Histology, immunofluorescence, light microscopy, confocal microscopy, SEM, possibly PCR analysis and other techniques of cell culture and biochemistry.

Demands: We are looking for a highly motivated student, open to work in an interdisciplinary field and curious to learn new techniques in cell culture and microscopy. The master thesis will last for 6 months and will be accomplished at the Inselspital Bern, University of Bern.

Start: As soon as possible or by arrangement.

Candidates are asked to send their application via email (reference Master GG) to PD Dr MN. Giraud (Marie-NoelleN.Giraud-Flueck@insel.ch) and G. Guex (geraldine.guex@dkf.unibe.ch).

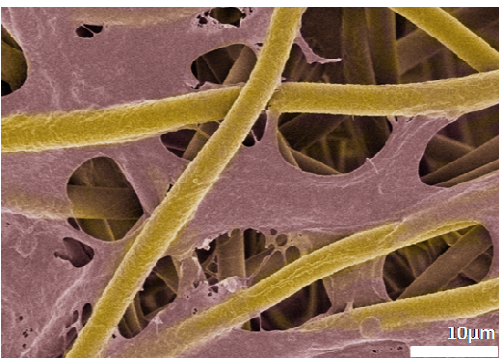


Figure 1 SEM image of C2C12 muscle cell on electrospun fibres.

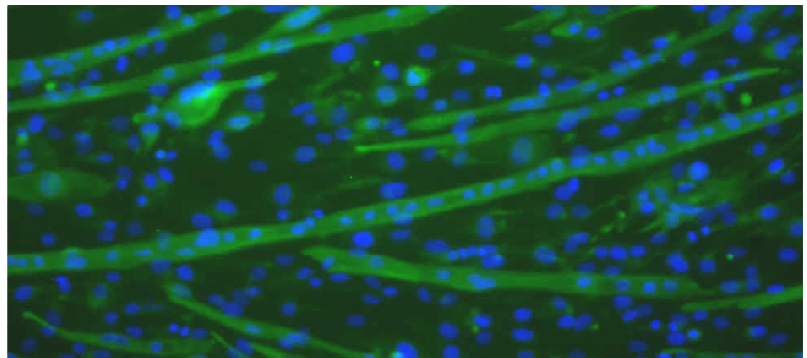


Figure 2 Immunofluorescence of C2C12 positively stained for desmin (green). Nuclei are stained with Hoechst (blue).