



Thesis Project Form

Title (tentative): Analysis of electrophysiological activity of neuronal networks grown on multielectrode arrays during hypoxia

Thesis advisor(s): Chiappalone Michela, Sergio Martinoia (DIBRIS), Joost Le Feber (U Twente)

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Description

Motivation and application domain

The student will investigate the electrophysiological activity and cell survival in an in vitro model of the ischemic penumbra.

General objectives and main activities

This model consists of neuronal networks grown on multi-electrode arrays subjected to transient hypoxia. In particular, the student will investigate the role of brain-derived neurotrophic factor (BDNF) in neuronal recovery.

The work of the student will be monitored by the Receiving Organisation (University of Twente) and in particular by Joost le Feber that will be the supervisor at the company, and simultaneously by the Sending Institution (University of Genova) and in particular by professors Sergio Martinoia and Michela Chiappalone

Training Objectives (technical/analytical tools, experimental methodologies)

The student will be able to be trained in the following: maintenance of rodent neuronal networks, recording and analysis of electrophysiological activity exhibited by neuronal networks on MEA, pharmacological manipulation and in vitro staining. In addition, the student will improve learning skills and teamwork capability and adaptability.

Place(s) where the thesis work will be carried out: University of Twente

Additional information

Pre-requisite abilities/skills: MATLAB programming skills, signal processing, statistics, attitude to experimental work

Maximum number of students: 1

Financial support/scholarship: Erasmus grant