Title (tentative): Multi-well chip for the development of neurotoxicity tests

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Description

Motivation and application domain
- Development of high-throughput systems for drug screening
- Test and validation of new device-systems

General objectives and main activities
- The main objective is to test and optimize an existing system constituted by a multi-well plates in which the 24 wells contain a small micro-electrode array for electrophysiological measurements.
- The focus of the activity will be to set-up the system in collaboration with CNR-IBF (Institute of Biophysics) and to perform experiments with neuronal cells and specific chemical compounds whose mode of actions is known. In parallel a specific sw will be adapted and optimized to automatically extract dose-response curves.
- Finally the experimental results will be critically analyzed and discussed.

Training Objectives (technical/analytical tools, experimental methodologies)
- Use of advanced instruments for network electrophysiology.
- Software development (Matlab).
- Design of experimental protocols.
- Analysis of neuronal signals for neurotoxicity.

Place(s) where the thesis work will be carried out: Neuroengineering and Neurotechnologies Lab@UNIGE; CNR-IBF

Additional information

Curriculum: Neuroengineering and Bio-ICT

Maximum number of students: 1