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

### Thesis advisor(s): Martinoia Sergio, sergio.martinoia@unige.it

### E-mail: Sergio.Martinoia@unige.it

### Address:

### Phone: (+39) 010 33 52251

### 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