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