



## Thesis Project Form

**Title (tentative):** Assessing functional connectivity in heterogeneous in vitro cell cultures

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### Description

#### Motivation and application domain

In vivo, the brain has a unique structural and functional organization, and the interplay of different brain areas is the core element that allows proper brain functions. This observation, with the fact that in vitro neurons from different regions exhibit peculiar behaviors, emphasizes the relevance of developing multicompartmental in vitro brain models.

#### General objectives and main activities

Development of a new experimental protocol to evaluate the connectivity in complex neuronal structures based on cortical and hippocampal neurons.

#### Training Objectives (technical/analytical tools, experimental methodologies)

Cell culture procedures; Microscopy techniques; MEA-based set-up; Data analysis algorithms, neuronal imaging analysis

**Place(s) where the thesis work will be carried out:** DIBRIS

### Additional information

**Maximum number of students:** 1