

Master's Thesis Project

Duration: 10-12 months

Estimated Start Date: March/April 2025

Location: **Developmental Neuroimmunobiology Lab**, University of Milan-Bicocca

Supervisor: Dr. Veronica Krenn

Title: Functional characterization of genes involved in neurodevelopmental disorders through differentiation of human pluripotent stem cells into brain organoids.

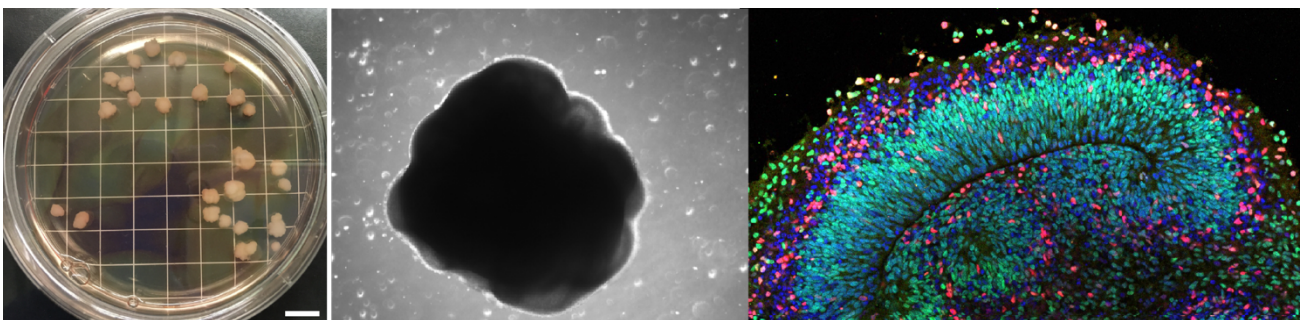
Description: The onset of neurodevelopmental disorders depends on the interaction of multiple factors, both environmental and genetic. In this context, brain organoids represent three-dimensional experimental models that replicate in vitro the early stages of human neurodevelopment and their related biological mechanisms.

The thesis project aims to study the function of critical genes in the context of human neurodevelopment, in both physiological and pathological conditions, through the differentiation of brain organoids from human pluripotent stem cells.

The project includes:

- Generation of knock-out stem cell lines for genes important in neurodevelopment using the CRISPR-Cas9 technique.
- Characterization and validation of knock-out stem cell lines (via Sanger sequencing, flow cytometry analysis and Western blot).
- Generation of brain organoids from human stem cells followed by functional studies using immunostaining and RT-PCR.

The thesis project is part of the “*Human Neuroimmunobiology*” initiative, supported by the Human Technopole Early Career Fellowship program.



Contact for Information/Application: veronica.krenn@unimib.it or visit the website <https://www.krennlab.com/open-positions>

Application Process: Please send your CV and a cover letter (as a single PDF) by January 31, 2025, to veronica.krenn@unimib.it.