

PhD Course | Sep 21 - 25, 2026

Human iPSC Platforms for 2D and 3D Disease Modeling: Brain Disorders and Beyond

Location: UCPH Frederiksberg Campus

Get hands on experience in handling induced pluripotent stem and differentiating these into neural and glial cells. Learn how to repair or knock in single nucleotides using CRISPR-Cas9 in practice and theory and gain experience with growing 3D retinal organoids.

On top of the practical skills, you will learn the theoretical background and have keynote lectures by experts in the field.

- Freeze and thaw human induced pluripotent stem cells
- Maintain and expand human induced pluripotent stem cells
- Generate iPSC via electroporation of episomal plasmids
- Differentiate human induced pluripotent stem cells into astrocytes, microglia and cortical neurons
- Generate 3D cultures
- Analyse induced pluripotent stem cell-derived neural cells using different molecular methodologies
- Design CRISPR guides and templates for gene-editing of pluripotent stem cells
- Perform nucleofection based CRISPR-Cas9 gene editing

SKILLS ACQUIRED AFTER THE COURSE

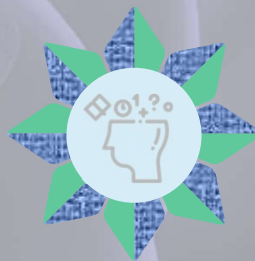


KNOWLEDGE ACQUIRED AFTER THE COURSE

- ✓ Understanding of pluripotent stem cell derivation
- ✓ Knowledge of pluripotency states
- ✓ Insight into early neural development and patterning cues
- ✓ Overview of iPSC-to-neural, astrocyte, and microglia differentiation protocols
- ✓ Knowledge of state-of-the-art PSC culture methods
- ✓ Techniques for 2D/3D neural and astrocyte differentiation
- ✓ Methods for generating microglia from PSCs
- ✓ Application of 2D/3D cultures in research and translation
- ✓ Expertise in how to use and apply CRISPR guides in gene-editing of PSC
- ✓ Knowledge of AI applications in research



4.2 ECTS CREDITS



Application Deadline
Aug 24, 2026

For more information and registration
scan:



Course Director

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