

Master's thesis at the Department of Neurology

Question:

Curious about unlocking the mysteries of pain? Be part of our cutting-edge research as we develop innovative models to study nociception. Join us in generating organoids from induced pluripotent stem cells (iPSC) derived from patients suffering from neuropathic pain syndromes, and help uncover the underlying pathophysiology!

Our goal:

Investigation of inflammatory mechanisms in Fabry disease-associated neuropathic pain using human-derived neuro-mesodermal assembloids.

Some background:

Neuropathic pain is a severe condition commonly associated with Fabry disease, an X-linked lysosomal storage disorder marked by sensory neuron dysfunction and multiorgan impairment. Inflammation is assumed to play a pathophysiological role. In traditional pain research, animal models have been used to study sensory signal transmission, but recent advancements in organoid technology offer more human-relevant systems. Using an innovative organoid model of the somatosensory nervous system, we aim to understand how inflammation drives neuropathic pain in Fabry disease and identify new drug targets for treatment

Your tasks and learning opportunities:

- **Cell culture:** Culture of iPSCs and generation of neuro-mesodermal assembloids from patient-derived iPSCs
- **Expression analysis:** Immunohistochemistry, fluorescence microscopy, RT-qPCR
- **Functionality assays:** Cytokine stimulation assay, ELISA

It is you, because:

You are eager to join our passionate research team and contribute to this project! You are a student of Life Sciences or related faculty. Preferably, you already have some experience in cell culture.

Start and duration: From October 2025, 9 months

Team of supervisors:

Prof. Dr. N. Üçeyler, Ann-Sophie Schnell, M.Sc. (schnell_a1@ukw.de)

Please contact Ann-Sophie Schnell if you have any questions about the project

Contact us: Ready to make a difference? We would love to hear from you—apply now and be part of the future of pain research! Please send your application documents (CV and motivation letter) to Prof. Dr. N. Üçeyler: ueceyler_n@ukw.de