

“Neuro-Cardiac Crosstalk in Fabry Disease”

PhD Position at the Department of *Molecular Pharmacology and Toxicology*, University Würzburg

Who are we? We are a **cardiac stem cell research team** (WG Translational Stem Cell Research) focusing on cardiac diseases at the Department of Molecular Pharmacology and Toxicology at the University of Würzburg.

Whom do we seek? A strong, industrious, eager, and reliable PhD candidate in Life Sciences or a related Faculty who is enthusiastic about cardiovascular work.

Background: Fabry disease (FD) is a lysosomal storage disorder with multiorgan involvement, particularly affecting the nervous system and the heart. FD is caused by mutations in the *GLA* gene, resulting in alpha-galactosidase A deficiency and lysosomal accumulation of globotriaosylceramide (Gb3). The PhD candidate will work in an interdisciplinary project, **investigating autonomic dysfunction and cardiac pathology** in FD. Patient-derived induced pluripotent stem cells (iPSCs) will be used to generate **sympathetic neurons and cardiomyocytes** to study how GLA deficiency and Gb3 accumulation disrupt neuronal signalling, cardiac function, and **neuro-cardiac crosstalk**. This will be accomplished by combining molecular analyses, high-resolution imaging, functional Ca²⁺ and electrophysiological measurements, and metabolome/proteome studies with clinical phenotyping. Ultimately, the project aims to identify early disease mechanisms linked to arrhythmias and cardiomyopathy and develop new mechanism-based therapeutic approaches.

Tasks for PhD candidate:

- Advanced cell culture (iPSC, cardiomyocytes, sympathetic neurons) and neuro-cardiac co-culture
- CRISPR/Cas9 genome editing
- qRT-PCR, immunocytochemistry
- Patch-clamp/multielectrode array analyses
- Large data analysis (proteomics, metabolomics)
- Advanced statistics (e.g. multivariate analysis)

Prerequisites: The project is a close collaboration with the Üçeyler lab (Neurology, UKW), thus strong communication and organization skills are required. The candidate will be enrolled into the Graduate School of Life Sciences.

Cell culture experience is mandatory. Experience in molecular biology and microscopy techniques is desired. Practical knowledge in stem cell research and electrophysiology is beneficial.

We offer: We offer a supportive and collaborative TEAM environment with strong supervision, structured scientific work, continuous exchange, and plenty of room for personal development and active shaping of the project.

Funding: Our project is funded by the Würzburg Interdisciplinary Centre for Clinical Research (IZKF) in collaboration with the Üçeyler lab (Neurology, University Clinic, Würzburg).

Start and duration: Start is possible from September 2026 on, 3 years, 65% TVL-E13.

PI and contact: Please send your application including a motivation letter to Prof. Dr. K. Streckfuß-Bömeke, Katrin.streckfuss-boemeke@uni-wuerzburg.de