

PhD in Traumatic Brain Injury (TV-L 13, 65%, 3 years)

The group of Prof. Dr. Thomas Wirth (Institute of Physiological Chemistry, Ulm University) is looking for two highly motivated PhD students. The preferred starting time would be as soon as possible.

The project is part of the DFG funded SFB 1149 on trauma research (<https://www.uni-ulm.de/en/einrichtungen/crc-1149/>) and aims to investigate the cell-type specific role of the pro-inflammatory transcription factor NF- κ B in the outcome of traumatic brain injury (TBI).

- 1) Previous/ongoing work revealed that chronic NF- κ B activation in oligodendrocytes induces aging associated myelination deficits with impaired motor performance. Interestingly, IKK/NF- κ B signaling was found to trigger a specific cellular stress response leading to impaired myelin homeostasis. Importantly, this phenotype is linked to the disease model of TBI which is well-known for its white matter pathology. Therefore, the main objective of this PhD project is to follow up on these initial findings and to characterize the molecular role of NF- κ B in TBI-mediated white matter loss.
- 2) In previous work, the role of astrocytic NF- κ B activation in the response to and outcome of TBI was investigated. We could show that chronic IKK/NF- κ B signaling in astrocytes is critically involved in the orchestration of the multicellular, post-traumatic immune response finally promoting a detrimental outcome. We have identified interesting candidate factors involved in tissue remodeling and in crosstalk signaling between different immune cells. The main objective of this PhD project is to further elucidate the molecular interconnections of these processes and to characterize the players and effectors important for systemic immune dysfunction after TBI.

Methods include transgenic mouse models, experimental TBI, histology, biochemical and molecular biology techniques (qPCR, RNA Sequencing, Western Blot), ex-vivo MRI, flow cytometry and primary cell culture.

We offer:

- excellent scientific guidance and well-equipped laboratories
- the possibility to work on exciting projects using cutting-edge technologies in a highly stimulating, collaborative and international research environment within the SFB 1149
- continues training and education opportunities within the IGradU (<https://www.uni-ulm.de/en/einrichtungen/igradu/>)

Required qualifications:

- Master or Diploma degree in Life Sciences (Molecular Medicine, Biology, Biochemistry or related subjects)
- Self-motivated work, effective self-organization, independent thinking and information seeking, interest to solve complex scientific problems and excellent communication skills
- Willingness to work with mouse models
- Basic knowledge of the German language or willingness to learn

Interested?

We are looking forward to your application. Please address further questions or your application documents (including CV, transcript of records, references and contact information) to beatrix.schwarz@uni-ulm.de (Secretary of Prof. Dr. Thomas Wirth).

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