

Technische Universität München
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München, 23.6.2020



Fakultät für Medizin

Call for PhD positions

Institut für Zellbiologie des
Nervensystems

Prof. Dr. med. Thomas Misgeld

Employer Description

The Misgeld lab at Technical University of Munich (TUM) develops and uses cutting-edge in vivo imaging and omics tools to study axon homeostasis and disease with a focus on neuronal cell biology and axon-glia interactions. We are interested in the mechanisms that establish and maintain axonal health, as well as in the processes that cause axon pathology during neurodegeneration and -inflammation (in diseases such as multiple sclerosis or spinal cord injury). Through its close association with major collaborative efforts (such as the Excellence Cluster SyNergy, <https://www.synergy-munich.de>) and leading neuroscience-training programs (<https://www.gsn.uni-muenchen.de>; <http://www.phd.med.tum.de/>) our students have unique access to the technical resources and networking opportunities of the Munich neuroscience community. At the same time, our lab is limited in size and very international (3 post-doctoral fellows, 5 graduate students from six different countries), ensuring close supervision and mentoring, as well as exposure to a diversity of experiences and viewpoints.

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Deutsches Zentrum für
Neurodegenerative Erkrankungen



Munich Cluster for
Systems Neurology

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Job Description

A PhD position (65% E13) in the area of in vivo imaging of the rodent nervous system is available in the Misgeld lab at TUM's Institute of Neuronal Cell Biology (<https://www.neuroscience.med.tum.de/en/home/>). The position is available starting earliest August 1st. The project will focus on the dynamics of cortical myelination, specifically how oligodendrocytes choose the axons they myelinate, and how these axons then respond to being sheathed by myelin. The work will involve functional and morphological characterization of cortical axons using advanced imaging techniques established in the lab, ranging from intravital two-photon microscopy to correlative electron microscopy, combined with advanced molecular labeling tools, genetically-encoded biosensors and injury/disease models in mice. The PhD candidate will have the opportunity to enroll in one of the structured neuroscience graduate programs in Munich.

Representative recent publications from the lab include:

Fecher C, et al., Cell-type-specific profiling of brain mitochondria reveals functional and molecular diversity. **Nat Neurosci.** 2019 22(10):1731-1742

Witte ME, et al., Calcium influx through plasma-membrane nanoruptures drives axon degeneration in a model of multiple sclerosis. **Neuron** 2019 101(4):615-624.e5

Jafari M, et al., Localized calcium accumulations prime synapses for phagocyte removal in cortical neuroinflammation. **BioRxiv** 2019
<https://doi.org/10.1101/758193>

Snaidero N, et al., Precision in a sea of profusion: Myelin replacement triggered by single-cell cortical. **BioRxiv** 2019
<https://doi.org/10.1101/2019.12.16.877597>

Relevant overview articles:

Schumacher AM, et al., Imaging the execution phase of neuroinflammatory disease models. **Exp Neurol**. 2019 320:112968.

Misgeld T. & Schwarz T. Mitostasis in neurons: Maintaining mitochondria in an extended cellular architecture **Neuron** 2017 96(3):651-666.

Job Requirements

The applicant should have a Master degree in neuroscience or a related field, and have interest in the fields of neuroimmunology, neuroanatomy and neurophysiology. Previous experience with rodent models is an advantage, but not necessary. The lab's language is English. We are looking for someone, who simply loves science and shares our passion for the hard work of exploring the unknown continent of our brain.

Application details

Please send a specific letter of motivation that explains your interests, your reasons for considering our lab, and your vision of science and your career; also include a CV, which details your grades, including high school, BSc and MSc plus the names of three referees, whom we can contact.

Hinweis zum Datenschutz

Im Rahmen Ihrer Bewerbung um eine Stelle an der Technischen Universität München (TUM) übermitteln Sie personenbezogene Daten. Beachten Sie bitte hierzu unsere Datenschutzhinweise gemäß Art. 13 Datenschutz-Grundverordnung (DSGVO) zur Erhebung und Verarbeitung von personenbezogenen Daten im Rahmen Ihrer Bewerbung. Durch die Übermittlung Ihrer Bewerbung bestätigen Sie, dass Sie die Datenschutzhinweise der TUM zur Kenntnis genommen haben.

Please send you application by eMail indicating 'PhD application to Misgeld lab' in the header to

Monika Schetterer, Lab manager - Misgeld lab;
monika.schetterer@tum.de

Kind regards,



Prof. Dr. med. Thomas Misgeld