# PhD Position

## Vascular Zonation-specific Mechanisms in Cerebral Small Vessel Disease (Munich)

Institute for Stroke and Dementia Research (ISD), LMU Munich

Start: from 1.4. 2026

**Are you excited about neurovascular biology, omics technologies, and cutting-edge microscopy? Do you want to pursue a PhD that combines fundamental mechanistic discovery with strong translational relevance?**

If yes, consider joining us in an ambitious new project funded within a newly established DFG Collaborative Research Center (CRC) on neurovascular diseases, starting in 2026.

**Project overview:** Our goal is to uncover how vascular zonation-specific mechanisms in brain endothelial cells contribute to cerebral small vessel disease (SVD) and stroke. Building on recent discoveries identifying FOXF2 as a major genetic risk factor for SVD, the project will investigate how endothelial dysfunction unfolds across distinct vascular segments (arterioles, capillaries, venules) and how this affects vascular–glial crosstalk, astrocyte biology, and neurovascular function.

Your work will combine: • Multi-omics approaches (single-cell RNA-seq, spatial transcriptomics such as MERFISH, cell-type–specific proteomics) • Advanced microscopy (confocal, light-sheet imaging, electron microscopy) • In vivo experimentation in mouse models (including inducible endothelial/pericyte-specific Foxf2 models, BBB assays, MCAO stroke models) • Bioinformatics and data integration in collaboration with experienced computational researchers. You will be part of a highly interdisciplinary team and receive day-to-day supervision from experienced postdoctoral researchers.

**Your training environment:** As a PhD student , you will join one of Munich's renowned graduate programs: • Graduate School of Neuroscience (GSN); • International Max Planck Research School for Biological Intelligence (IMPRS-BI); or the • Integrated Research Training Group of CRC 1744. You will be integrated into both the new CRC and the Munich Cluster for Systems Neurology (SyNergy). Both provide exceptional training opportunities including structured mentoring, advanced technical workshops, diversity support, retreats, and travel funding.

**Your profile:** We are looking for a highly motivated student who: • Holds (or will soon complete) a Master's degree in Biomedical Science, Neuroscience, Molecular Biology, Human Biology, Neuroengineering, or a related field • Has experience or strong interest in bioinformatics, transcriptomics/proteomics, imaging, and/or in vivo mouse work • Is passionate about neurovascular biology, cell biology, and disease mechanisms • Enjoys working in a collaborative, multidisciplinary research environment • Communicates well in written and spoken English. Experience with mouse models, omics data analysis, or advanced imaging is an advantage but not required.

**We offer:** • A stimulating scientific environment within the ISD, SyNergy, and the new CRC 1744 • Integration into multidisciplinary teams with state-of-the-art infrastructure for omics and imaging • Close supervision by the PI and postdoctoral researchers • Opportunities to present at national and international conferences • A strong, supportive community of PhD students and early-career researchers.

**Application:** Please submit a single PDF containing: 1. Motivation letter (including earliest start date); 2. CV; 3. Academic transcripts (BSc and MSc); 4. Contact details for 1–2 referees; 5. Optional: thesis, publications, code repository, or imaging portfolio.

Send applications or inquiries to: Prof. Martin Dichgans (Institute for Stroke and Dementia Research, LMU Munich); isd.applications@med.uni-muenchen.de; Please include “PhD Application – SVD Project A02” in the subject line.

We look forward to your application!