CSC-Tübingen PhD Scholarship Program

2025/2026 application round: prospective PhD positions at the University of Tübingen

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Faculty: Medicine

Institute / Section / Subject: Department of Pathology and Neuropathology, Institute of Pathology and Molecular Pathology. Research subject: Highly multiplexed microscopy of the leukemia bone marrow microenvironment

Supervising Professor(s): Prof. Dr. med. Christian M. Schürch, MD, PhD

About the Supervisor(s): I am a board-certified surgical pathologist with >15 years of basic science experience (tumor immunology of leukemias & lymphomas, tumor mouse models, tumor microenvironment, highly multiplexed tissue imaging with >80 simultaneous protein markers, 3D tissue perfusion bioreactors). I am also founding member, vice-president and treasurer of the European Society for Spatial Biology (ESSB). Recent publications: Li et al., *Blood* 2025, in revision; Zhang et al., *Theranostics* 2025, in revision; Mayer et al., Science Advances 2023; Shekarian et al., *Science Advances* 2022; Phillips et al., *Nature Communications* 2021; Schürch et al., *Blood* 2021; Schürch et al., *Cell 2020*; all publications and personal website: www.schurchlab.com

Specification/Project title: Spatial single-cell mapping of bone marrow and spleen remodeling in leukemia under immuno- and anti-angiogenic therapies

Topic Description: The bone marrow microenvironment (BMME) and spleen plays an important role in the pathogenesis of leukemias. Mature immune cells in the BMME and spleen regulate leukemic stem cells and leukemia development via cytokines and undefined cell-cell interactions. Our lab has established a robust CODEX tissue preparation pipeline for murine BM using a fixed-decalcified-frozen method, and we have designed and validated a BM-specific antibody panel comprising over 50 markers. We recently demonstrated that advanced chronic myeloid leukemia (CML) is characterized by a distinctly immunosuppressive and highly vascularized BMME (Li et al., *Blood* 2025, in revision). Building on this foundation, the proposed project aims to unraveling the complex changes in the BMME that occur during therapeutic intervention in advanced CML. By employing advanced spatial proteomics and spatial transcriptomics technologies, we aim to perform high-throughput analyses for biomarker discovery, characterize novel cell-cell interactions, and elucidate alterations in tissue architecture.

Intended Degree: PhD in Experimental Medicine

Type of the PhD Study: Full-time (complete doctoral studies at the University of Tübingen)

Required Degrees and Qualifications: Master's degree in medicine, biology, biotechnology, or related discipline

Language Requirements: Proficiency in English (scientific level oral/written; CEFR B2-C1)

Notes: PhD candidates with strong experimental skills; a solid background in immunology and cell biology, and/or experience in bioinformatics and mouse models would be an advantage.