



EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN



CSC-Tübingen PhD Scholarship Program

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

Faculty: Medicine

Institute / Section / Subject: Department of Pathology and Neuropathology, Institute of Pathology and Molecular Pathology. Research subject: Imaging and function of the immune synapse

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: The role of plasmacytoid dendritic cell—megakaryocyte interactions in the bone marrow microenvironment during leukemia development and progression

Topic Description: Cell-cell interactions, particularly the immunological synapse, organize receptors and the cytoskeleton to focus signaling and cytokine transfer. When these contacts are aberrant or impaired, signaling becomes misdirected, tissue homeostasis and immunity deteriorate, and disease, including cancer, can ensue. Our preliminary data using CODEX highly multiplexed microscopy of murine leukemia bone marrow have revealed frequent and close physical contacts between plasmacytoid dendritic cells (pDCs) and megakaryocytes (MKs), including the protrusion of MK membranes enveloping pDCs (Li et al., *Blood* 2025, in revision). This project aims to further study the molecular mechanisms underlying the pDC-MK interactions and their effect on platelet generation and function in healthy bone marrow and leukemia. We will integrate high-resolution imaging of the pDC-MK interface with biochemical validation by co-immunoprecipitation and proteomics. Together, these approaches will define how pDC-MK contacts modulate local immune signaling in the bone marrow.

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 bioinformatics would be an advantage.