PhD Position in Immunology and Advanced Imaging (m/f/d)

University of Saarland | CIPMM | Homburg, Germany

Posted on: 03. May 2026

Join Our Team

We are seeking a highly motivated and talented PhD Student to join our research group at the **Center for Integrative Physiology and Molecular Medicine (CIPMM)** and the **Center for Gender-specific Biology and Medicine (CGBM)** at the Saarland University, Germany. The CIPMM is a research-oriented center of excellence offering a collaborative, international environment with access to state-of-the-art core facilities.

This position is funded by a prestigious grant from the **Else Kröner-Fresenius-Stiftung (EKFS)**, one of Germany's most significant foundations for high-end medical research. The project is titled: **"Uncovering Sex-Linked Mechanisms of Cytotoxic T Cell Granule Heterogeneity in Tumor Immunity"**

Research Focus

Cytotoxic T cells (CTLs) are essential immune cell type for defense against tumors and infections. Our recent work, supported by the **ERC Synergy Grant ATTACK** consortium, provided new insights into different action of cytotoxic T cell killing by identifying Multicore Cytotoxic Granules (MCGs)[1]—structurally diverse organelles that balance cytotoxic and immunomodulatory functions[2]. This project utilizes **cutting-edge super-resolution imaging** and **multi-omics** to investigate how sex-specific factors modulate these granules to shape anti-tumor immunity. Our goal is to uncover the fundamental biological mechanisms explaining why immune plasticity often differs significantly between men and women.

Your Tasks

- Investigate the transcriptomic and proteomic landscapes of male- and female-derived human and mouse CTLs.
- Apply high-resolution imaging approaches, including Structured Illumination Microscopy (SIM), Total Internal Reflection Fluorescence Microscopy (TIRFM), and Correlative Light and Electron Microscopy (CLEM), to define granule architecture.
- Conduct functional assays and confocal live-cell imaging to determine how granule heterogeneity influences cancer cell killing.
- Integrate "omics" data with functional outcomes to identify sex-specific immune programs.

Your Profile

- Master's Degree in Cell Biology, Immunology, Bioinformatics, or a related field.

- Strong interest in advanced microscopy (Confocal, Super-resolution, electron microscope) and molecular biology.
- Experience in cell culture, high-end imaging, multi-omics and flow cytometry is highly desirable.
- Language Skills: proficiency in English (spoken and written) is required for effective communication in our international research environment. German language skills are a plus.
- Motivation to work in an interdisciplinary, international team and a high level of independence and commitment.

We Offer

- Funding: A 36-month position (TV-L E13, 65%).
- Environment: Access to state-of-the-art infrastructure at the CIPMM, including specialized high-end imaging facilities.
- Supervision: Close mentorship and integration into a high-impact research program at the forefront of "Sex-Specific Biology and Medicine".
- Career Development: Supportive environment and funding for international conferences and training.
- Collaboration: The selected candidate will have the opportunity to engage and collaborate with the **ERC ATTACK consortium** network.

Start Date: Positions will be filled as soon as suitable candidates are identified.

Application Process: Interested candidates should send their application as a single PDF to **Dr. Hsin-Fang Chang** (hsinfang.chang@uni-saarland.de). The application must include a motivation letter, a CV, and copies of both Bachelor's and Master's degree certificates along with academic transcripts. Additionally, please provide at least two letters of recommendation and the contact information for two academic references who can be reached for a recommendation.

Reference

1. **Chang HF***, Schirra C, Ninov M, Hahn U, Ravichandran K, Krause E, Becherer U, Bálint Š, Harkiolaki M, Urlaub H, Valitutti S, Baldari CT, Dustin ML, Jahn R, and Rettig J*. Identification of distinct cytotoxic granules as the origin of supramolecular attack particles in T lymphocytes. ***Nat. Commun*. 2022**. 13(1):1029. *co-corresponding author.
2. Li X, Schirra C, Wirkner M-L, Tu S-M, Lin C-H, Hohmann M, Alawar N, Chouaib A, Becherer U, Pattu V, Rettig J, Krause E*, **Chang H-F***. Lytic IFNγ is stored in granzyme B-containing cytotoxic granules and co-secreted by effector $CD8^+$ T cells. ***Cell. Mol. Immunol*. 2026.** DOI: 10.1038/s41423-026-01391-1