Dresden University of Technology

TUD Dresden University of Technology, as a University of Excellence, is one of the leading and most dynamic research institutions in the country. Founded in 1828, today it is a globally oriented, regionally anchored top university as it focuses on the grand challenges of the 21st century. It develops innovative solutions for the world's most pressing issues. In research and academic programs, the university unites the natural and engineering sciences with the humanities, social sciences and medicine. This wide range of disciplines is a special feature, facilitating interdisciplinarity and transfer of science to society. As a modern employer, it offers attractive working conditions to all employees in teaching, research, technology and administration. The goal is to promote and develop their individual abilities while empowering everyone to reach their full potential. TUD embodies a university culture that is characterized by cosmopolitanism, mutual appreciation, thriving innovation and active participation. For TUD diversity is an essential feature and a quality criterion of an excellent university. Accordingly, we welcome all applicants who would like to commit themselves, their achievements and productivity to the success of the whole institution.

Biomolecular condensates have emerged as a new paradigm to understand biological functions in living cells. Dresden has pioneered research in the field of biomolecular condensates. The newly DFG-funded **Research Training Group "Biomolecular Condensates: From Physics to Biological Functions" (RTG 3120)** at TUD offers an exciting interdisciplinary research environment at the interface of physics and biology. Our goal is to understand biological function and the role of condensates in disease by applying physical principles such as phase transitions and collective phenomena to the study of biomolecular condensates.

As part of the **Research Training Group RTG 3120** at the **Center for Regenerative Therapies Dresden (CRTD)**, an **institute of the Center for Molecular and Cellular Bioengineering (CMCB)**, the **Chair of iPS Cells and Neurodegenerative Diseases (Prof. Dr. Jared Sterneckert)** is looking for a highly motivated and talented

Research Associate / PhD Student (m/f/x)

(subject to personal qualification employees are remunerated according to salary group E 13 TV-L)

starting **April 1, 2026**, subject to the availability of resources. The position is initially limited until March 31, 2030 with an additional year being possible depending upon circumstances, need, and availability of funding. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG). The position comprises 65% of the full-time weekly hours. The position offers the chance to obtain further academic qualification (usually PhD).

Project Title and Description:
Characterize the role of ribonucleoprotein (RNP) granules granules in the pathogenesis of amyotrophic lateral sclerosis (ALS)

Motor neurons (MNs) have very long axons that require local translation of mRNAs transported from the soma via RNP granules. RNP granules are condensates that protect mRNA from degradation in a translationally arrested state. There are many different types of RNP granules found in MN axons, and MNs are able to disassemble individual granules at specific times and locations in order to support specialized functions such as metabolism or injury repair. Highlighting the importance of this process, alterations in RNP granules have been linked to ALS pathogenesis and MN degeneration. Thus, a better understanding of RNP granules could lead to novel therapeutics to protect MN axons against degeneration in ALS. To achieve this objective, our team uses induced pluripotent stem cell (iPSC)-derived MNs to investigate RNP granule dynamics in a physiological model. We generated FUS-eGFP reporter iPSCs for live-cell imaging of RNP granules, facilitating compound screening to identify novel drugs for repurposing as ALS therapeutics. We also generated a microfluidic device enabling the study of axonal RNP granules as well as the functionality of neuromuscular junctions.

Here, we will use these technologies to answer fundamental questions about RNP granules in MNs and how this is impacted by ALS pathogenesis:

- How are multiple different RNP granules with individualized mRNA cargo maintained in MN axons?
- How much exchange of RNA-binding proteins occurs between different RNP granules within axons?
- How do RNP granules regulate their size and prevent fusion in order to maintain separation of mRNAs?

To answer these research questions, both projects will utilize dCas13d-mediated proximity labeling to identify the proteins binding specific axonal mRNAs. Pulse-chase experiments can be used to assess if proteins in RNP granules are exchanged over time. We will compare motor neurons derived from isogenic iPSCs to characterize the impact of

ALS mutations. In addition, we will explore if specific oligonucleotides ("bait RNAs") could offer an effective strategy for reversing ALS pathogenesis.

Requirements: We aim at attracting the best talent and expect the following:

- an outstanding university degree (Master or equivalent) in Biology, or related field of science
- experience with cell culture is highly desired
- ability to work in an international team is essential
- inter- and multidisciplinary thinking, high motivation; an integrative and cooperative personality with excellent communication and social skills
- fluency in English – written and oral

We offer:

- a stimulating, world-leading research environment on biomolecular condensates embedded in a focused, interdisciplinary structured training program with close mentoring
- access to advanced research infrastructure and shared core facilities
- a vibrant and collaborative scientific community in Dresden and internationally

The successful candidate will be embedded in the DFG Research Program RTG3120 on Biomolecular Condensates (https://dresdencondensates.org). Each PhD project is part of an interdisciplinary framework that includes shared training activities, and supervision by an interdisciplinary thesis advisory committee. In addition, the successful candidate will be immersed in a very rich scientific environment at the Center for Molecular and Cellular Bioengineering (CMCB), part of the Technische Universität Dresden encompassing the B CUBE Center for Molecular Bioengineering (B CUBE), the Biotechnology Center (BIOTEC), and the Center for Regenerative Therapies (CRTD). The CMCB is closely linked and within walking distance of the German Center for Neurodegenerative Diseases (DZNE), the Medical Theoretical Center (MTZ), the Carl Gustav Carus University Clinic and the Max-Planck-Institute for Molecular Cell Biology and Genetics (MPI-CBG). The research on campus is highly interdisciplinary and addresses topics spanning cell biology, genomics, biophysics, tissue engineering, bioinformatics, and regeneration. We combine these approaches to bridge the gap between fundamental research and clinical therapies.

More information about our research group can be found here: https://tud.link/vprn.

TUD strives to employ more women in academia and research. We therefore expressly encourage women to apply. The University is a certified family-friendly university. We welcome applications from candidates with disabilities. If multiple candidates prove to be equally qualified, those with disabilities or with equivalent status pursuant to the German Social Code IX (SGB IX) will receive priority for employment.

Please submit your detailed application with the usual documents(CV, cover letter describing both their research experience and research interests, list of relevant academic achievements or publications, university degree certificates and transcripts and contact information for at least two letters of recommendations) by **January 15, 2026** (stamped arrival date of the university central mail service or the time stamp on the email server of TUD applies), preferably via the TUD SecureMail Portal https://securemail.tu-dresden.de by sending it as a single pdf file to **jana.fischer2@tu-dresden.de** or to:

TU Dresden, CRTD, Prof. Dr. Jared Sterneckert, Helmholtzstr. 10, 01069 Dresden, Germany. Please submit copies only, as your application will not be returned to you. Expenses incurred in attending interviews cannot be reimbursed.

TUD is a founding partner in the DRESDEN-concept alliance.

DRESDEN concept

Reference to data protection: Your data protection rights, the purpose for which your data will be processed, as well as further information about data protection is available to you on the website: https://tu-dresden.de/karriere/datenschutzhinweis.