

Job Advertisements within the CRC/TRR 225

The Collaborative Research Centre/Transregio **CRC/TRR 225 “From the Fundamentals of Biofabrication towards Functional Tissue Models”** is an interdisciplinary research consortium of the Universities of **Würzburg, Bayreuth, and Erlangen-Nürnberg**.

The TRR225 aims to develop innovative biofabrication strategies - particularly automated 3D printing technologies - for processing living cells and biomaterials into complex tissue constructs. These advanced in vitro models provide new opportunities for pharmaceutical, cancer, and infection research, support the reduction of animal testing and offer long-term perspectives for regenerative medicine.

Since its establishment in 2018, the consortium has achieved substantial scientific progress and international visibility and has entered its third funding period in 2026.

The advertised position is part of the **subproject A02 “Tunable Hyaluronic Acid-based Bioink Platform for Controlled Differentiation of Mesenchymal Stem Cells”**.

Hyaluronic acid (HA) represents a major component of the human extracellular matrix. The overall aim of this project is to develop a HA-based bioink platform utilizing multi-functional crosslinkers that enables the controlled differentiation of mesenchymal stem cells. Advanced biofunctionalization with particulate drug delivery devices and flexible covalent binding of growth factors and small molecule drugs will further promote the development of coherent tissues within the printed 3D constructs and enable the creation of clinically relevant tissue models, particularly in the field of cartilage regeneration.

PhD Candidate (f/m/d) Cell Biology

Your PhD Work

- The doctoral position is in the area of cell biology / tissue engineering / bioprinting.
- **In the doctoral thesis**, the controlled differentiation of mesenchymal stem cells will be investigated in novel 3D cell cultures and tissue models. In particular, chondrogenic differentiation and development of 3D cartilage tissues will be analyzed in bioprinted constructs employing state-of-the-art cell and molecular biology techniques. In dependence of newly developed biomaterials and drug application strategies, the structure and functionality of clinically relevant tissue constructs will be assessed.
- **The methods used** will include different bioprinting techniques, various 3D cell culture techniques (such as spheroids, hydrogels, scaffolds), cell and molecular biology methods, e.g., gene and protein expression analysis, histological and immunohistochemical analysis, biochemical assays for characterization of the extracellular matrix and correlation with biomechanical properties, controlled drug delivery.
- The studies are conducted in close cooperation with colleagues in the research group and partners from several other disciplines within the research consortium.

Job Details

- Salary based on TV-L E13 (67%)
- Start date: As soon as possible. Duration: Up to 4 years.
- Place of work: WÜRZBURG – University Hospital Würzburg – Department of Trauma, Hand, Plastic and Reconstructive Surgery

Requirements

- A degree in biology, biochemistry, bioengineering or a related life science is required.
- Experience in the methods used are a plus, but not a prerequisite for the position.
- You should have a keen interest in both basic research and biomedical translational research.
- You should like to work in a team, demonstrate above-average commitment, and be able to work independently.

What We Offer

- We offer thorough training and supervision in all aspects of your PhD work, challenging tasks, and collaboration in an interdisciplinary team.
- Our research group is embedded in an excellent scientific environment at the University Hospital Würzburg and the University of Würzburg and cooperates nationally and internationally in the field of tissue engineering and regenerative medicine.
- Within the framework of the research consortium, additional interdisciplinary collaborations in the field of 3D bioprinting are established, which you can actively utilize.
- You will be integrated into the structured training program of the SFB/TRR (summer schools, seminars, symposia, etc.). Participation in the University's Graduate School of Life Sciences is also possible.
- Your attendance at international and national conferences is highly encouraged.
- Support for career and personal development.

Equal Opportunity & Diversity Statement

We are committed to equal opportunity and diversity and explicitly encourage women to apply. Candidates with disabilities will be given preference if their qualifications are equivalent. We offer an inclusive, supportive, and collaborative working environment.

Contact

Please send your application in an email (PDF file including CV, detailed copies of certificates, and references, if applicable) to

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