# Job Advertisement

As a maximum-care university hospital with a capacity of around 1,300 beds, we care for 225,000 patients annually with more than 6,000 employees in 26 clinics, 23 institutes and specialist centers. Our hospital offers medical care, state-of-the-art diagnostics and comprehensive therapy of the highest international standard. In addition, we offer a comprehensive range of services in research and teaching at an internationally competitive level.

In the research group **Immunodynamics** in the Institute of Experimental Immunology and Imaging the following position is available starting **June 1st.2023**

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**Research Associate (Postdoc) (m/f/d)**
for „**MS-based single-cell and spatial multi-omics**"
(pay group 13 TV-L - temporary)

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to be filled on a full-time basis. The classification is based on the personal and collective bargaining requirements. The employment is initially limited for a period of 36 months within the framework of the DFG-funded TR332 "Neutrophils: Origin, fate and function". An extension is possible according to the maximum employment period of the Wissenschaftszeitvertragsgesetz (WissZeitVG) with the aim of a tenured employment.

The Research Group Immunodynamics investigates the immunological mechanisms in diseases such as infections and cancer using multi-omics approaches. Through (imaging) mass spectrometry, laser microdissection, bioinformatics, and microscopy, we aim to understand leukocyte biology on a single-cell and spatial level in tissues. Interdisciplinary co-registration algorithms combining microscopy, matrix-associated laser desorption/ionization mass spectrometric imaging (MALDI-MSI), and liquid chromatographic mass spectrometry (LC-MS/MS) are developed to decipher the immunological tissue environment and develop novel therapeutic approaches.

Further information about the research group and current research projects can be found at www.immunodynamics.de.

**Your tasks:**

- Measurement and analysis of liquid chromatographic mass spectrometry (LC-MS/MS) and imaging matrix-associated laser desorption/ionization mass spectrometry (MALDI-MSI) datasets
- Establishment of multiplex IF microscopy staining and automated analysis of microscopic datasets using segmentation algorithms and AI
- Isolation of malignant tissue / cells by an automated laser microdissection workflow for mass spectrometric analysis
- Establishment of bioinformatic algorithms for co-registration of multi-omics approaches, consisting of imaging mass spectrometry and microscopic data sets
- Integrative analysis of MS datasets through multivariate analyses, dimensionality reduction, Pathway, Enrichment and signaling analysis

- Establishment of new machine learning algorithms to identify patterns in mass spectrometry and microscopy datasets
- Support of the "Single-cell and spatial multi-omics" research group with supervision of undergraduate students and PhD students

**Your profile:**
- Doctorate in natural sciences in Chemistry, Physics, Molecular Biology, Biomedicine, Biology or comparable study programs
- Excellent knowledge on mass spectrometry
- You work independently on your own responsibility and reliably
- You are flexible, committed and a team player
- You have very good computer and English skills

Desirable knowledge and skills that will be developed as part of the job:
- Expertise in mass spectrometry, bioinformatics, microscopy and systems biology.
- Analysis of microscopic and mass spectrometric datasets.
- Integrative analyses via systems biology and pathway analyses
- Machine learning algorithms
- Softwares / Languages / Applications: Python, Cytoscape, ScilsLab, DAVID, String, GSEA.

Cooperation in the case of secondary employment is governed by the university secondary employment ordinance of the State of North Rhine-Westphalia. Severely handicapped applicants and persons of equal standing in the sense of § 2 para. 3 SGB IX will be given preferential consideration in the case of equal suitability.

Please send your detailed application documents to:


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