

For the Center of Magnetic Resonance in the new Cluster of CARDiovascular Research in DIABetes (CARDDIAB) at Heinrich Heine University we are announcing

4 Postdoctoral Positions in Advanced MRI (m/f/d), full-time, initially limited for 5 years

This is a qualification position within the definition of the "Wissenschaftszeitvertragsgesetz" (WissZeitVG according to § 2 para. 1).

We offer a platform with four high-end magnetic resonance imaging (MRI) scanners (one 3T, one 7T MRI and two 9.4T small animal scanners) and hyperpolarizers (clinical and preclinical) for translational research projects from transgenic mouse models to large animals and humans. To this end, methods and protocols have to be tailored and continuously developed. In addition to comprehensive cardiovascular characterization, this includes the examination of liver, skeletal muscle, fatty tissue, bone marrow, etc. Alongside classical anatomical and morphological imaging (^1H), molecular and metabolic imaging methods will be applied across all organs and species. The aim is to visualize and quantify the intertwined immunometabolic processes during development of cardiometabolic diseases for identification of new therapeutic targets. For this, both rapid reaction kinetics (^{13}C hyperpolarization) and long-term monitoring of metabolic processes (^2H , ^{31}P and normal ^{13}C) will be applied. The already available preclinical immune cell tracking platform (^{19}F) is to be extended to further subpopulations and for theranostics.

For this purpose, we are looking for scientists for each of the following focus areas:

- 1. MR of metabolic processes** in liver, skeletal muscle, adipose tissue and bone marrow using established standard MRS techniques and newly developed methods on clinical and preclinical scanners. The focus here will be on spectroscopic (editing) sequences (^1H , ^2H , ^{13}C , ^{31}P) as well as tissue characterization by CEST.
- 2. MR of the cardiovascular system** coping with cardiac and respiratory motion. This includes new sequences for the visualization of structure and function (fast sequences, mapping, CEST) as well as spectroscopic sequences (^1H , ^2H , ^{13}C , ^{31}P).
- 3. Development of new MR contrast agents** for human and preclinical applications. This also includes contrast agents using heteronuclei such as ^{19}F or ^{31}P for the background-free detection of immunothrombotic processes and their further development for theranostic applications. Furthermore, additional samples for molecular imaging and tissue characterization using CEST will be developed here.
- 4. Setup and development of human and preclinical hyperpolarization.** This includes the initial implementation of the hyperpolarizers and the setup of acquisition techniques as well as post-processing pipelines on all platforms. In the long term, new substrates for hyperpolarization will be identified (beyond pyruvate) as well as other X nuclei (^{31}P , ^{19}F).

What do we expect?

- University degree in the natural sciences or engineering
- PhD related to the advertised areas of responsibility

Which additional skills do you need?

- Enthusiasm for new tasks
- Ability to work on complex problems in a goal- and solution-oriented manner
- Adequate communication skills
- Very good oral and written communication skills in English and preferably also in German

What do we offer?

You can expect a range of varied tasks with a great deal of freedom in a creative and dynamic team with performance-based salary according to TVL E13. We offer you exciting opportunities for scientific cooperation and the initiation of new projects. Our common aim is to raise Cardiometabolic MRI within CARDDIAB to the next level and to unveil new horizons at the interface of cardiovascular and diabetes/metabolic research. Habilitation opportunities are available.

For any questions regarding the job profile, please contact Prof. Dr. Flögel (phone: +49 (0)211-81 10187; e-mail: floegel@uni-duesseldorf.de).

The employment contract will be concluded with Heinrich-Heine-University Düsseldorf.

With around 8,000 employees, Düsseldorf University Hospital is one of the largest employers in Düsseldorf. Patients are treated on an interdisciplinary basis and according to the latest scientific findings. This is guaranteed by the close integration of patient care with research and teaching at the Faculty of Medicine. To ensure constant progress, we need your expertise and enthusiasm. We offer you a diverse working environment and many opportunities for professional development.

The Faculty of Medicine at Heinrich Heine University Düsseldorf is a top center for research-based medicine. Its projects and alliances in basic and clinical research are funded by the German Research Foundation, the state and federal ministries and the EU, among others.

The Heinrich Heine University Düsseldorf aims to increase the proportion of women. Applications from women with equal aptitude, qualifications and professional performance will therefore be given preferential consideration, unless reasons relating to the person of a competitor prevail. Heinrich-Heine- University upholds the principle of excellence through diversity. It has signed the "Diversity Charter" and successfully participated in the Stifterverband's "Shaping Diversity" audit. It is certified as a family-friendly university and has set itself the goal of promoting the diversity of its employees. Applications from suitable severely disabled persons and persons with equivalent disabilities within the meaning of SGB IX are desired.

Have we sparked your interest?

Then we look forward to receiving your detailed application with the usual documents within four weeks of this advertisement appearing, preferably by email, with the reference number **477E/25** to the following address:

bewerbungen@med.uni-duesseldorf.de

or

Universitätsklinikum Düsseldorf

D 01.2.1 – Kennziffer: 477E/25

Moorenstr. 5, 40225 Düsseldorf

By submitting your application documents, you agree that they become the property of Düsseldorf University Hospital and will not be returned for cost reasons.