

WUERZBURG

Institutions

The Comprehensive Heart Failure Center (CHFC) at the University of Würzburg and the University Hospital Würzburg is an integrated research and treatment center supported by the German Ministry of Education and Research (BMBF) since 2010. In a highly interdisciplinary approach basic, translational, and clinical researchers provide innovative patient care and foster basic research in the field of heart failure. The unique assembly of highly innovative cardiac imaging technologies available at the CHFC, and the accumulated wide spectrum of clinical imaging expertise aims to understand, diagnose, and monitor the development and progression of heart failure.

Principal Investigators



Laura Schreiber



Ulrike Lüken



Martin Lauer



Maxim Traubner



Maria Stiefinger

7T equipment

Hardware Whole body 7 T MR (Siemens Magnetom Terra), MRITools Cardiac Coil (1Tx / 32 Rx), Nova Head Coil (8 Tx / 32 Rx), RapidBiomedical Cardiac pTx-Coil (8Tx 116 Rx)

Operational since 2017

Other equipment

Several clinical MRI-scanners (Magnetom Avanto 1.5 T; Magnetom Prisma 3 T; Philips Achieva 1.5T)

Several experimental and small-animal MRI-scanners (7 T; 11.7 T; 17.6 T)*;

*= research only

7T Methods (as relevant for EUFIND)

Acquisition

- Available acquisition and evaluation packages:
 - Neuro Perfusion Evaluation MRWP
 - DTI Evaluation / Tractography syngo MRWP
 - BOLD 3D Evaluation MRWP / 3D Evaluation processing and visualization package
 - Comprehensive Spectroscopy package
 - High resolution morphologic MRI incl volumetrics
 - Task-fMRI & resting state fMRI, HR fMRI
 - QSM

Analysis

- Automated brain segmentation, morphometry analysis
- High-resolution functional parcellation
- fMRI hyperalignment
- High precision co-registration, movement correction, distortion correction
- functional connectivity using resting-state fMRI data
- multivariate pattern analysis (MVPA)
- Arterial spin labeling analysis and CFD simulation of blood flow in brain and coronary arteries

Research in neurodegeneration

Clinical and basic research topics

MRI/7T methodology and bio-medical imaging of the heart and brain

(f)MRI, PD, AD, deep brain stim, neuropsychology, apathy

Cohorts

- Healthy controls
- Preclinical Alzheimer Disease (AD)
- AD, Parkinson's Disease (PD)

Ethics Procedures

Approval for volunteers in place (age 18 to 65). Older populations and patients require additional ethics. Can be amended to include new sequences or inclusion/exclusion criteria.