

List of services provided by the Department of Neuroradiology

Computed Tomography(CT)

of brain, spine, head&neck, CT-guided biopsies and perineural infiltration

Magnetic Resonance Imaging (MRI)

of brain, spine, head&neck, including special techniques, e.g. MR spectroscopy, functional MRI, MR angiography, MRI of neuromuscular disorders and MR neurography, foetal MRI

Neurovascular Surgery

Including diagnostic intraarterial angiography, treatment of aneurysms (coiling/flow diverter), treatment of extracranial and intracranial stenoses (stent angioplasty), treatment of arterio-venous malformations of the brain and spine, treatment of vascular malformations of the head and neck

For all services

Appointments via telephone: ++49 (0)6221 / 56 3 80 31

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Imaging Facilities

MRI scanners:

- › Siemens Trio (3 Tesla) for clinical neuroradiology
- › Siemens Verio (3 Tesla) for clinical neuroradiology
- › Siemens Trio (3 Tesla) research scanner
- › Siemens Espree (1.5 Tesla), intraoperative imaging
- › Siemens Magnetom Avanto (1.5 Tesla), in collaboration with the Department of Paediatric Radiology
- › Siemens Verio (3 Tesla), orthopaedic imaging in collaboration with the Department of Diagnostic Radiology
- › Siemens Trio (3 Tesla), dedicated clinical research scanner
- › Bruker Biospec (9.4 Tesla), dedicated experimental research scanner

CT scanners:

- › Siemens Somatom Sensation 16
- › intraoperative CT

Dual plane digital Angiography:

- › Siemens Axiom Artis Zee



UniversitätsKlinikum Heidelberg

Department of Neuroradiology Heidelberg



The Department of Neuroradiology offers a wide range of diagnostic and therapeutic procedures related to the central nervous system, the head and neck region, the spine and peripheral nervous system. The department provides state-of-the-art technical equipment including a multislice CT scanner (Siemens Sensation), a biplane flat-panel 3D volume digital neuroangiography system (Siemens Axiom Artis Zee), and two clinical high field (3T) MRI scanners (Siemens Trio and Verio). Intraoperative imaging is provided by a 1.5-tesla MRI scanner (Siemens Espree) and a CT scanner (Siemens Emotion). In addition, a dedicated paediatric neuroradiology service is provided at the University's Children's Hospital (Siemens Avanto). The Department of Neuroradiology also provides diagnostic service for the Department of Orthopaedics and Paraplegiology (Siemens Verio) in collaboration with the Department of Diagnostic Radiology. For research applications, a dedicated clinical MR scanner at 3T (Siemens Trio) and an experimental scanner at 9.4 T (Bruker) is available.

Each year more than 25,000 imaging studies (15,000 CT and 12,000 MRI) and about 1,050 angiographic procedures are performed in the Department of Neuroradiology.

We offer specialized services in the following areas

- › stroke imaging
- › brain tumour imaging
- › imaging of inflammatory CNS diseases
- › diagnostic imaging of peripheral nerve and neuromuscular disease (MR neurography)
- › head and neck imaging
- › angiography and interventional neuroradiology
- › paediatric neuroradiology
- › foetal MRI

Research

The Department of Neuroradiology maintains an active research program, dedicated to the development of innovative technologies and their clinical application with the aim of improving patient diagnosis and treatment. MR research projects include perfusion measurements, imaging of fibre tracts and connectivity of central and peripheral nervous system, functional MRI, and MR spectroscopy. Ongoing clinical research projects evaluate imaging of brain tumours, stroke, multiple sclerosis, peripheral nerves, and subarachnoid haemorrhage. Current projects in interventional neuroradiology focus on the endovascular treatment of acute stroke, intracranial stenoses and aneurysms (e.g. stent-assisted coiling, flow diverting stents). The Department of Neuroradiology is the central study coordinator for multicentre studies on brain tumors, stroke, and multiple sclerosis. For brain tumors, it is the reference centre for the German Glioma Network and part of the steering committee of the European Organisation for Research and Treatment of Cancer (EORTC). Clinical studies are coordinated by a full time study nurse.

Further information on the Department of Neuroradiology is provided on our homepage at www.klinikum.uni-heidelberg.de/neuroradiologie

Subspecialities

1. **Interventional Neuroradiology, Head:** **Dr. Markus Möhlenbruch**

Research projects on diagnosis and treatment of neurovascular disorders, in particular further development of endovascular therapy of acute stroke patients, intracranial stenosis, and cerebral aneurysms.

2. **Experimental Radiology, Head:** **Prof. Dr. rer. nat. Sabine Heiland**

Development and application of quantitative, dynamic and functional techniques, in particular of diffusion techniques (diffusion tensor imaging, thermography), perfusion MRI, and MR relaxometry.

3. **Neuroimaging and Neurofunctional Imaging:** **Dr. med. A. Bartsch**

Multimodal integration of morphological and functional imaging is the basis of improving our understanding of normal and pathological neurofunction.

4. **Head and Neck Imaging: Dr. med. Chiara Gaudino**

Current projects are concerned with innovative imaging techniques of the tissues investing the teeth and of head and neck tumours (tumour perfusion) as well as further developing the interventional treatment of head and neck tumours. There is clinical and research collaboration with the ENT Department and the Department of Orofacial Surgery.

5. **Diagnostic imaging of peripheral nerve and neuromuscular disease: Dr. med. M. Pham**

The department offers high-resolution large coverage diagnostic imaging procedures of the peripheral nervous system. Clinical indications for MR Neurography imaging include suspected plexus neuropathy, precise and comprehensive lesion localization before surgical exploration, and inflammatory neuropathies. Further information on MR-neurography is provided at <http://www.mr-neurographie.de/>

6. **Pediatric neuroradiology: Dr. med. Angelika Seitz**

Dedicated neuroimaging in children with a special expertise in metabolic disorders, brain tumors and developmental disorders.