

## Details

### Super-Resolution Confocal/Multiphoton Imaging for Multi-parametric Experimental Designs (SCI-MED)

The Super-Resolution Confocal/Multiphoton Imaging facility for Multi-parametric Experimental Designs (SCI-MED) was established at the Institute for Experimental Cardiovascular Medicine (IEKM) with the principal purpose of supporting experimental cardiovascular research in Freiburg. SCI-MED is also available for use by researchers from across the Medical Faculty, the wider University, and external collaborators. SCI-MED offers access to high resolution optical imaging for studying live-cell and -tissue samples. The facility is conceptualized especially for experiments with complex multi-parametric designs and it will cater specifically for the needs of those who wish to perform high resolution structure-function studies by combining 3D imaging with complex project-specific peripheral equipment for biophysical parameter control and observation, such as patch clamp, carbon fibre cell length-control, Langendorff perfusion, to name but a few examples. SCI-MED operates one inverted confocal microscope, one upright confocal/multiphoton microscope, and a dedicated image analysis workstation. The microscopes achieve sub-micrometre-resolution and provide the possibility to obtain deconvolution-based super-resolution or to measure fluorescence lifetimes. These systems are administered by a highly experienced facility manager.

**Address:** Elsässerstr. 4C  
79110 Freiburg  
Baden-Württemberg  
Deutschland  
[To website](#)

## Host Institution

**Albert-Ludwigs Universität Freiburg, Universitätsklinik, Medizinische Fakultät**  
Breisacher Straße 153  
79110 Freiburg  
Baden-Württemberg  
Deutschland  
<https://www.med.uni-freiburg.de/>  
**Universitäts-Herzzentrum Freiburg – Bad Krozingen**  
Hugstetter Straße 55  
79106 Freiburg  
Baden-Württemberg  
Deutschland  
<http://www.herzzentrum.de/de.html>

## Scientific Domain

**Primary Subjects:**

- Biology
- Medicine

**Secondary Subjects:**

- Physics

## Category

Biomedical Imaging Facilities

## Scientific Services

The SCI-MED facility offers services for scientific enquiries in live-cell and -tissue imaging: in advance discussion of planned microscopy experiments (optimal method, sample preparation, choice of adequate fluorophores, lasers, filters etc.); basic practical introduction to the confocal or the multiphoton microscope; assistance/supervision in high-end-microscopy (e.g. FLIM, super-resolution); if required: support in optimizing experimental protocols and preparations; assistance in use of image processing software and algorithms; planning, installation and eventually performance of multi-parametric experiments (e.g. combination patch clamp / confocal); technical maintenance;

scheduling and organization, invoicing; organization of workshops and training programmes; development and implementation of novel techniques, implementation of research projects; coordination with the Life Imaging Center of the University of Freiburg (facility rules, access, charges).

## Scientific Equipment

- Inverted confocal microscope (Leica TCS SP8X)
- Upright confocal/multiphoton microscope (Leica TCS SP8 DIVE)
- Image analysis workstation

## Keywords

- Confocal microscopy
- Multiphoton microscopy
- Multi-parametric experiments
- Optogenetics
- FLIM
- Second-harmonic-generation imaging
- Super-resolution

## Networks

**Microscopy and Image Analysis Platform Freiburg (MIAP-Freiburg)**

<https://miap.eu/>

## Users per annum

**Internal Users:** 30

**External Users in total:**

**External Users:**

**External Users in the EU:**

**External Users outside of EU:**