

Technology

Platforms

University of Zurich

Schlieren Campus

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Strategic Research Platforms



University of
Zurich ^{UZH}

ZMB

Center for Microscopy and Image Analysis

Services

- Fluorescence and brightfield slide scanning
- Fluorescence and brightfield microscopy
- High content screening
- Single-point and spinning-disk confocal laser scanning microscopy
- Fluorescence lifetime imaging
- Light-sheet microscopy for small model organisms and large, cleared samples
- Multiphoton microscopy
- Transmission electron microscopy including element analysis
- Scanning electron microscopy including element analysis
- Focused ion beam scanning electron microscopy at cryo and ambient temperatures
- Array tomography
- Cryo-transmission electron microscopy for single particle analysis and tomography
- Sample preparation for electron microscopy
- Data and image processing
- Teaching microscopy and image processing

Location

- Irchel Campus
- VetSuisse Campus
- City Campus
- UniversityHospital Zurich
- **Schlieren Campus**
- Balgrist University Hospital

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Details

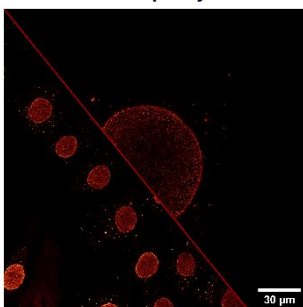
www.zmb.uzh.ch



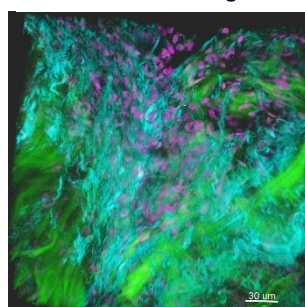
About

The Center for Microscopy and Image Analysis is an open imaging core facility of the University of Zurich committed to cutting-edge microscopy supporting life science research. The center operates microscopy-related resources. More than 40 advanced light and electron microscopy systems cover multiple scales from structural imaging at the molecular level and 3D electron microscopy to 3D light microscopy and live imaging. Data storage and processing is integrated into the imaging workflows.

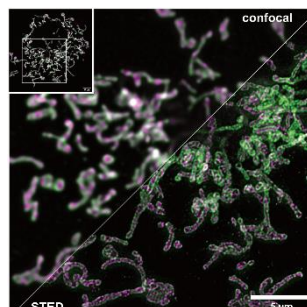
In collaboration with UZH research groups, we support microscopy and imaging-related projects with sample preparation and electron and light microscopy. Teaching of basic and advanced microscopy is carried out on practical courses as well as lectures. In order to use any of our microscopy systems, users are trained individually with a special focus on research projects.



3D rendering of mouse bladder tissue. Multiphoton microscopy allows visualization of collagen.

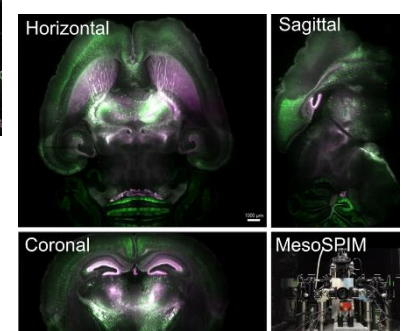


Expansion microscopy (ExM) isotropically expand the sample by 4.5 times or more in volume. ExM enables super-resolution imaging of fixed samples at the nanoscale on conventional microscopes.



Deconvolved confocal vs STED image of a Cos-7 cell labelled for the outer-mitochondrial membrane (green) and ATPsynthase (magenta).

Isotropic imaging of a cleared mouse brain expressing RFP or EGFP under the Cbh promoter. Scale: 1000 um. Sample courtesy Dr. Desirée Bock, Institute of Pharmacology, UZH.



CF

Cytometry Facility

Services

- High-speed cell sorting
- High-parameter flow cytometry analysis
- Imaging flow cytometry
- Small particle flow cytometry
- Single cell analysis
- Mass cytometry
- Support with data analysis

Location

Cytometry Facility
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Details

www.cytometry.uzh.ch



About

The Cytometry Facility at the University of Zurich provides access to state-of-the-art flow cytometry equipment. Staff scientists offer a wide range of flow cytometry techniques on high-end instrumentation. With our expertise, we advise researchers on experiment planning, data acquisition, and data analysis involving high-parameter, high-speed cell sorting, imaging, mass, and small particle cytometry.

The Cytometry Facility is open to all researchers at the University of Zurich, the University Hospitals, members of ETH Zurich, and other academic institutions as well as to startups from UZH and life science companies.

Users of the Cytometry Facility are trained on our instruments and the latest opportunities offered by cytometry technology and analysis.

In addition, we teach the fundamentals of flow cytometry on regular beginner and advanced flow cytometry courses and offer seminars on relevant topics and new technological developments on a regular basis.

We offer our services at four locations: Irchel Campus (main site), **Schlieren Campus**, UniversityHospital Zurich. Campus Lengg

IPSCore

Induced Pluripotent Stem Cell Core Facility

Services

- Isolation and banking of primary cells; mycoplasma testing
- Reprogramming cells to stem cells (non-integrating system (Sendai virus), lentivirus available upon request)
- Cell expansion and biobanking of reprogrammed cells
- Quality control of human iPSC (hiPSC; characterization at protein and RNA level, in vitro differentiation, karyotyping, teratoma)
- Differentiation into iPSC-derived cells, such as cardiomyocytes, macrophages, and neurons

Location

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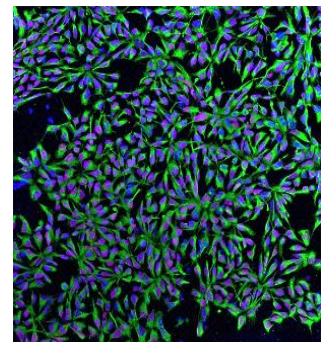
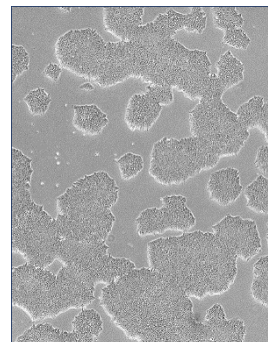
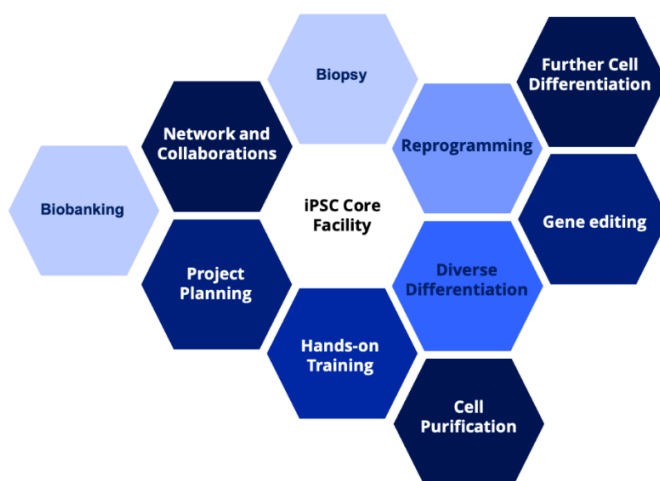
Details

www.irem.uzh.ch/en/clinic/iPSCore



About

The discovery of iPSC technology (induced Pluripotent Stem Cells) has opened up unprecedented opportunities in regenerative medicine, disease modelling, and drug discovery. The mission of iPSCore is to support basic and translational research by facilitating all aspects of iPSC technology including the derivation, differentiation, and distribution of human iPSC lines. The iPSC Core Facility provides service packages designed to cater to all steps of human iPSC cell line derivation, including establishment of primary cell cultures from biopsies, reprogramming of primary somatic cells, and analyses of the resulting cell lines to ensure high quality. The selection of derivation services is designed to provide optimal solutions for specific types of cells and at a range of costs. Notably, we provide a forum to disseminate state-of-the-art iPSC research, build relationships with one another, and renew and establish collaborations and strategies. This facility connects researchers from UZH, Zurich, and beyond. The iPSCore facility is located at the Institute for Regenerative Medicine (IREM) in Schlieren.



PET/MR

PET/MR Center Clinic for Nuclear Medicine USZ

Services

- Multimodal brain imaging
- Multimodal heart imaging
- Multimodal oncological imaging
- Simultaneous PET and MRI measurements
- Resting state fMRI
- Spectroscopy
- MR research sequences
- Quantification of positron emission tomography

Location

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Details

www.usz.ch/en/clinic/nuclear-medicine/research/



About

The Nuclear Medicine Department at UniversityHospital Zurich (USZ) is an internationally renowned center for molecular and hybrid imaging. We have a well-developed infrastructure at our two locations, Campus Rämistrasse and Wagi-Areal **Schlieren**.

Traditionally, our focus is on so-called hybrid imaging. This procedure combines two or more technologies to visualize the body or individual organs. This allows us, for example, to display both the anatomy and the function of an organ or tumor at the same time. In this way, we can comprehensively and profoundly examine the structure and function of human bodies and clinical cases.

For the multifaceted molecular imaging that we use in diagnosis and in research, we produce the radiopharmaceutical substances in our own radiopharmacy or in collaboration with ETH and the Paul Scherrer Institute.

Since 2013, a PET/MRI scanner has also been available for research purposes on the **Schlieren campus**. The device enables time-of-flight positron emission tomography (PET) imaging to be performed with simultaneous magnetic resonance imaging (MRI).

All MRI imaging options are available with the exception of visual stimulation during fMRI recordings. This setup is only installed on the Premier MRI device at Wagi-Areal.

