

Microscopy Imaging Center (MIC)



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Representative of the Medical Faculty



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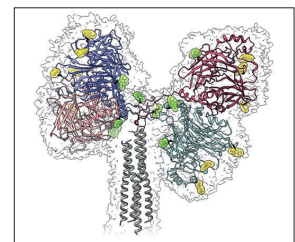
The Microscopy Imaging Center MIC disseminates expert knowledge and provides technical support in high-end microscopy. It implements new technologies, administers the MIC instrument portfolio, and ensures central access to equipment. It teaches at Master's and PhD levels and offers training for scientific staff at all levels.

Highlight Medical Faculty

Using cryo-electron microscopy (cryo-EM) and single-particle 3D reconstruction, Dimitrios Fotiadis and colleagues revealed the structure and organization of the tetrameric H-protein ectodomain of the canine distemper virus (CDV), which is a key component of the morbilliviral cell entry system. This cryo-EM structure lays the ground for developing novel antiviral drugs by structure-based drug design.



[Kalbermatter et al., Proc Natl Acad Sci U S A, 2023.](#)



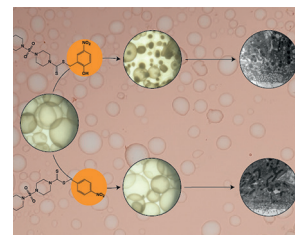
Cryo-EM unveils the structure and supramolecular organization of the CDV attachment glycoprotein

Highlight Vetsuisse Faculty

At the Institute of Parasitology, Marc Kaethner, Andrew Hemphill, Britta Lundström-Stadelmann and colleagues have analyzed structure-activity relationships (SAR) of dithiocarbamate derivatives against *Echinococcus multilocularis* metacystode vesicles. Light microscopy, transmission electron microscopy and *in vitro* assays showed a S-2-hydroxy-5-nitro benzyl residue to be crucial for anti-parasitic activity and structurally altered mitochondria.



[Kaethner et al., Trop Med Infect Dis., 2023.](#)



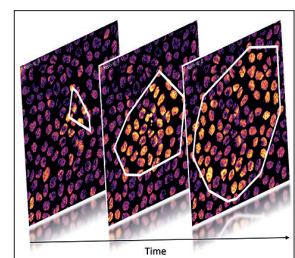
SAR of dithiocarbamate derivatives on *E. multilocularis* metacystodes vesicles

Highlight Science Faculty

Paolo Gagliardi, Maciej Dobrzynski, Olivier Pertz and colleagues from the Institute of Cell Biology developed a computational method called ARCOS to describe mitogenic signaling patterns that propagate differently between cells with different oncogenic mutations, from isolated „fireworks“ to large, migratory waves of activity. Using ARCOS, they have determined how cells communicate in epithelial tissue and how signaling propagates in 3D organoids. R and Python packages as well as a Napari plugin for graphical interaction with ARCOS round off this research in the field of bioimage analysis.



[Gagliardi et al. J Cell Biol., 2023.](#)



Collective Signalling in epithelial cells.

MIC Symposium 2023

On November 17, 2023, the traditional MIC Symposium took place under the motto „New Trends in Microscopy“. The excellent selection of speakers attracted over 200 participants. The topics „Mesoscale Imaging“, „Spatial Omics“ and „Super Resolution and Expansion Microscopy“ were discussed in three sessions. The lecture by Nobel Prize winner Stefan Hell and all the other inspiring speeches made the MIC Symposium 2023 a particularly impressive event.

