

## Focal Area of Research in Oncology



## Helmut Gehart

*Assistant Professor for Tumor and Stem Cell Dynamics at the  
Institute of Molecular Health Sciences of ETH Zurich*

### “Colorectal cancer heterogeneity – the dark side of plasticity”

The Tumor and Stem Cell Dynamics team is interested in applying the principles learned from adult stem cell biology to understand how cell state change and plasticity contribute to disease progression in cancer. The Gehart group utilizes organoid technology, mouse models and purpose-built reporter systems to understand the drivers of fate change within cells and in their microenvironment. This led to the development of new technologies, such as EnviroTag, a high sensitivity niche labeling method that enabled the study of co-evolution of metastatic colorectal cancer cells and their microenvironment from the point of extravasation of individual cells in the liver. This detailed interaction map revealed Kupffer cells as central architects of TME development, whose initial response has long-term consequences for the development of metastatic immunosuppression. Furthermore, the team is applying its knowledge to build new organoid systems and organoid-based assays to enable application of organoid technology for personalized medicine. For example, the team recently developed an organoid system for pleural mesothelioma and demonstrated its utility for drug testing and evaluation of personalized treatment options.



**Tuesday May 26 at 12:30**



**Seminar room - ZLF, Hebelstrasse 20, 4031 Basel**

# FARO

**Sandwiches**

Co-chairs: Petya Apostolova & Momo Bentires-Alj