

Analysis of liquid-liquid phase separation (LLPS) by Laser Scanning (LSM) and Super-Resolution Structured Illumination Microscopy (SR-SIM)

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This module will give an introduction into the analysis of liquid-liquid phase separation and liquid-solid phase transition via different complementary microscopy methodologies, including LSM and SR-SIM. LSM will be introduced as a method to investigate fast and dynamic processes in the formation of liquid droplets and their transition into gel-like or aggregated states *in vitro* and in live-cell imaging. SR-SIM is a technology to break the diffraction barrier of laser-based fluorescent microscopy and allows the analysis of protein assemblies with a resolution of approximately 70 nm.

This module will include the super-resolution image acquisition of biomolecular condensates *in vitro* and *in cellulo*. In addition, an introduction to Imaris™ will be given, which is a scientific image analysis software that provides a unique toolset for visualization, analysis, segmentation and interpretation of 3D and 4D microscopy datasets.