CARL ZEISS MICROSCOPY

Imaging and Analysis of 3D cell cultures using ZEISS microscope systems and Arivis

Speakers:

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Abstract:

The acquisition of three-dimensional cell cultures like organoids, spheroids, and organ-on-a-chip designs can be particularly challenging. Not only are the biological specimens themselves often quite large (up to several mm) and sometimes optically very dense. Imaging is further hampered by opaque embedding media and scaffolds or by optically inaccessible chip designs. In the first part of this workshop, we will talk about these challenges and have a look at some of the imaging technologies that ZEISS Microscopy has to offer – like classical point scanning, the new lattice lightsheet and automation.

But imaging is only one part of the complete workflow when working with 3D cell cultures – the next crucial step is the image analysis to get meaningful answers to your scientific questions out of your image data sets. Analyzing 3D data sets comes with its own set of challenges. Raw data that often is 10 to 100 times larger requires software solutions optimized for large data that enable easy, correct, and robust image analysis. The Arivis suite of software solutions handles large data sets, extracts meaningful data easily and fast and allows automation and upscaling to standard operating procedures. In the second part of our workshop, we will talk about the capabilities of Arivis in the light of 3D cell culture image analysis and present examples highlighting the power of this software.