

Imaging of spheroids and organoids using high-content screening and light-sheet microscopy

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In this workshop, we will focus on high-content screening and light-sheet imaging for 3D cell models such as spheroids and organoids. We will discuss the technology, optomechanical design, and imaging applications of the Acquirer IM automated microscopy platform and the Luxendo TruLive 3D Imager light sheet microscope. On site, we will demonstrate the Acquirer IM, and participants will also have the opportunity to see the TruLive 3D Imager at a local installation.

Furthermore, we will illustrate a workflow for identifying and characterizing synergistic effects of drug combinations on pancreatic tumor spheroids. Cancer spheroids generated in ultra-low attachment 96-well plates are treated with different drug concentrations and stained with a caspase activity kit. To assess killing efficiency and overall morphology, spheroids are imaged on the Acquirer IM screening microscope. Promising drug combinations are then further evaluated on the Luxendo TruLive 3D light-sheet microscope, enabling the acquisition of time-lapse datasets with high spatiotemporal resolution for detailed visualization and analysis of drug-induced phenotypes.