

The ACQUIFER IM – Workflows for Automated Imaging, Photomanipulation and High Content Screening

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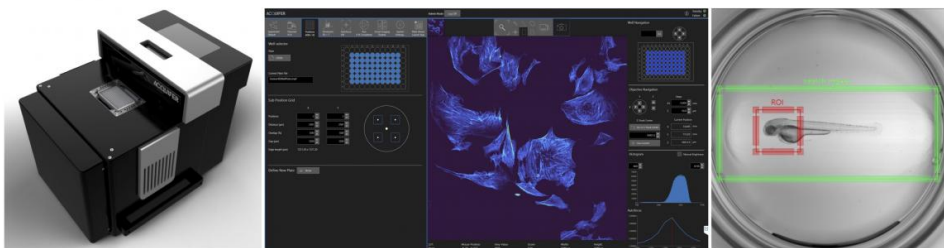
Abstract

The **ACQUIFER IM** (Imaging Machine) is a versatile automated widefield fluorescence microscope for high-content imaging of 2D/3D cell-cultures and small model-organisms. The system features a unique moving optical unit in combination with a static sample holder, rendering it ideal for the imaging of non-adherent and motion-sensitive specimen. For optimal in-vivo time-lapse imaging, the sample chamber is equipped with a highly precise temperature control. Besides its innovative functionalities and ease of use, the **ACQUIFER IM** was designed to support long operating times and extensive experiments, while having lowest maintenance requirements.

The IM control software provides an intuitive interface for non-expert users to easily configure routine imaging and screening protocols. It also enables advanced users to fully customize complex workflows, either via a built-in scripting support or via dedicated extensions for external applications. This open interface can be used for integration in robotic lab setup, or to implement feedback microscopy workflows (e.g., pre-scan/re-scan applications).

The imaging capabilities of the IM are complemented by the ACQUIFER Plate-Viewer, an easy-to-use software for browsing and visualization of large high-content screening datasets, and an interface for supervised feedback microscopy applications.

In this workshop, we will present the unique hardware design of the **ACQUIFER IM** and exemplify automated imaging applications. We will demonstrate our workflow concept for automated imaging, feedback microscopy, High Content Screening and associated software tools. We will also show some applications of the optional laser-module that allows scaling-up of challenging photomanipulation experiments (photodamaging, fluorophore conversion etc).



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