Amplify the power of imaging

KEY WORDS: High Content Screening; HCS A; experiment automation; multiwell screening; stitching; confocal

High content screening is a growing discipline in life science research as the number of complex experiments is increasing and statistically relevant data become a "must" for scientific publications. For this reason Leica developed High Content Screening Automation (HCS A) as a tool to support the researcher's needs, i.e. screening of wellplates, stitiching of single images to one super image of the specimen or finding rare objects and scarce events fully automated. Furthermore, standard applications like counting specific signals or cell types and multidimensional experiments over time can be performed much faster and in a reproducible manner.

Predesigned frequently used types of multiwell plate formats and the Leica scanning template editor allows to adjust various types off well plates, single slides or multi-chambered slides as well as multiple patterns of x, y, z points or switching on/off individual scan field positions. Freely configurable experiment parameters like scan pattern, scan fields or individual z-positions of selected scan fields adopt the instrument intuitively and comfortably to the requirements of high content screening. By remote control of the imaging process with Computer Aided Microscopy (CAM), the detection of rare events like e.g. mitosis phases now are possible. Sophisticated algorithms can analyze images on-the-fly and report the target coordinates to the instrument via the programming interface CAM. Immediately, the pre-scan switches to high-resolution zoom-in mode and starts to image the target cells directly, offering excellent perspectives for a new type of experiments – full automated.

In this workshop we want to present the new released Leica HCS A, to demonstrate new features and to introduce the Computer Aided Microscopy interface which provides "full automated microscopy"

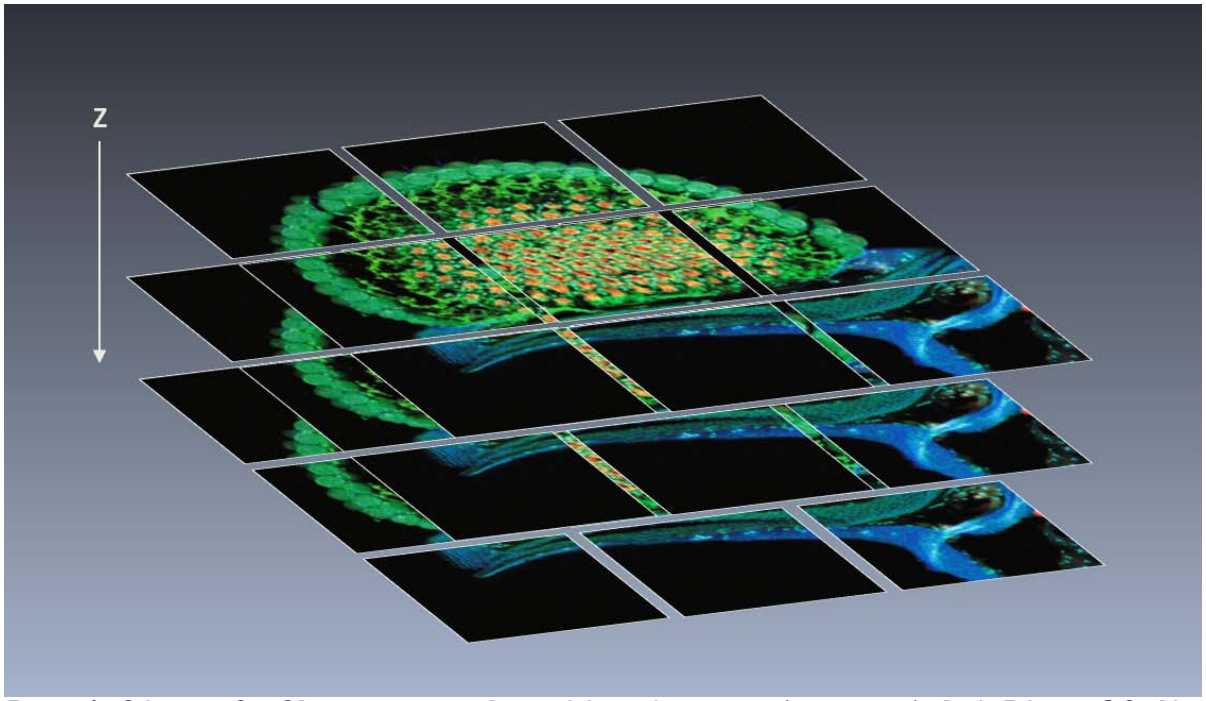

Figure 1: Scheme of a 3D mosaic scan. Drosophila melanogaster (eye section); Red: F-Actin, Cy3; Blue: Nuclei, DAPI; Green: pigmented cells, GFP; Courtesy of Anne Galy, IGBMC, Strasbourg-Illkirch, France.

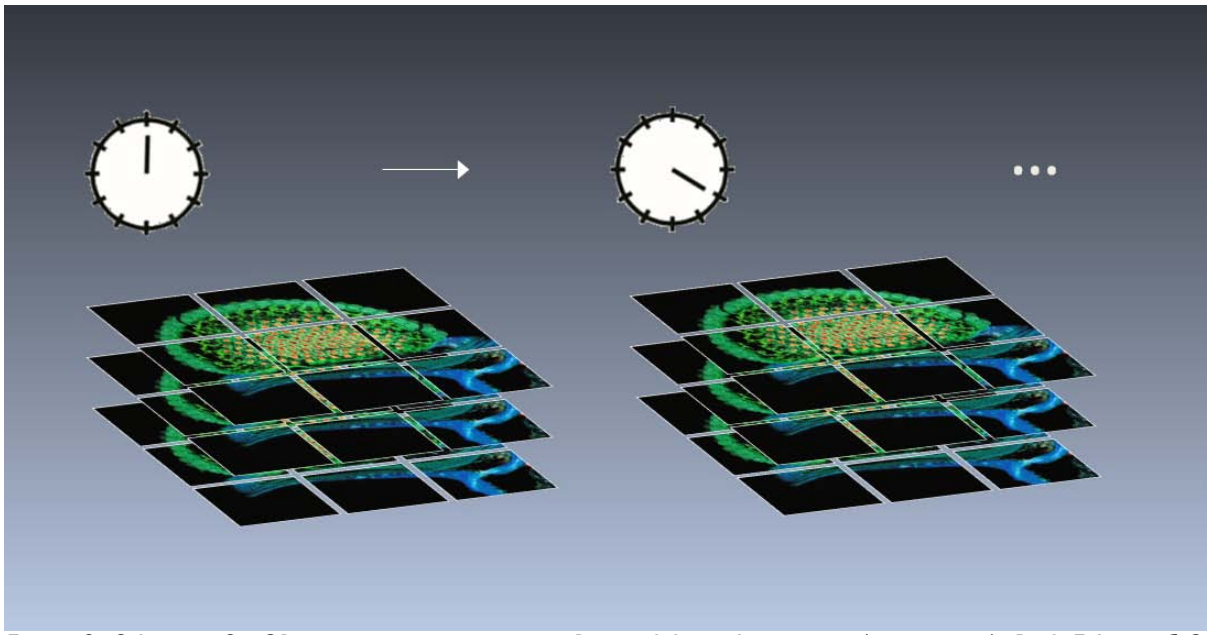

Figure 2: Scheme of a 3D mosaic scan over time. Drosophila melanogaster (eye section); Red: F-Actin, Cy3; Blue: Nuclei, DAPI; Green: pigmented cells, GFP; Courtesy of Anne Galy, IGBMC, Strasbourg-Illkirch, France.