

## **Lightsheet technology from Zeiss for gentle live cell imaging and clearing application of large specimen**

**Xianke Shi**

**ZEISS Research Microscopy Solutions**

**Carl Zeiss Pte. Ltd., 50 Kaki Bukit Place, #05-01**

**Singapore 415926**

**E-mail: [xianke.shi@zeiss.com](mailto:xianke.shi@zeiss.com)**

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Light sheet fluorescence microscopy (LSFM) is specially designed to image fluorescently labelled live 3D samples, as well as optically cleared large tissue/embryo. Unlike conventional epifluorescence microscopy, LSFM splits fluorescence excitation and detection into two separate light paths. It illuminates a single thin section of the sample at a time, generating an inherent optical section. Parallelization of the image collection on a camera-based detector lets you collect images faster, and with much less damaging laser illumination. With LSFM, you can observe your model organism or 3D cell colony as it develops over days with virtually no phototoxicity or bleaching. If you work with fixed samples treated with optical clearing methods, like Clarity and CUBIC, LSFM can also optically adapt to the refractive index, and enables scattering-free structural mapping down to the largest possible working distance of any objective. In this talk, we will discuss the unique features of Zeiss lightsheet technology, including shadow removal pivot scan lightsheet illumination, dual side illumination and fusion, multiview acquisition and registration, adaptation for various refractive indices for clearing application, as well as recent development on extra large specimens.