

Simultaneous multi-color, quantitative and auto-calibrated TIRF imaging with the new Abbelight TIRF solution

M. Fournier¹

¹ Abbelight.

Abstract

TIRF (Total Internal Reflection Microscopy) illumination is often used in biology for cellular membranes studies. It is based on the total internal reflection of the light beam on the microscope slide, which induces the propagation of an evanescent wave through the first hundreds nanometers of the sample. Because of its optical section of few hundreds nanometers, TIRF microscopy allows a higher SNR comparing to classical epifluorescence microscopes techniques. In operation with ultra-fast sCMOS or EMCCD cameras, it provides a good temporal sampling which can be combined with STORM (Stochastic Optical Reconstruction Microscopy) and PALM (Photo-Activated Localization Microscopy) super-resolution techniques for an optimal spatial and temporal dynamic range.

Abbelight is a super-resolution company developing its first TIRF microscopy solution. In this workshop, you can discover our new product : a hardware and software solution that provides an optically perfect TIRF imaging. Adaptable on any combination of microscopes, objectives and third part, our new product guarantees the automatically calibrated and reproducible position of the TIRF angles. Coupled with a multi-color optical module, it offers an optimal and simultaneous imaging of biological structures with the benefits of our ultra widefield ASTER technology.

Schedule

10 min : introduction to TIRF microscopy

15 min : demonstration of the automatic calibration TIRF angles software

15 min : demonstration of our 4 channels detection module alignment and our new image registration software

10 min : Simultaneous multi-color TIRF imaging on cells

10 min : summary and Q&A

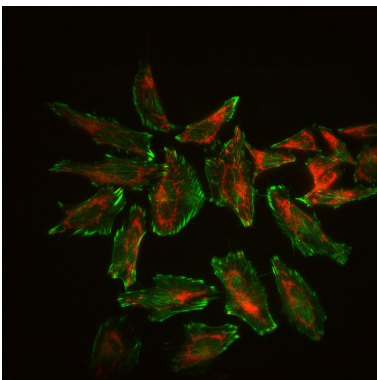


Figure 1 : COS 7 cells (actin labelled with phalloidin-488 and mitochondria labelled with AF-647)