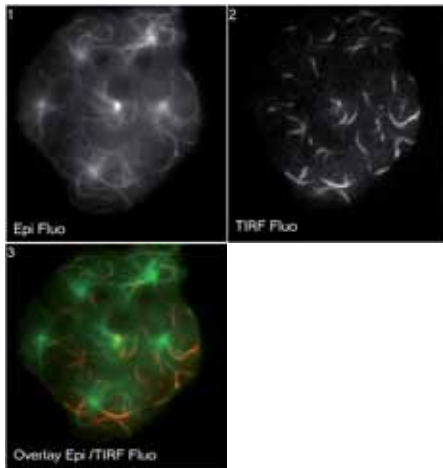


VisiTIRF

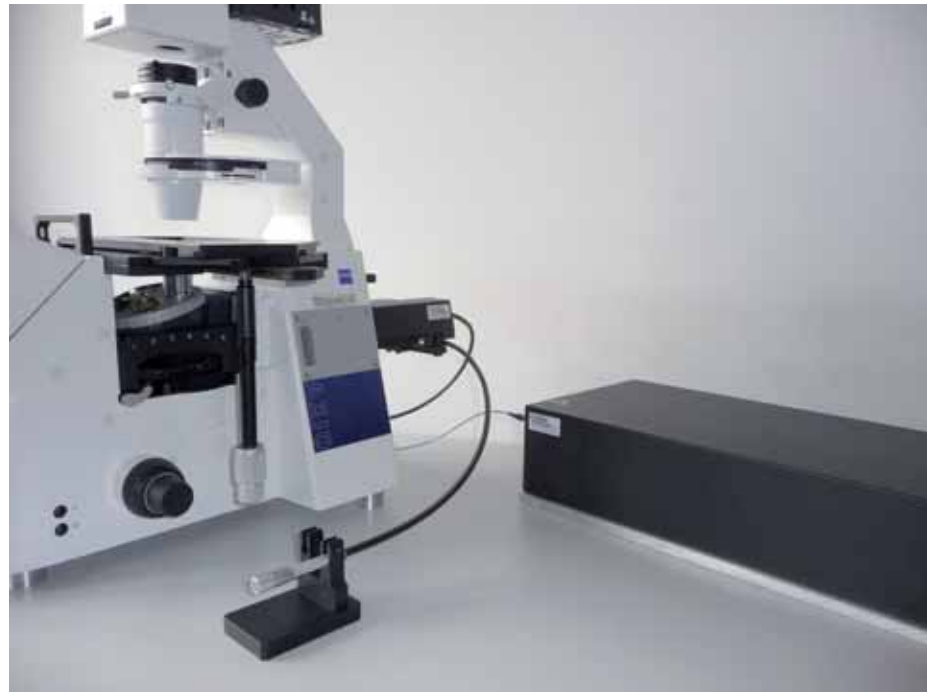
Total Internal Reflection Fluorescence

VisiTIRF Microscopy System

The Total Internal Reflection Fluorescence (TIRF) technique is the ideal method for observations of cells close the coverslip surface. By total reflection of the exciting light (typically laser) at the coverslip / medium interface, the fluorescence excitation is limited to a very thin space in the vicinity of the glass surface. The resulting fluorescence images exhibit extremely high contrast and resolution with the possibility of real-time imaging of cell membrane, actin filament behaviour or single molecule tracking.



Dictyostelium sample with GFP labelled tubulin. Images courtesy of Prof. Gerisch MPI Martinsried.



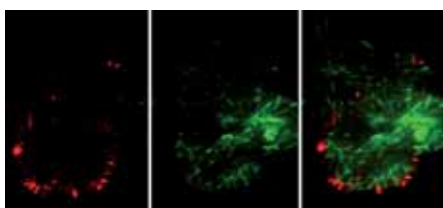
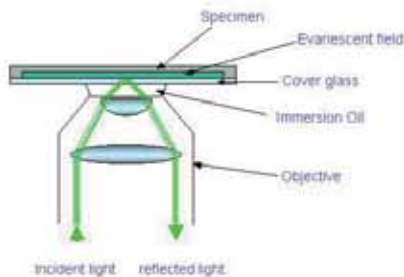
Zeiss Axio-Observer, TIRF condenser with micrometer adjustment and VS-LMS laser system.

The VisiTIRF Optics

Typically, the use of high aperture objectives of more than 1,40 NA e.g. alpha-Plan Fluor 100x NA.1,45 is needed. These objectives are specially designed for TIRF applications.

The laser beam is coupled to the epi fluorescence aperture with a defined angle. Due to that adjustable angle, the laser beam will be totally reflected resulting in an evanescent field located between the cover glass and the specimen.

Only the fluorescent particles near to the cover slip glass with an approximate distance of 60 to 200 nm will be excited. The fluorescent particles of the specimen which are located deeper in the specimen will not be excited and do not emit unwanted light.



EPIchEB3gZyx labeled cells
Images courtesy of Prof. Small IMBA Vienna.

VisiTIRF-mot: motorized Version

The VisiTIRF-mot laser coupling allows both simultaneous and sequential use of TIRF, widefield fluorescence, and transmitted light illumination. The user can activate epi-fluorescence to observe structures deeper than the evanescent field. The laser positioning can be done by a high precision automated stage. The TIRF angle and the adjustment of the required TIRF penetration depth is easily controlled by the VisiView® Imaging Software. For MultiColor-TIRF, the individual laser can be pre-adjusted for an optimal evanescent field.

VisiTIRF

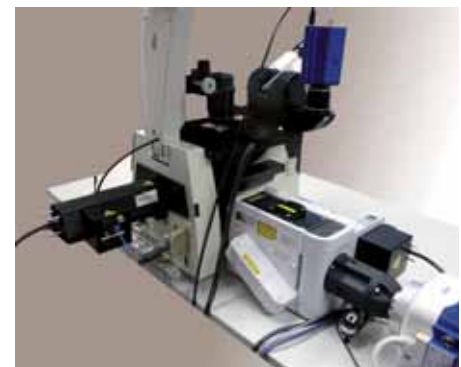
Total Internal Reflection Fluorescence



VisiTIRF-mot condenser for e.g. Zeiss Axio-Observer.



VisiTIRF condenser with Olympus-IX.



VisiTIRF condenser with CSU-X1 and Leica DMI.

Improved Reproducibility

The positioning of the laser, through the VisiView® software, determines the penetration depth and direction of the evanescent field within the specimen. This software control ensures that the parameters can be stored and reproduced.

VisiTIRF

- » Fastest angle change with motorized TIRF condenser
- » Simultaneous multi-wavelength TIRF
- » Flexible VS-LMS multi laser systems 400 - 650 nm
- » Simultaneous epi and TIRF illumination
- » Multiple fiber outputs for confocal, TIRF and FRAP
- » Combination with 1D VisiFRAP optics
- » Support for Zeiss, Olympus, Nikon and Leica microscopes
- » VisiView® software module



VisiTIRF condenser with Nikon-Ti.