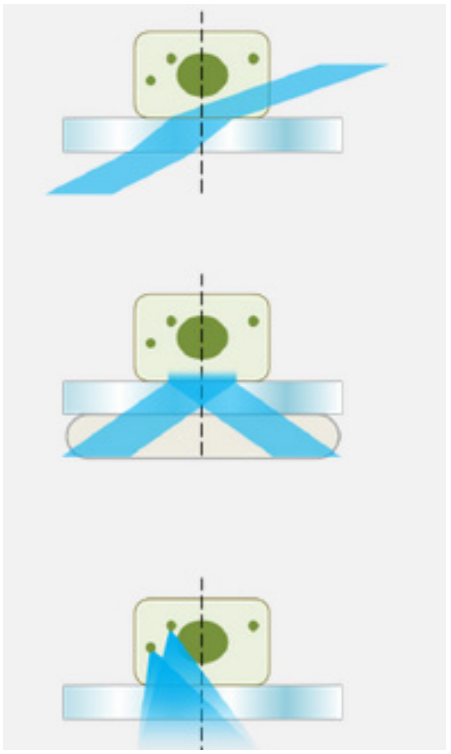
Uniform illumination TIRF

The Gataca Systems classical TIRF systems suffer from non uniform illumination and interference patterns the image. When a laser beam is focussed at the back of an objective and spins to describe a circle, each point of that circle creates a parallel beam which has the same incidence angle onto the coverslip. Thus, in TIRF and for a given wavelength, the evanescent wave resulting from each spot has the same penetration depth. However, interference patterns depend on the azimuth of the beam. Being able to spin the Laser beam very rapidly during the exposure time of the camera will removes fringes or rings patterns.

iLAS-Modulare

360° TIRF
and
FRAP/PA

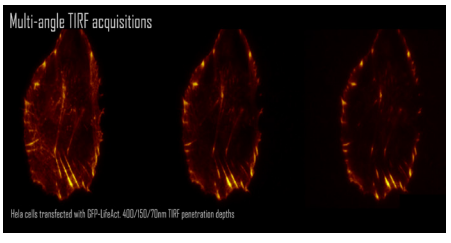
iLAS system with Zeiss Axio-Observer

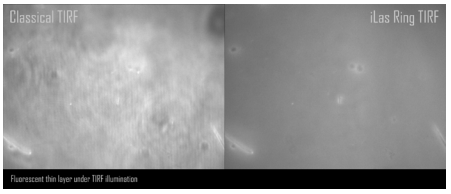


iLas MODULAR

The iLas / MODULAR system is a unique multi-application device that offers complete control over any laser illumination. Its evolutive design allows researchers to choose and simultaneously combine:

- 360° TIRF imaging
- Single molecule imaging
- oblique illumination imaging
- FRAP
- Photo-activation



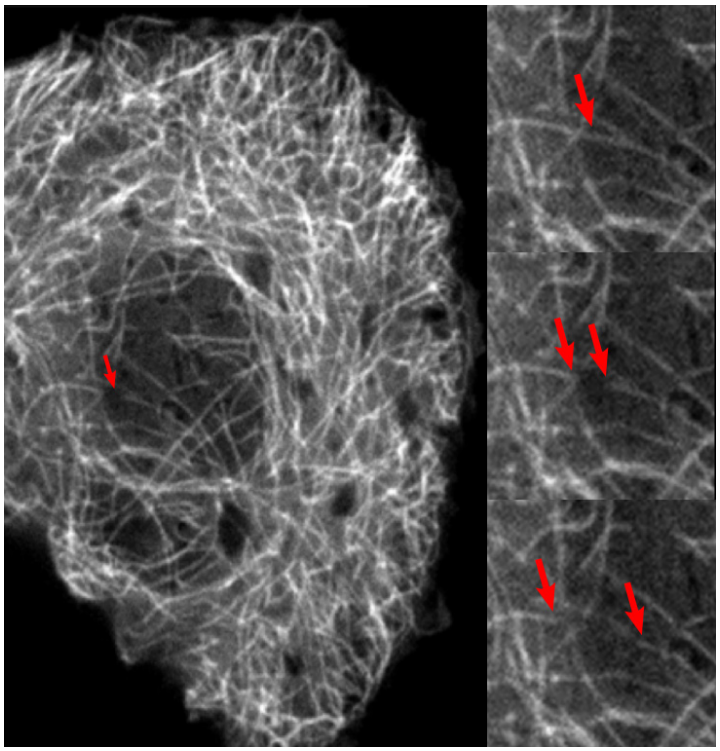


In „spinning“ mode those diffraction rings modulations disappear

iLAS-Modulare
360° TIRF
and
FRAP/PA

FRAP/PA laser illumination

Localized laser action techniques such as Fluorescence Recovery After Photobleaching (FRAP, FLIP), photoactivation, uncaging, photo-ablation are very powerful tools to photo-manipulate tissues or to analyze intracellular dynamics of proteins and other macromolecular complexes. For example, FRAP permits perturbation of the steady state fluorescence distribution by bleaching fluorescence in selected regions. After the bleaching step, researchers can observe and analyze how the fluorescence distribution returns to the same or a different steady state, giving appraisal on the spatiotemporal half life of molecule of interest within one particular site of a living sample.



PA laser illumination

Photo-activation or photo-conversion make use of photo-convertible probes, allowing morphological “pulse and chase” experiments.
The iLas² system provides an easy-to-use interface to manage the lasers, set-up ROIs and plan the experiment. In order to lighten the acquisition process and enhance steering speed, iLas² is driven by its own electronic. Vectorial scanning and live action mode provide the ability to measure the fastest phenomena. The user can bleach fast-moving structures and analyze their recovery as they continue to move with the help of tracking algorithm.