



Leica SD6000

Spinning Disk Confocal

Live Cell Experiments in Real Time –
Confocal, Low-Exposure Imaging

Sharpen Your View With the New Leica SD6000

Progress in life science research demands microscopy systems that offer high flexibility, ultrafast image acquisition and high resolution. This is the ultimate way to explore biological processes in cell biology and developmental biology on a molecular scale. Confocal microscopy is becoming increasingly widespread for dynamic live cell experiments and structural cell examinations. With its ultra-high frame rate and gentle handling of samples, Leica's SD6000 Spinning Disk Confocal Unit is ideal for such live cell experiments.

Used together with the Leica AF6000 LX Live Cell Station, the advantages of high-resolution confocal microscopy are combined with those of widefield fluorescence in one single system. One simple keystroke switches between confocal image recording, widefield fluorescence, a transmitted light method or even the optional TIRF technique. One and the same highly sensitive fluorescence camera serves as the detector for all these methods.

Leica SD6000 at a glance:

- Multipoint scanning at 1000 Hz for real-time confocal imaging
- Just one highly sensitive EMCCD camera for confocal and widefield techniques
- Minimal fading of fluorescence signals allows longer examinations of living samples
- Fully integrated into the LAS AF user software, making it easy to use and offering a wealth of additional application features
- Quick and easy switching between confocal and widefield fluorescence or transmitted light
- Compatible with the inverted research microscope Leica DMI6000, climate chamber and MultiColor-TIRF Module Leica AM TIRF MC
- Filter wheels enable use of the entire visible spectrum
- The Leica EL6000 offers an easy-maintenance, homogeneous and economical light source

Taking care of your samples

Thanks to the use of highly sensitive fluorescence cameras, samples need only be exposed to low illumination intensities. The Leica EL6000 is used as a metal halogenide white light source. Photobleaching and phototoxicity are thus reduced to a minimum, enabling biological processes in living cells to be observed over long periods of time.

See the full spectrum

To image the full range of fluorochromes, the fast Leica SD6000 filter wheels are employed to image all dyes in the visible spectral range.

Record results – Fast!

Due to the fast rotation of the spinning disk, all image points are scanned simultaneously 1000 times a second. In combination with high-sensitivity EMCCD cameras, fast frame rates are attained, which are particularly suitable for living cells.

Fully integrated and fully compatible

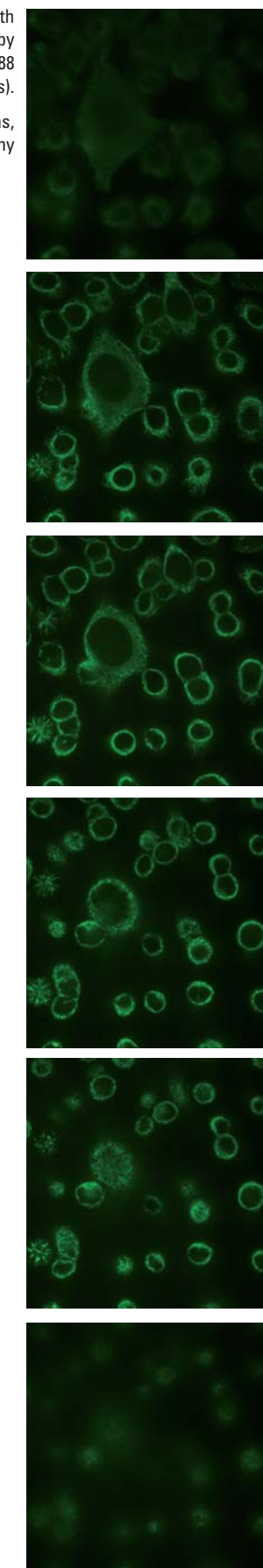
The Leica SD6000 is fully integrated in the LAS AF user software as an extra contrasting method. Offering extreme ease-of-use, the software interface allows experiments to be set up with a few simple clicks. Leica's spinning disk is perfectly matched to the Leica DMI6000 inverted research microscope and is compatible with the MultiColor-TIRF module Leica AM TIRF MC. Adding a climate chamber will maintain a constant environment for live cells. The Leica SD6000 spinning disk unit can be retrofitted to all Leica AF6000 LX Live Cell stations.

Easy switching from confocal to widefield or TIRF

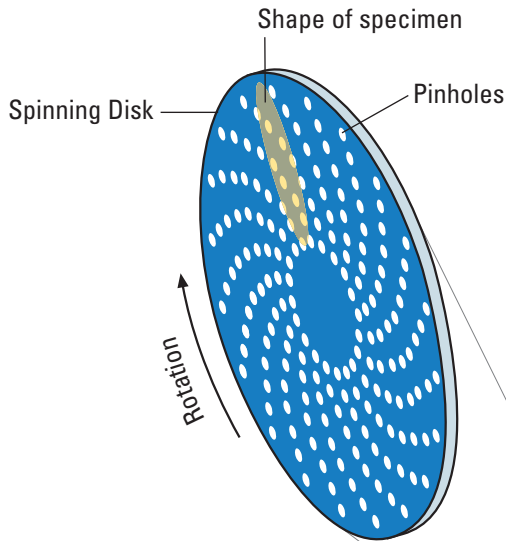
For top-level flexibility, the spinning disk can be moved in and out of the light path. With a single click, you can switch between confocal and widefield fluorescence, even to TIRF. All available contrasting techniques can be used side by side in the same experiment.

Z-Stack of human colon carcinoma cells (HCT116) with mitotic monoastrial spindles were visualized by anti-alpha-tubulin antibodies (Sigma) and anti-mouse-Alexa488 secondary antibodies (Molecular Probes).

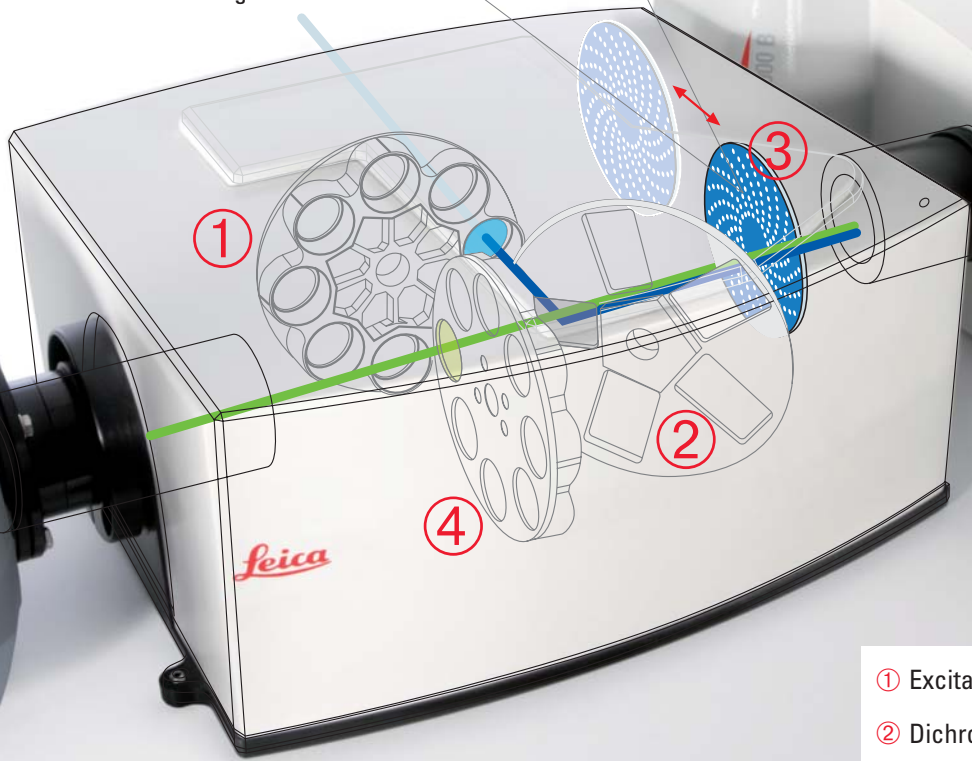
Courtesy: Anne Kienitz and Holger Bastians, IMT, Philipps University Marburg, Germany



The Principle of the Leica SD6000 Spinning Disk



EL6000
light source



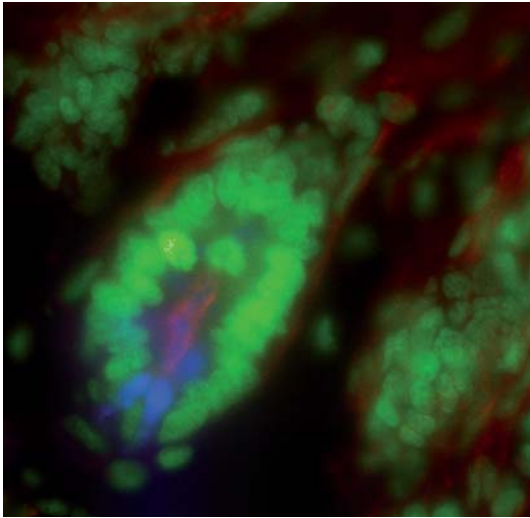
- ① Excitation filter wheel
- ② Dichroic filter wheel
- ③ Spinning Disk
- ④ Emission filter wheel

Visualize Life's Processes

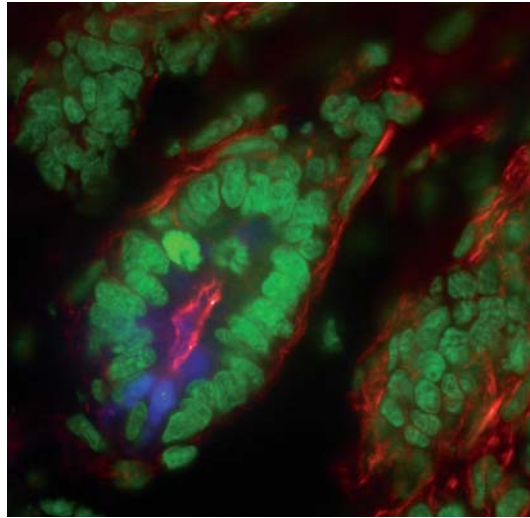
With its real-time confocal resolution and its low illumination intensities, the Leica SD6000 Spinning Disk offers unique opportunities for dynamic live cell experiments and structural cell research.

For example, the Leica SD6000 confocal unit is ideal for analyzing:

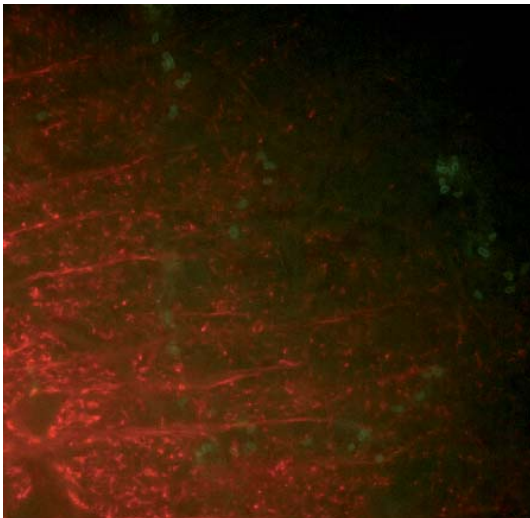
- Differentiation processes in developmental biology
- Fast intracellular transport processes
- Mitotic processes
- Dynamics of the cytoskeleton



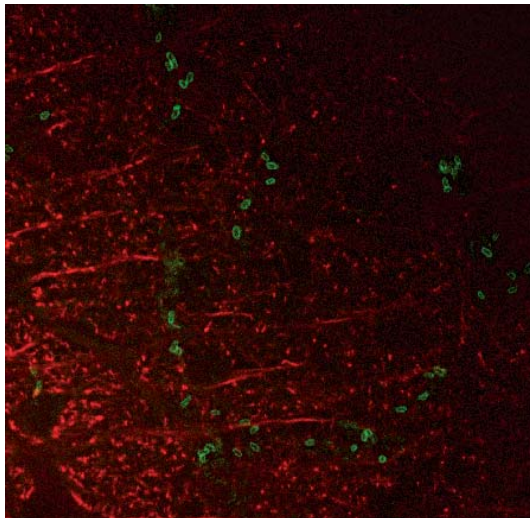
Widefield image
Mouse intestine (Invitrogen)



Leica SD6000 Spinning Disk **confocal image**



Widefield image
Cerebellum, fixed sample, 40 μ m thickness,
Neurofilament – Cy2, Purinergic Receptor – Cy3
Courtesy: Fulvio Florenzano, S. Lucia Foundation, Rome



Leica SD6000 Spinning Disk **confocal image**

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