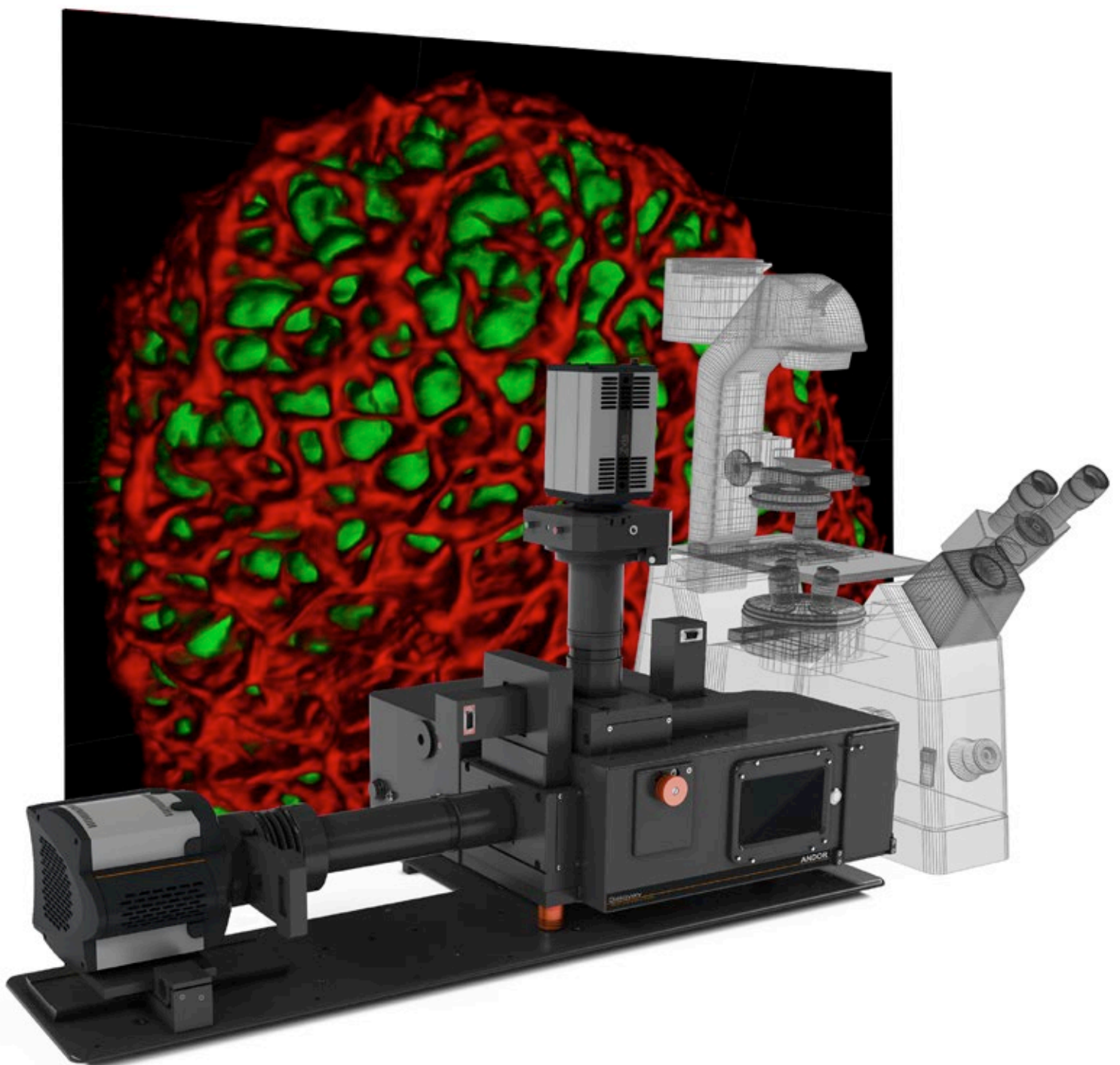


ANDOR
an Oxford Instruments company

Diskcovery

Multi-modal Imaging System



Diskovery

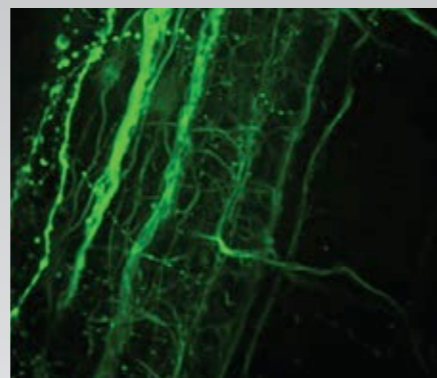
Diskover More

Different tools are required to answer different questions. Now you can answer more questions about a sample during the same experiment. The multi modal Diskovery platform combines options for imaging the same areas in your samples:

- Multi-point confocal
- Dual color TIRF
- Widefield imaging
- Single molecule imaging

...with Borealis uniform illumination.

- Optimized for low photo-toxicity
- Dual-camera ready
- Field-of-view optimized for EMCCD & sCMOS

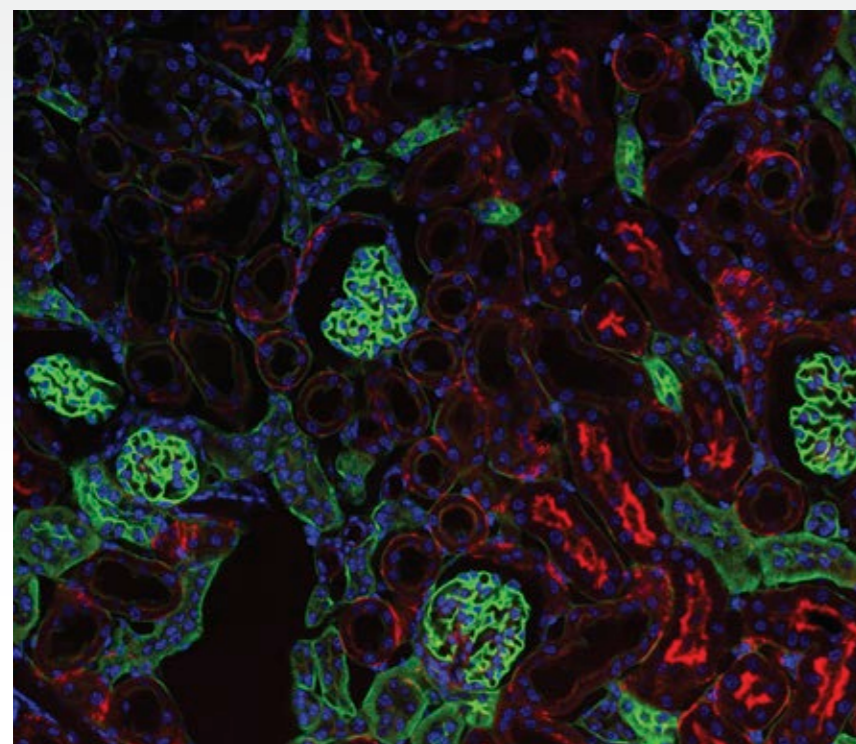


Top image - 3D extended focus of GFP Neurons in Zebra Fish nerve cord, courtesy of Dr. Piere Drapeau, University of Montreal, Canada. Images acquired using equipment integrated by Quorum Technologies Inc.

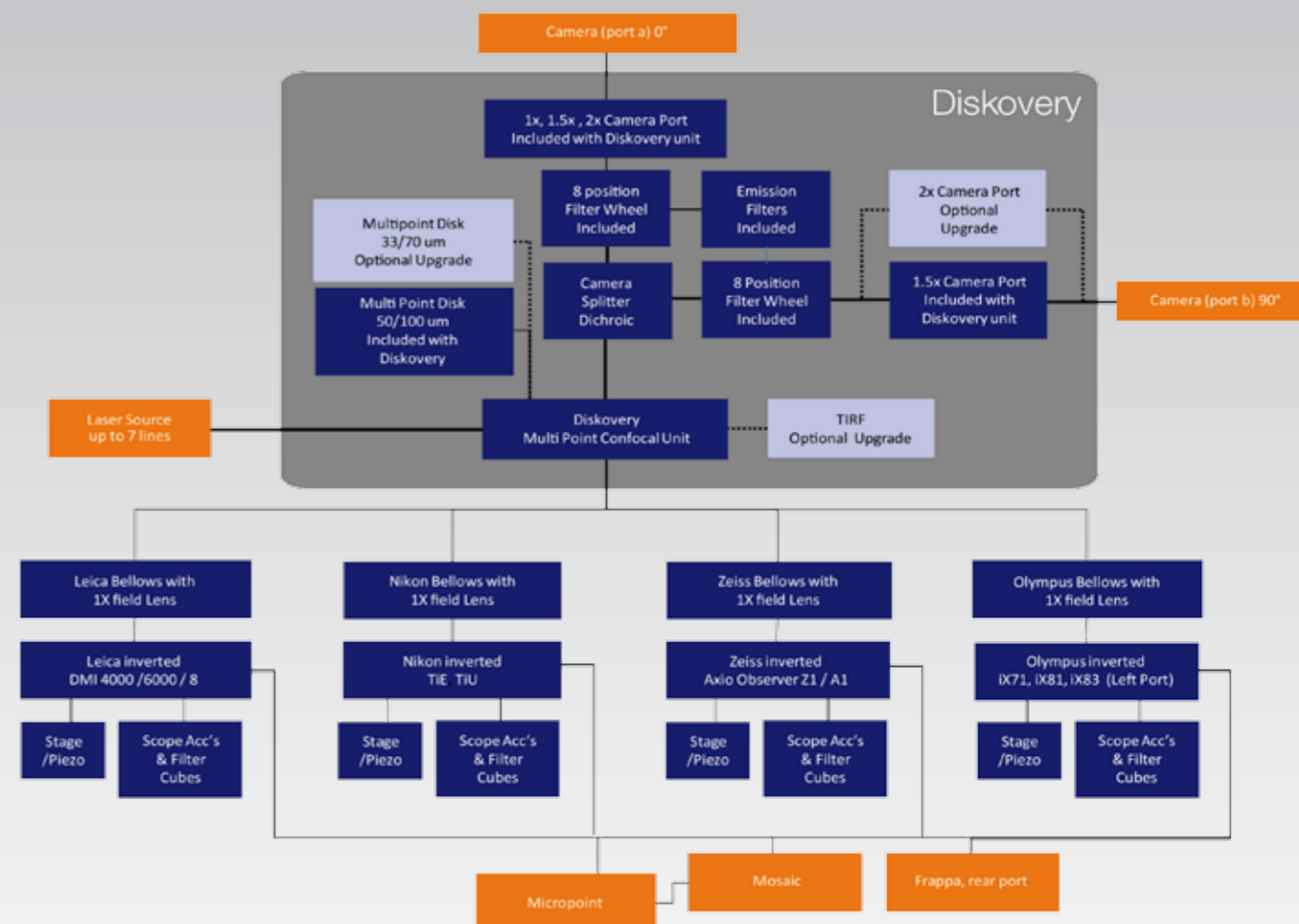
Bottom-left image - FluorCells® prepare slide #3, mouse kidney section with Alexa Fluor® 488 WGA, Alexa Fluor® 568 phalloidin, DAPI scanned using a 60x 1.4NA oil immersion objective using a 512 x 512 EMCCD camera and butt stitching with no overlap. More than 9w x 7h fields.

Foundation

Stable and reliable illumination sources and detectors are the backbone of all imaging systems. Diskovery is available with up to seven lasers ranging from the blue to the near infrared, selected from a broad range of Lasers to meet the needs of any application. Diskovery's dual camera functionality offers up to 14 x 14 mm field of view, enabling optimized use of high resolution large area sCMOS detectors or ultra high sensitivity EMCCDs.

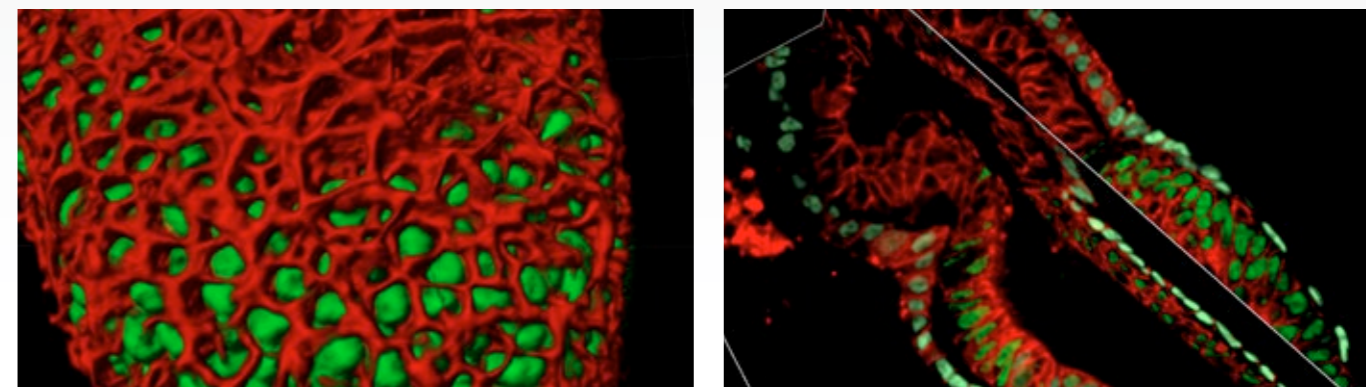


DISKOVERY SYSTEM CONFIGURATOR



Expectations

Multi-point confocal imaging is not limited to fast 2D confocal imaging of photo sensitive samples. When implemented properly, multi point confocal is capable of highly confocal, quantitative imaging in a wide range of samples producing superb 2D images and stunning 3D sectioning while still exhibiting the hallmark sensitivity required for 4D analysis of live samples.



Mouse embryo imaged using Diskovery with an Andor iXon EMCCD. The image on the left was further rendered using Imaris software from Bitplane.

Multi-point Confocal

Flexibility as standard

Why be limited by a fixed sized pinhole, camera resolution and fixed size illumination area? The Discovery's optics harnesses Multi-point Confocal technology to provide flexible solutions and optimal performance with just one investment.

- Two pinhole sizes and patterns per disk
- Motorized widefield bypass
- Confocal imaging up to 1,000 frames per second
- Borealis illumination with <10% variation across the image
- Four different sized fields of illumination
- Up to 14 x 14mm field of view optimized for EMCCD and sCMOS
- Dual-camera ready
- Low photo-toxicity
- Easily removable and interchangeable disk assemblies

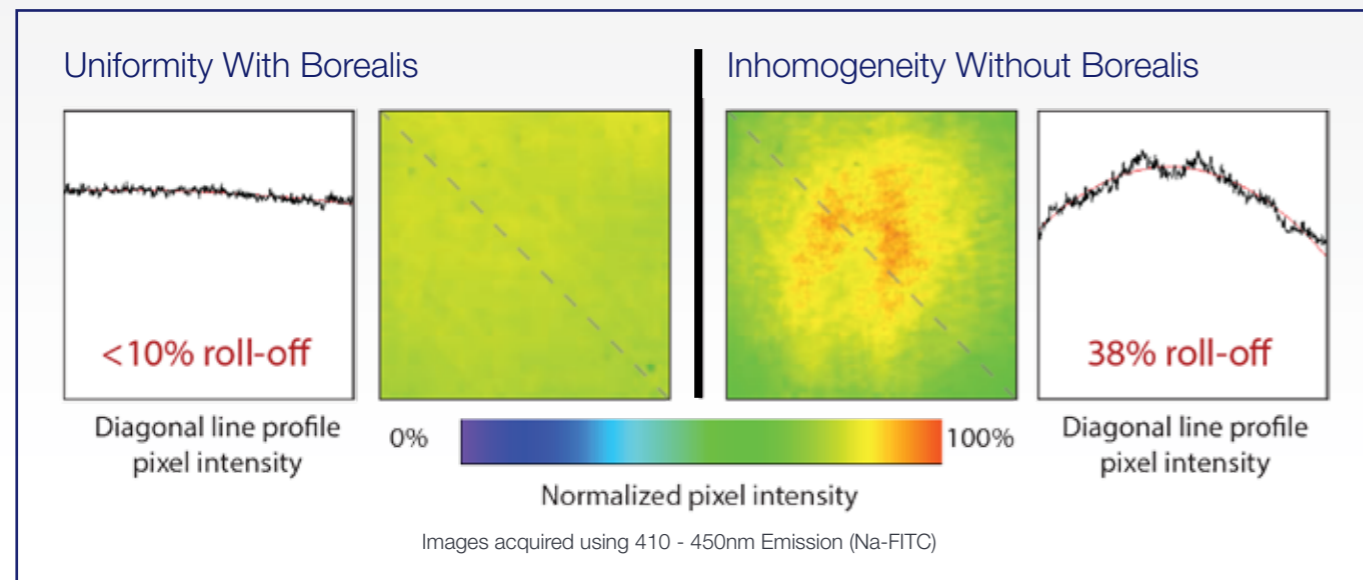
“

Finally, a laser based excitation source optimized for my widefield digital imaging. Exactly match excitation light to the camera's field of view at full frame or regions of interest using the Borealis illumination.

”

KEY APPLICATIONS

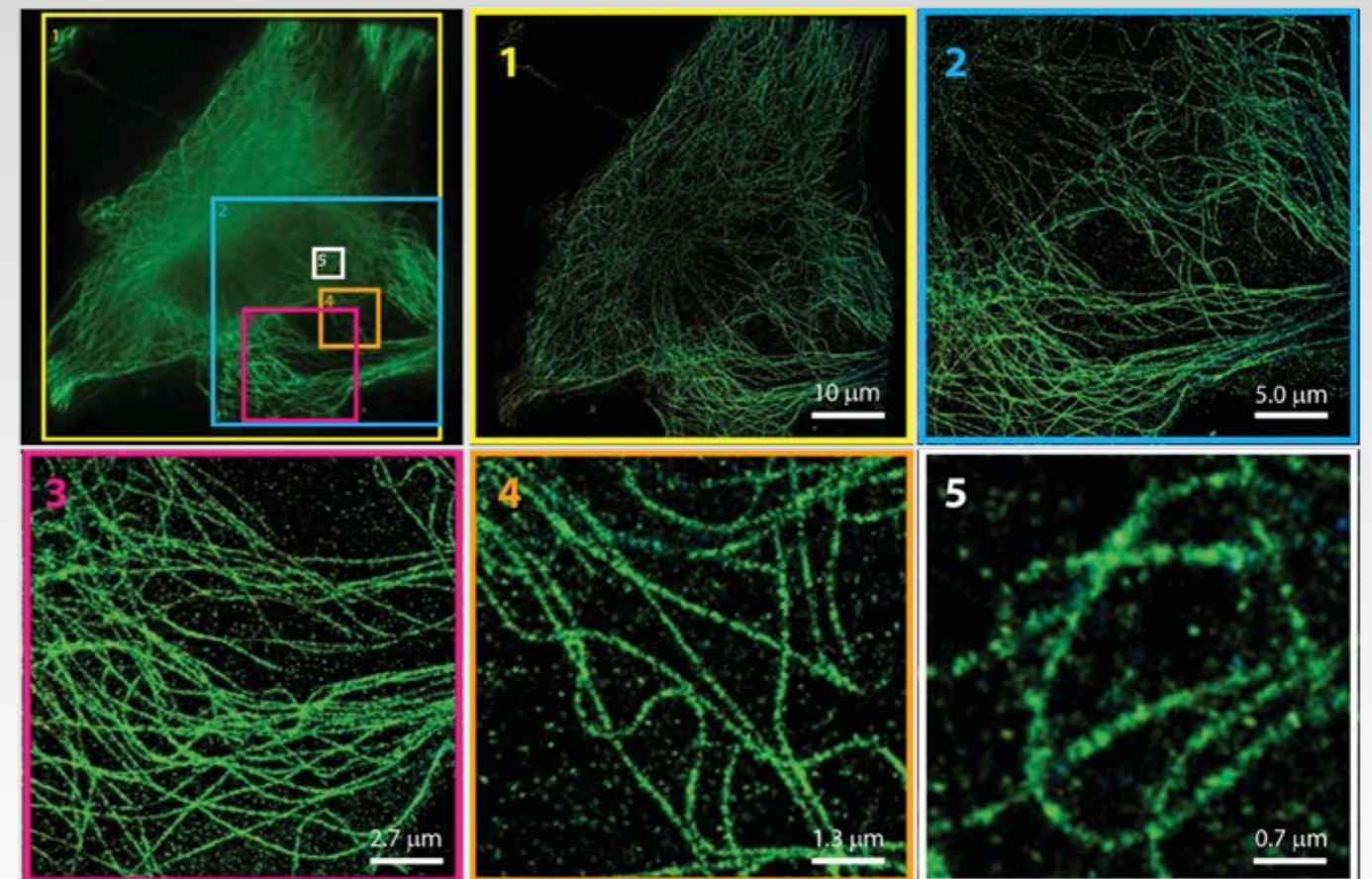
- 3D/4D confocal imaging
- Deconvolution microscopy
- FRET microscopy
- Quantitative FRAP
- Image-based correlative spectroscopy
- Multi-wavelength photoactivation
- Optogenetics



Single Molecule Imaging

Lasers, while wavelength specific and intense, also create a distinctly Gaussian illumination profile which ultimately results in an uneven representation of your samples fluorescence emission on the camera. The Borealis illumination system not only illuminates your sample with minimal “roll-off” but also focuses the light only in the areas being imaged. This provides extremely uniform data for your analysis and provides the high laser power and low stray light required for single molecule experiments.

Select the illumination area that best suits your application:



	Area of Illumination			
	1	2	3	4
Area of illumination on sample (μm) based on 60X 1.4na oil objective	137	68.3	34.2	17.0
Area of illumination on camera (mm)	14 x 14	7 x 7	4.7 x 4.7	2.3 x 2.3

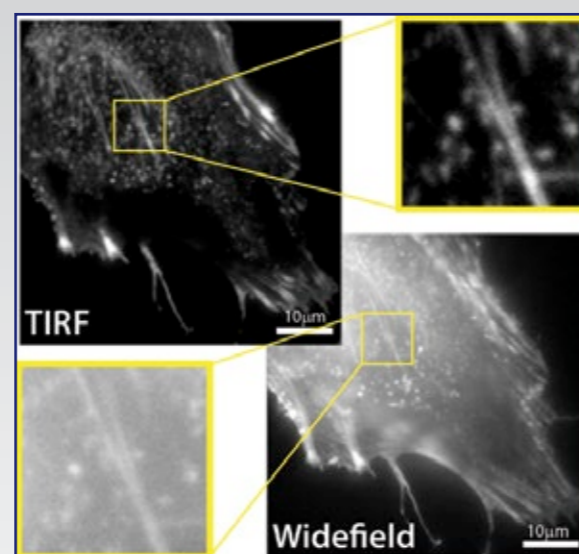
TIRF

Total Internal Reflection Fluorescence

Discover the dynamic world of activity 100 nm from your coverslip with Diskovery's multi-channel TIRF functionality.

UNIQUE TIRF FEATURES

- Single fiber and one pathway for imaging multiple wavelengths without changing alignment
- Patented Control of TIRF depth without moving the fiber
- One command places all wavelengths at the same TIRF penetration depth for simultaneous or sequential imaging
- Precise alignment and control with superb repeatability
- Reflected laser excitation is captured to reduce stray light and reduce noise
- Supports polarized excitation and emission separation
- TIRF performance optimized from excitation to emission
- Does not require specialized TIRF filter cubes
- System designed with all TIRF applications in mind



Actin-RFP in HeLa cells prepared by Dr. Bebhinn Treanor, University of Toronto), system Integration provided by Quorum Technologies Inc.

Widefield and TIRF Imaging

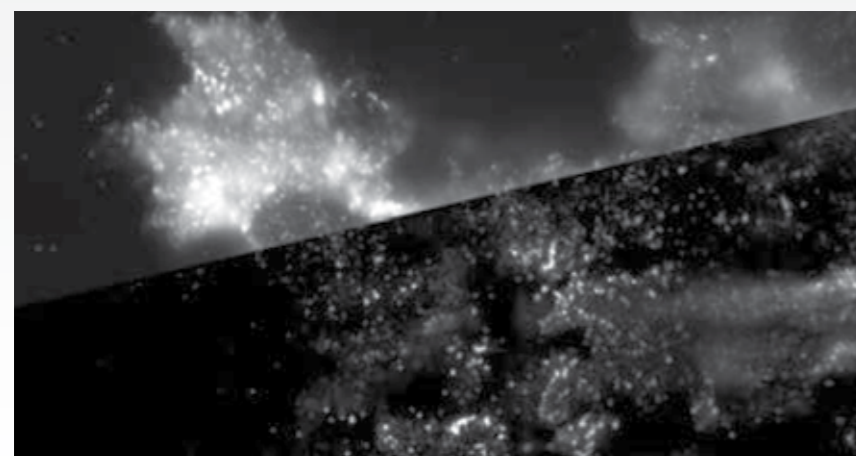


Image showing Widefield imaging (top) and TIRF imaging (bottom) from the same sample, system switchover between widefield and tirf modalities is at the push of a button.

WHAT IS TIRF?

Total Internal Reflection Fluorescence microscopy is a well-established tool for examining molecular activity at the cell membranes / coverslip interface giving very high contrast and 100 nm resolution. As it is often necessary to study these molecules in the context of their surrounding environment the Diskovery system combines its unique methods of Borealis widefield Illumination with its multicolor TIRF imaging mode with only 3 ms switch times. This provides a virtually instantaneous representation of TIRF imaging overlaid with the high quality Borealis widefield illumination.

Diskovery Specifications

Andor Diskovery Platform:

Core	Lasers	Diskovery can be equipped with ILE 400, 4 laser combiner or ILE 700, 7 laser combiner, either system can be fitted with a choice of the following lines: 405, 445, 488, 514, 561, 594, 640, 685, 730 & 785 nm			
	Brightness Control	0.01% - 100%			
	Illumination Field (mm)	14 x 14	7 x 7	4.7 x 4.7	2.3 x 2.3
	Relative Power Density	1	4	9	36
	Camera Options	Two Integrated ports for simultaneous imaging			
	Camera Magnification	1x, 1.5x and 2x on direct port, 1.5x on 90° camera port (2x optional upgrade available)			
	Dual Camera	Dichroic 6 mm Substrate 500, 565, 605, 640, 750, Mirror			
Filter Wheels	8 position, 50 ms. On each camera port Manual slider included				
Modes	Multi-point confocal, Widefield and Single molecule imaging included as standard TIRF module is an optional upgrade				
Multi Point Confocal	Disk with 50 µm and 100 µm pinholes provided as standard Disk with 33 µm and 70 µm pinholes available as an optional upgrade Disk exchange is simple and quick				
TIRF	Single wavelength or simultaneous dual wavelength				
Software	Andor iQ, Micromanager, MetaMorph, Wave Tracer, HC Image, Explora Nova, TTL, MATLAB, Spectral LMM GUI and SDK available				
Scope Options	Any microscope with a dedicated 100% video port				
Mode Changes	Supports simultaneous FRAP, Epi-Fluorescence and Single Molecule Imaging				
Excitation Dichroic	Not required				
Camera Splitters	Reflecting >500nm, 565nm, 605nm, 640nm, 750nm mounted in custom alignment holders				
Camera Registration	90° camera port includes XY translation, rotation and axial focus correcting for magnification and chromatic shifts				
Camera Support	Andor iXon 897/888 EMCCD and Zyla sCMOS				
Safety	Integrated Interlock				

Customer Support

Andor products are regularly used in critical applications and we can provide a variety of customer support services to maximise the return on your investment and ensure that your product continues to operate at its optimum performance.

Andor has customer support teams located across North America, Asia and Europe, allowing us to provide local technical assistance and advice. Requests for support can be made at any time by contacting our technical support team at andor.com/support.

Andor offers a variety of support under the following format:

- On-site product specialists can assist you with the installation and commissioning of your chosen product
- Training services can be provided on-site or remotely via the Internet
- A testing service to confirm the integrity and optimize the performance of existing equipment in the field is also available on request.

A range of extended warranty packages are available for Andor products giving you the flexibility to choose one appropriate for your needs. These warranties allow you to obtain additional levels of service and include both on-site and remote support options, and may be purchased on a multi-year basis allowing users to fix their support costs over the operating life cycle of the products.

Microscopy Maintenance Contracts

Reduce costs and ensure reliable support

Platinum Maintenance Contract

- Priority service - helpdesk support
- Remote web-based live support sessions
- Fast on-site response - 5 business day target
- Annual Preventative Maintenance Visit (PMV)
- Entitlement to software updates
- Repair or replacement parts at no additional charge

Silver Maintenance Contract

- Priority service - helpdesk support
- Remote web-based live support sessions
- Fast on-site response - 10 business day target
- Annual Preventative Maintenance Visit (PMV)
- Entitlement to software updates
- Repair or replacement parts charged at 75%

To request more details on Andor Microscopy Maintenance Contracts, please contact your account representative or via andor.com/contact_us/support_request/warranty/purchase.aspx



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