HORIBA Scientific

XploRA INV

Optimized Raman Solution for Life Sciences

The XploRA INV is an inverted Raman microscope designed specifically for use with biomedical or biological samples. The configuration gives open access for tailored sample handling and sample measurements. Based on our XploRA series of Raman microscopes, the INV features powerful capabilities packaged into a small footprint. It comes with complete automation for autofocus, autoexposure, autovalidation, and autocalibration. It is designed for ease of use.

Flexibility of the XploRA series

The INV retains all the flexibility of the standard upright XploRA system, including confocal measurement, rapid mapping, multiple laser wavelength options, and high speed spectral imaging using our patented DuoScan technology. Also as is the case with all XploRA series instruments, all the capabilities and compatibility of accessories of a conventional inverted microscope are preserved.

Customizable spectrometer

Inversion of the microscope for Raman measurements gives open access to the sample area which is ideal for examination of cells and tissue. In combination with customisable spectroscopic and sampling options, the technology can be tailored to specific and optimised measurements.

- Ultrafast Raman imaging
- Fast confocal imaging
- Fluorescence imaging
- Combined AFM
- Tissue sections
- Single cells
- Bacteria information
- Nanoparticles/SERS

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Biomedical and Biological Applications

- cell and DNA research
- disease detection
- characterisation of drug-cell interactions
- pharmaceutical verification of intercellular activities

The design has driven new ways of sampling and measurement to improve image contrast and sensitivity for challenging biological systems.

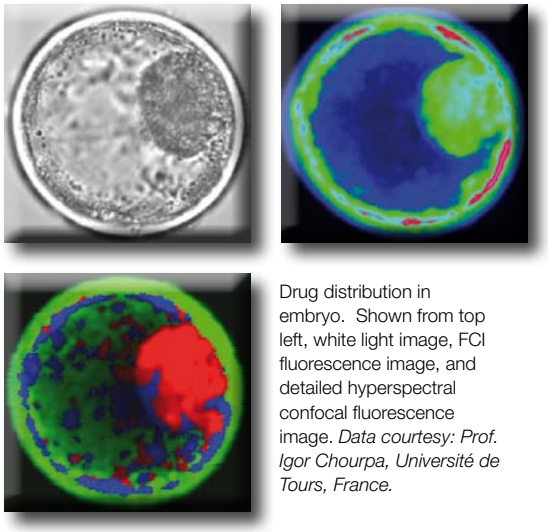
Hybrid Raman imaging has never been so easy !

As with all of the HORIBA Raman microscopes the XploRA INV is designed with many unique and powerful options. It is fully confocal with no compromise of image quality in terms of spatial or depth resolution. The SWIFT Fast Raman imaging capability delivers the fastest fully confocal Raman images available. The DuoScan option offers a unique spectroscopic multichannel Raman imaging and Fast Confocal Imaging (FCI) laser scanning operation, achieving reliable analysis down to the micron scale.

DuoScan - confocal Fluorescence Hyperspectral Imaging

DuoScan is a unique development in fully confocal image generation. It gives the capability to scan a laser across the sample with high accuracy and precision while collecting data. Laser dwell times are short, thereby minimising photo-damage. The different measurement modes are:

- Confocal Raman imaging
- Average area analysis or Meso-scale Raman/Fluorescence mapped images
- FCI laser scanning fluorescence
- Photoluminescence laser scanning



Drug distribution in embryo. Shown from top left, white light image, FCI fluorescence image, and detailed hyperspectral confocal fluorescence image. *Data courtesy: Prof. Igor Chourpa, Université de Tours, France.*

Specifications

XploRA INV integrated Raman base unit

Laser options:	Integrated up to 3 internally - 532 nm, 638 nm, 785 nm (other wavelengths available on request)
Spectral resolution:	1.5 cm^{-1} to 5cm^{-1}* depending upon grating selection
Spectral range:	100 cm^{-1} to 4000cm^{-1}* depending upon laser/grating selection
Spectrograph:	Imaging flat field spectrometer for use with larger CCD detectors - High throughput with multiple grating turret
Laser power control:	6 position filter wheel. Optional Raman polarisors.
Detector:	Standard 1600x200 TE air cooled scientific CCD, USB control, no maintenance vacuum, 16 bit and up to 1.48 MHz readout speed
Software:	LabSpec spectral software suite - options include: SPID database, Chemometric (1), imaging, Multiwell screening

Microscope options:

Inverted scientific microscope:	Nikon Eclipse (for DuoScan option), includes standard illumination and objectives
DuoScan:	Laser scanning system for confocal Raman image and CLSO (confocal laser scanning) imaging
Epifluorescence:	Standard colour camera with upgrade to fluorescence imaging options and filter cubes
XY motorised stage:	120x100mm 0.1µm step mapping stage with SWIFT Imaging-synchronous confocal Raman scanning.# optional 10nm Piezo XY stage
Objectives:	Other objectives upon request Optional heating/cooling cells for sample temperature control, or incubator
Wellplate:	Multiwell wellplate sampling module enables wellplate handling and automated acquisition
QC/21CFR:	Autocalibration/validation, GO wizard and 21 CFR part 11 compliant software options

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