

PRODUCT BROCHURE

InnoQuant

Quantitative Fluorescence
whole-slide scanner



INNOPSYS

 innopsys.com

PRODUCT HIGHLIGHTS



**POINT-BY-POINT LASER
SCANNING AND PMT
DETECTION**

**SIMULTANEOUS
MULTIPLEX
FLUORESCENCE**

**ILLUMINATION
UNIFORMITY ACROSS
THE WHOLE SLIDE**

**NO PROCESSING
REQUIRED, IMAGES FREE
FROM STITCHING-
RELATED BIAS**

**BUILT-IN QC TOOL
ENSURING CONSISTENT
REPRODUCIBILITY
ACROSS SLIDES, OVER
TIME, AND BETWEEN
LABS**

RETHINK FLUORESCENCE IMAGING

A laser-scanning and PMT-based technology designed to overcome limitations

CONFOCALITY VS AUTOMATION:

WHY CHOOSE?

CAMERA-BASED SYSTEMS

Sequential acquisition of several fields of view with various exposure times.

Most slide scanners use a time-consuming autofocus mode with focus points.

INNOQUANT

Simultaneous 4-color line by line fast scan to ensure rapid results.

A robust autofocus algorithm based on the sample topography determines the focus map in 45 seconds.

SPEED

Reproducibility compromised by optical path variability.

Performance guaranteed by built-in control-checks using a validation slide. Trust your system at any time.

REPRODUCIBILITY

Multiple-fields-of-view assembly generates a mosaic effect and a lack of homogeneity. Its correction creates a bias for quantitative analysis.

Full-width line scanning with PMT detector certifies a raw value for each pixel created.
98% illumination uniformity across the entire slide.

QUANTITATIVE DATA

A user-friendly automated slide scanner designed to overcome the main limitations of other instruments. **Take the best of both worlds: automation applied to confocality.**

Scan up to 24 slides at a 20x equivalent magnification, and at the scale of the full tissue.

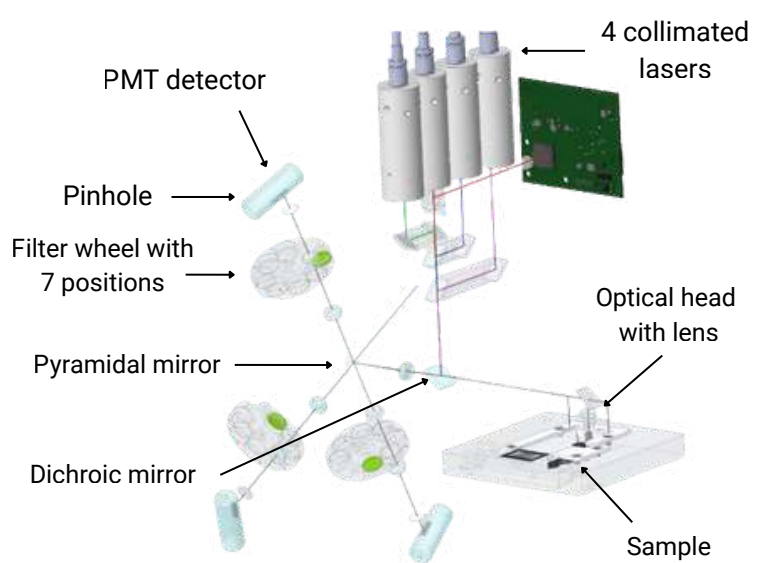
AUTOLOADER SLIDE PREVIEW



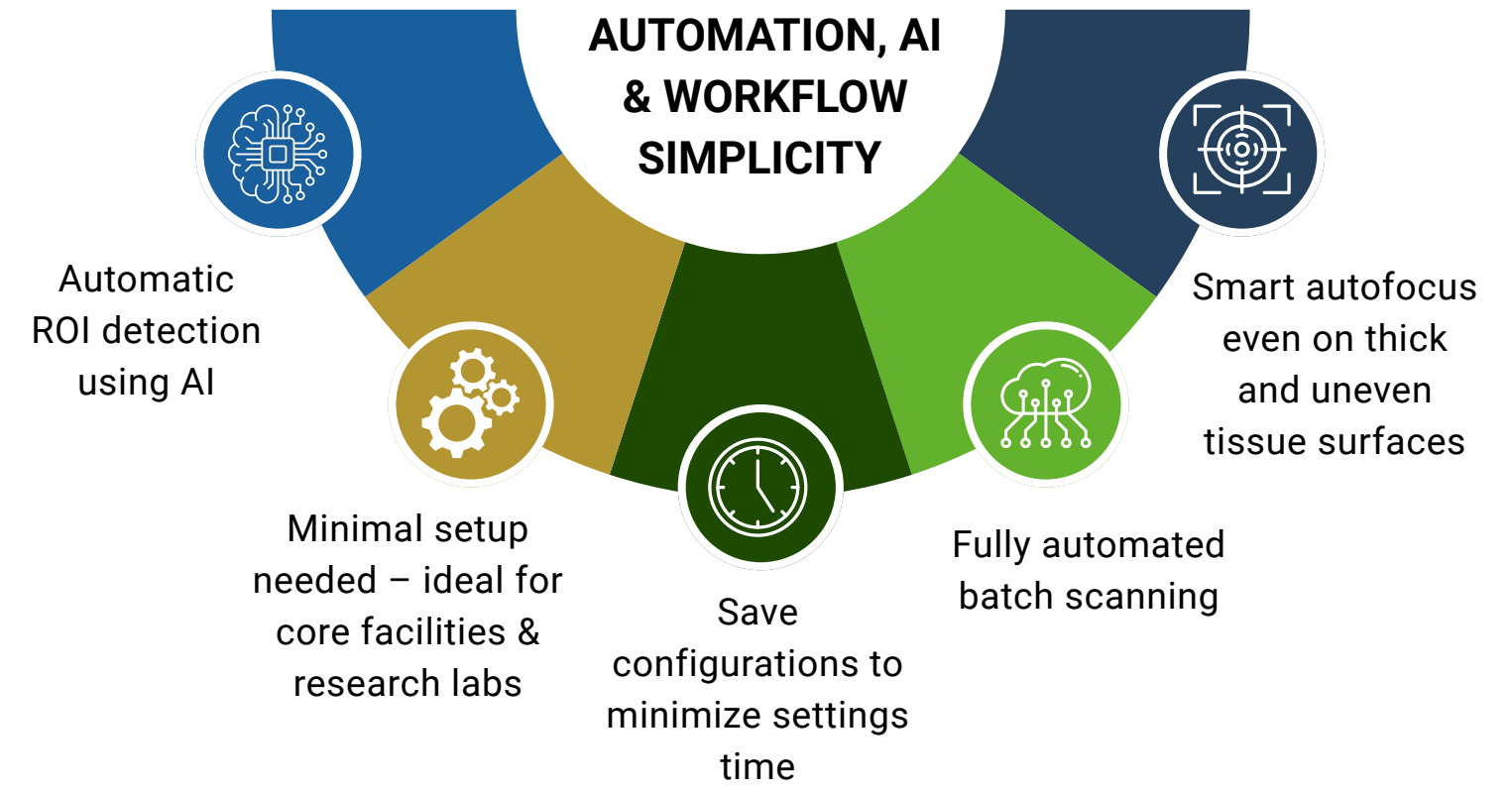
A UNIQUE OPTICAL PATH DESIGNED FOR QUANTIFICATION

AUTOMATE YOUR PROCESSES. BOOST YOUR PRODUCTIVITY. TRUST THE DATA.

HIGH-PERFORMANCE MULTIPLEXED FLUORESCENCE

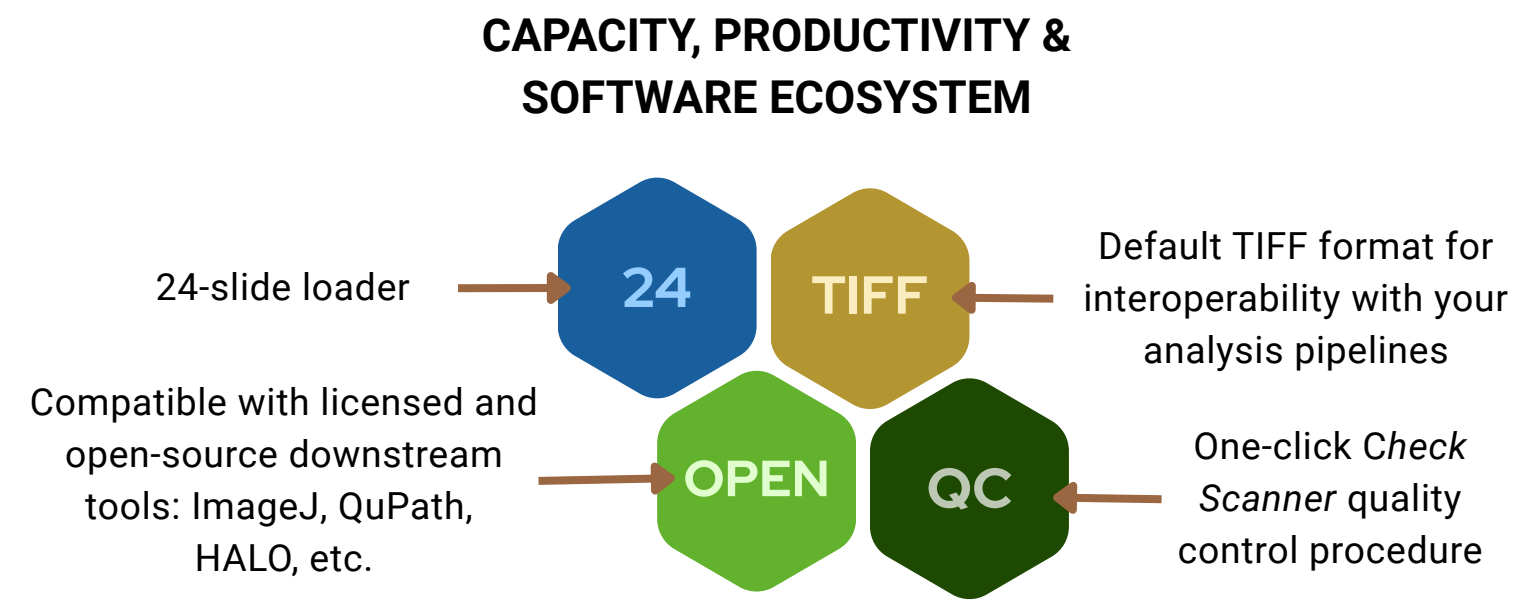
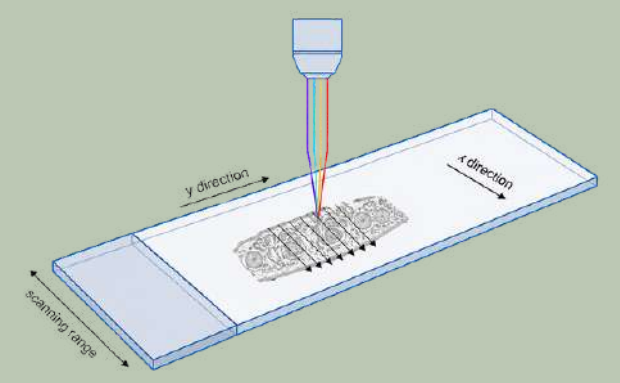


- + Excitation wavelengths: 375 / 488 / 561 / 640 nm
- + All four channels scanned **simultaneously**
- + **Patented spatial separation system** guides each emission beam to a dedicated PMT
- + Each PMT has a 7-position emission filter wheel → **Wide fluorophore compatibility**



FROM LASER TO PIXELS – A NEW WAY TO SCAN SLIDES

- + Full-width laser point-scanning system (no field of view)
- + Each pixel receives **exactly the same amount of light**
- + Tile free = no stitching, no artifacts, field uniformity
- + Simultaneous excitation and detection via 4 PMTs for **high sensitivity, high dynamic range and preservation of raw pixel value fidelity**



InnoQuant

Key Benefits at a glance

4 Color
Simultaneous multiplexing

Guaranteed Quantitative Results

98% illumination uniformity on the full slide. No post-processing, get your raw results

24 slide capacity

20x
Equivalent magnification

TIFF format
open source and easy to analyse

10 Minutes
for an adult mouse brain coronal section - focus and saving included



Intuitive Set-up Reliable Focus Low Phototoxicity

Scanning time independent from staining intensities

No exposure time.

0.5
 $\mu\text{m}/\text{pixel}$

QUANTITATIVE RELIABLE RESULTS DATA REPRODUCIBILITY AND QUALITY CONTROL

In quantification, every variation should come from your biology, not your instrument.

Our built-in *Check Scanner* procedure, using a dedicated slide powered by Argolight®:

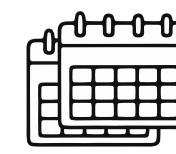
- ✓ Controls the scanner parameters at any time
- ✓ Validates the state of the scanner
- ✓ Ensures reproducibility of the results



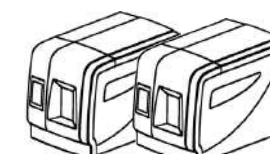
**REPRODUCIBILITY
REPEATABILITY
RELIABILITY**



inter-slide



inter-day



inter-scanner

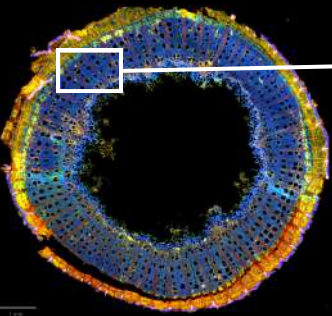
DR EVGENIA DOBRINSKIKH,

Assistant Professor, PhD. University of Colorado, Anschutz Medical Campus

Our Core is helping many researchers with whole slide immunofluorescent images within and outside of University of Colorado. Main challenge is time, needed for big tissue scans and photobleaching. InnoQuant solves both problems very elegantly. Additionally, interface is user friendly and doesn't take a lot of time to start.

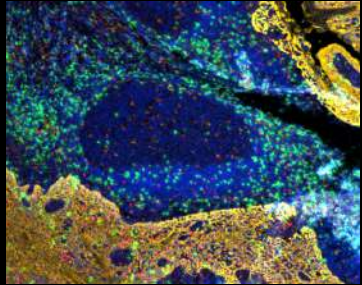


MAXIMUM VERSATILITY FOR A WIDE RANGE OF APPLICATIONS



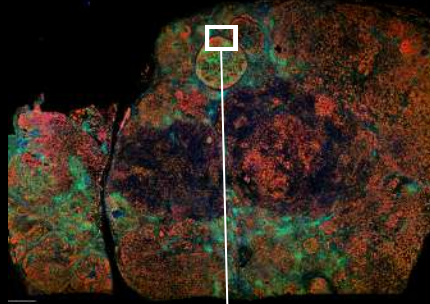
Vine Wood Cut
sample courtesy of Célia Perrin,
Université de Haute alsace, France

PLANT BIOLOGY



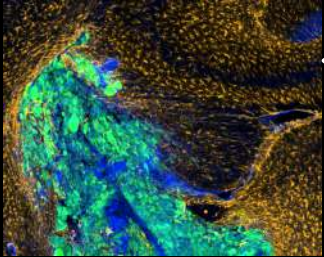
Tonsil Section
sample courtesy of
AlphaXBio, China

IMMUNOLOGY



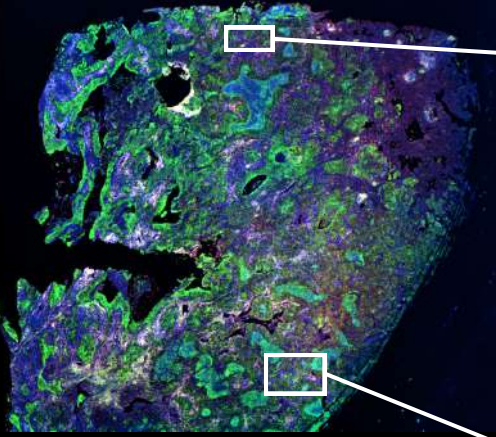
Breast Cancer Tissue
sample courtesy of Shanghai
Jiaotong University

CANCER RESEARCH



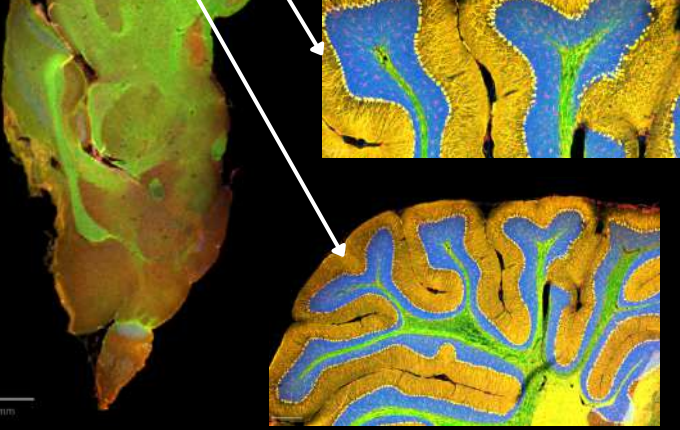
Brain Glioblastoma
sample courtesy of
Lemercier/Chever, Université
Rouen Normandie, France

NEUROSCIENCE



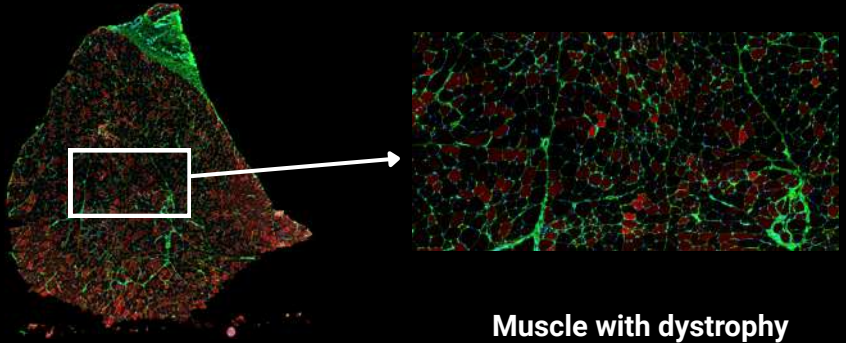
**Non Small Cell Lung
Cancer Tissue**
sample courtesy of Cell
signaling Technology

CANCER RESEARCH



Brain Cerebellum
sample courtesy of EnCor
Biotechnologies, USA

NEUROSCIENCE



Muscle with dystrophy
sample courtesy of
Genethon, France

GENE THERAPY

DR ROBERT DE VRIES,
Associate Professor, Utrecht University,
Chemical Biology & Drug Discovery.



The same foundations that made microarrays so robust now enable full tissue imaging, delivering the same level of precision and confidence. The InnoQuant system is intuitive, accessible to the whole team, and delivers highly uniform fluorescence images across entire slides.

ONE SCANNER, A MULTITUDE OF BIOLOGICAL QUESTIONS

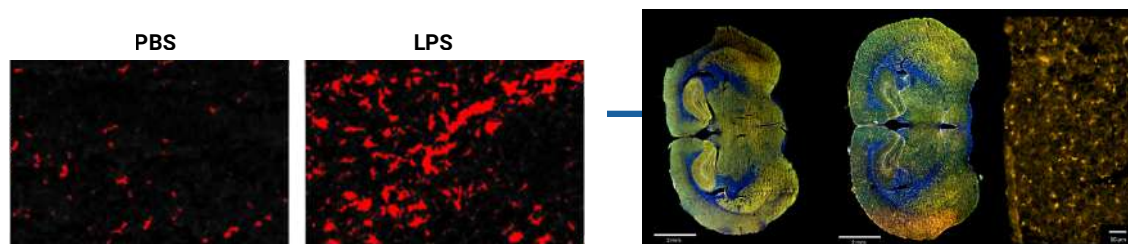
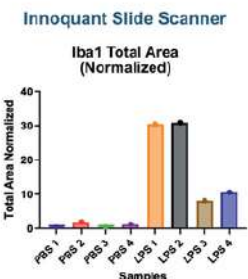
MICROGLIAL ACTIVATION IN NEUROINFLAMMATION MODELS



Goal: Evaluate inflammatory effect of LPS by examining microglial activation

Method: Analysis in ImageJ (Fiji) of the Iba1 signal to get the surface of microglial cells on PBS and LPS treated mice brain samples.

Results: Microglial total area is higher on LPS-treated samples compared to PBS-treated samples, in favor of an enhancement of microglial activity, a result of neuroinflammation caused by LPS.

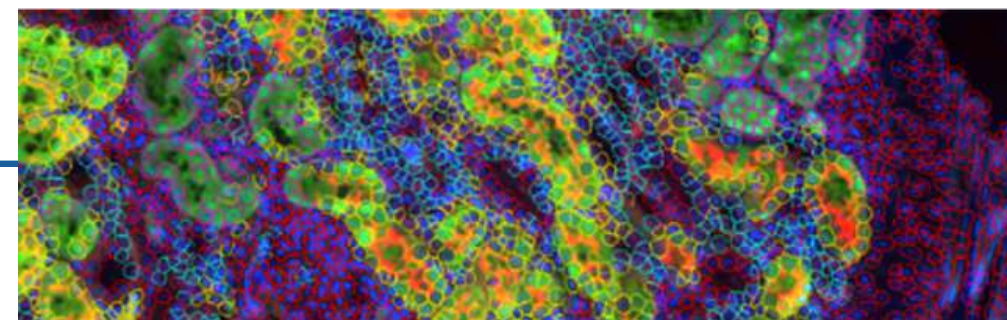


GENE THERAPY EFFICIENCY ASSESSMENT

Goal: Check the efficiency of a gene therapy treatment

Method: QuPath was used to detect cells and classify them according to single-marker positivity or double colocalization

Results: The proportion of cells positive for the signal was determined.



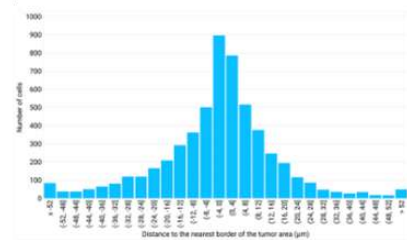
NSCLC TUMOR MICROENVIRONMENT STUDY



Goal: Characterize the spatial distribution of immune cells around the tumor area

Method: Use of QuPath to detect tumor and immune cells. Calculation of the distance between single immune cell and the tumor.

Results: Distribution of immune cells revealed an increasing density gradient towards the tumor.



CARDIAC MUSCLE DEVELOPMENT AND CARDIAC TISSUE RESPONSE TO INJURY

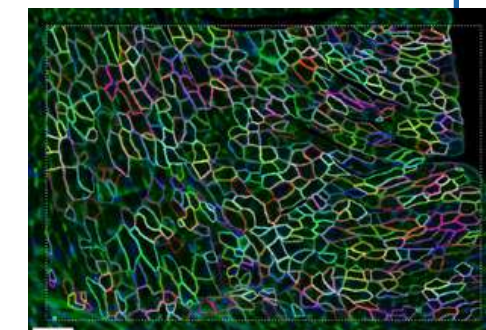
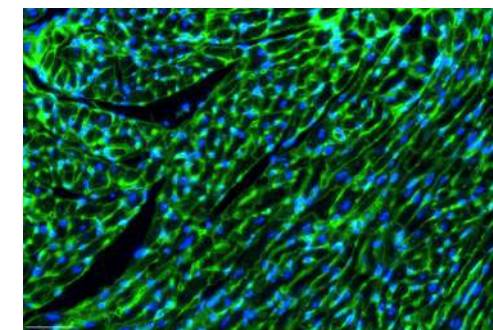
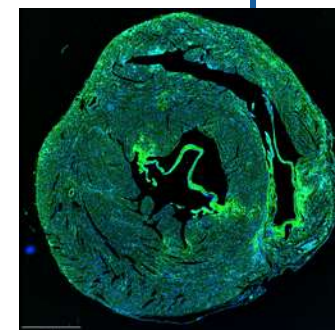


QUANTACELL


Goal: Perform automated cell segmentation to quantify cell area and assess cardiomyocyte size in relation to prenatal tissue injury.

Method: Cells were automatically segmented using the Cellpose integration in HistoMetrix, and their morphological features were quantified.

Results: Cell area measurements enabled the assessment of muscle development in response to injury.



DISCOVER HOW OUR SPECIFICATIONS & TECHNICAL FEATURES CAN MEET YOUR NEEDS

LASER EXCITATION WAVELENGTH	375 nm	488 nm	561 nm	640 nm
EMISSION FILTERS	FF01-440/40	FF01-513/17	FF01-593/40	FF01-680/42
	For customization: 6 additional filter positions available for each PMT			
COMPATIBLES FLUOROPHORES*	DAPI Alexa Fluor 350 Hoechst DyLight 350 Coumarin BV421 / BV510 BV603 / BV711 BV750 PacificBlue® CascadeBlue®	FITC Alexa Fluor 488 GFP Cy2 DyLight 488	TRITC Alexa Fluor 561 Cy3 DyLight 594 MitoTracker® Red	DRAQ 5 Alexa Fluor 647 Cy5 DyLight 650 MitoTracker® Deep Red
DETECTION TYPE	4 independant photomultipliers (PMT)			
PMT GAIN	Linear from 0.01 to 100%			
ACQUISITION MODE	4-color simultaneous acquisition			
FOCUS MODE	3 different focus options: autofocus, fixed focus and focus by content			
SLIDE SIZE	Compatible with standard microscopy slides: 26 x 76 mm / 1 x 3 inch Maximal standard thickness 1.8 mm / 0.07 inch			
LOADER CAPACITY	Single slide or 24-slide autoloader			
SCANNING AREA	Adjustable up to 26 x 76 mm / 1 x 3 inch			
SCANNING TIME	9 min for 10x10 mm area / 0.4 x 0.4 inches at 0.5µm/pix			
PIXEL SIZE	From 40 down to 0.5 µm			
IMAGE FORMAT	Non-proprietary image format (multi-resolution TIFF)			
POWER SUPPLY	100-340 VAC, 1.2 A, 50-60 Hz			
SIZES & WEIGHT	Single slide weight: 48 kg/105.8 lbs	Auto-loader weight: 52 kg/114.6 lbs		

*Non-exhaustive list of compatible dyes.




WHAT CAN YOU EXPECT FROM WORKING WITH US:

- ✓ 20 years of expertise in quantitative fluorescence, mastering the full value chain from design to commercialization
- ✓ Responsive, expert-driven support beyond installation
- ✓ Identification of the most appropriate analytical tools and development of customized analysis protocols
- ✓ Developed according to ISO 13485 quality requirements to support GMP environments
- ✓ Proven experience in OEM integration with leading global industry partners



EVERYTHING YOU NEED TO GET STARTED – REQUEST YOUR QUOTE TODAY.

REACH US HERE:

-  www.innopsys.com
-  contact@innopsys.com
-  Allée des vignes, 3139 Carbonne, France
233 S. Wacker Drive, Suite 4400, Chicago, IL 60606, USA



Scan to request a demo or see more images

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