Lamina™

PRODUCT NOTE

Multilabel Slide Scanner

Key Features

- High-throughput whole-slide scanner for pathology research
- High-speed multimodal imaging & analysis of FFPE tissue sections & TMA's
- Autofluorescence Reduction Technology (ART) for clearer visualization of protein expression
- Exquisitely sharp H&E, IHC and immunofluorescence images
- Exclusive technology and award–winning design

A clearer vision of pathology

PerkinElmer's Lamina™ multilabel slide scanner delivers clear, high-resolution images from whole slides and Tissue Microarrays (TMAs). With brightfield, fluorescence and Autofluorescence Reduction modes all in one instrument, Lamina is a flexible platform for your research pathology lab.

Lamina addresses your everyday H&E imaging needs as well as immunohistochemistry (IHC) and immunofluorescence. With the option of selecting our new proprietary Autofluorescence Reduction Technology (ART™) and crosstalk correction between fluorophores, it produces exceptional results to enable clearer visualization of protein expression in formalin-fixed, paraffin-embedded (FFPE) tissues.

The Lamina multilabel slide scanner configured to meet the varied needs of a larger research facility. With multiple imaging modes in one instrument, high-speed imaging technology and up to a 250-slide capacity, it offers the flexibility to support your current and future applications while maximizing productivity.

The system includes two copies of PerkinElmer's inForm® Tissue Finder™ software for offline analysis and can also be configured with a fully integrated pathology data management and telepathology solution.

Lamina extends PerkinElmer's range of quantitative pathology solutions for translational research and is designed to support pathologists to deliver better, faster, more accurate results enabling the development of personalized therapies and improving human health.

PerkinElmer
For the Better

Lamina Multilabel Applications

Hematoxylin and Eosin (H&E)

Scanning H&E slides is the most routine application in pathology. The Lamina multi-label slide scanner uses the latest camera technology to deliver high-speed imaging to maximize your productivity for routine applications. With a capacity of 250 slides and continuous loading capability, it offers high-throughput and reliable performance for your research lab.

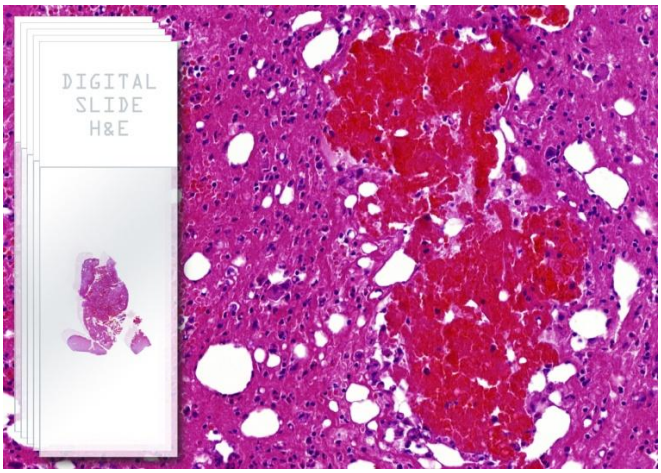

Figure 1. Whole-slide H&E scan of a non-small-cell lung carcinoma tissue section, shown at 20x equivalent view.

Immunofluorescence

Immunofluorescence is a growing application in research pathology due to its added specificity and flexibility. Automated whole-slide scanning electronically preserves the specimen as a digital slide which overcomes the problem of fading. With newly available labeling strategies that enable multiplexing, co-expression can now be studied in the same tissue section, removing the uncertainties of studying different cells in different serial sections.

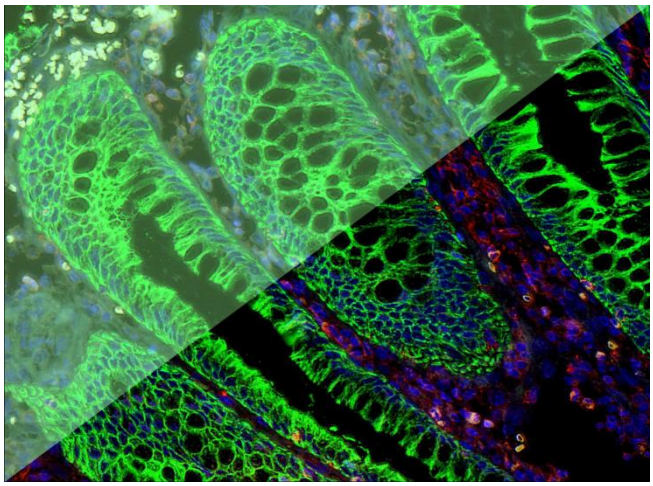

Figure 3 – Lamina fluorescence image of one TMA core of FFPE tissue from colon cancer, triple-labeled with Hoechst (nuclear), FITC (alfa myosin), and Texas Red (SFRP1). (Upper left) Lamina fluorescence image . (Lower Right) image with ART applied.

Immunohistochemistry (IHC)

IHC is a common application used to study protein distribution in tissue sections. Typically with one or more chromogenic stains and a counterstain such hematoxylin, IHC labeling can be difficult to visually assess. Lamina addresses this by offering high-resolution imaging, with excellent color rendition, achieved through superior optics, and is based on an award-winning design.

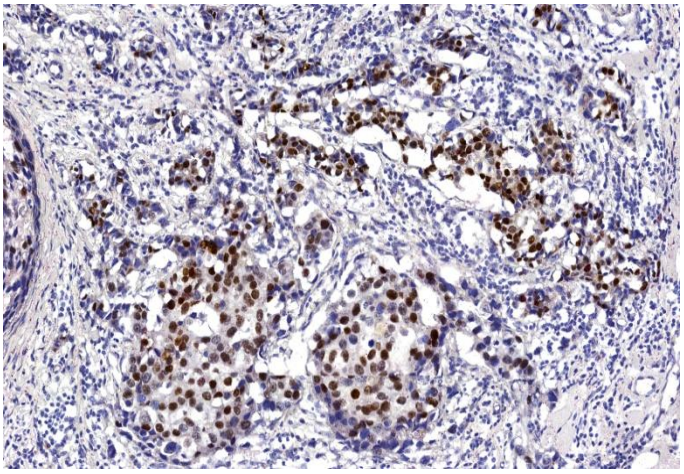

Figure 2. Whole-slide IHC scan of a breast cancer tissue section with DAB (ER) and a hematoxylin counterstain, shown at 20x equivalent view.

Autofluorescence Reduction Technology (ART)

Autofluorescence is a by-product of formalin fixation and while it provides useful morphological context when imaging immunofluorescence in tissue, it can also obscure real signal. Crosstalk is an additional problem that occurs when fluorophores bleed-through into other channels, an effect which can go unnoticed. Autofluorescence and bleed-through may be incorrectly mistaken for true label signaling, leading to the inaccurate assessment of specimens.

Our new, proprietary Autofluorescence Reduction technology separates up to three fluorescence markers from autofluorescence in real time during whole-slide scanning. This process also corrects for crosstalk to produce clearer images of fluorescence labels in FFPE tissues.

Tissue Microarrays (TMAs)

In addition to imaging whole sections on single slides, the Lamina can be used to scan tissue microarrays (TMAs) – whole studies on a single slide. In a TMA multiple tissue cores are mounted into a single tissue block, allowing the standardized production of individual slides containing many different specimens.

TMA's are of increasing interest in research pathology as they allow the simultaneous study of many different but identically labeled samples. This gives more data points, increases confidence in results, and minimizes the use of precious specimens.

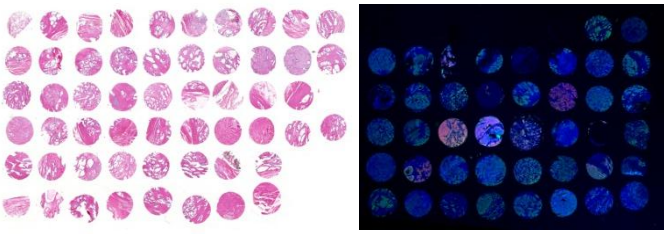

Figure 5 – TMA samples for brightfield (left) and fluorescence (right) tissue core samples

CaseCenter – Secure Online DataSharing & Storage

Share and access images via your own intranet or over the internet using the powerful and flexible CaseCenter from 3DHISTECH Ltd. CaseCenter is a client-server pathology tool with a fully-featured case and slide database that enables archiving and retrieval of digital slides as well as real-time global teleconsultation.

The Lamina multilabel slide scanner is fully integrated with CaseCenter and systems may be configured with two seats to allow you and your research collaborators to see and share your results remotely.

Figure 6 – Teleconsultation using CaseCenter

inForm® Advanced Image Analysis Software

inForm is a patented automated image analysis software package for accurately quantifying biomarkers in tissue sections. As part of the Lamina instrument, inForm software analyzes autofluorescence in your specimens and generates profiles for Autofluorescence Reduction and crosstalk correction during scanning.

The Lamina multilabel slide scanner comes with two offline analysis copies of inForm® Tissue Finder™, a powerful analysis package for quantitative pathology.
inForm Tissue Finder automates the detection and segmentation of specific tissue types using patented user-trainable algorithms that can act like an expert pathologist by recognizing morphological patterns. Cell analysis tools can be used to accurately determine and compare the expression of single cells within specific tissue types.

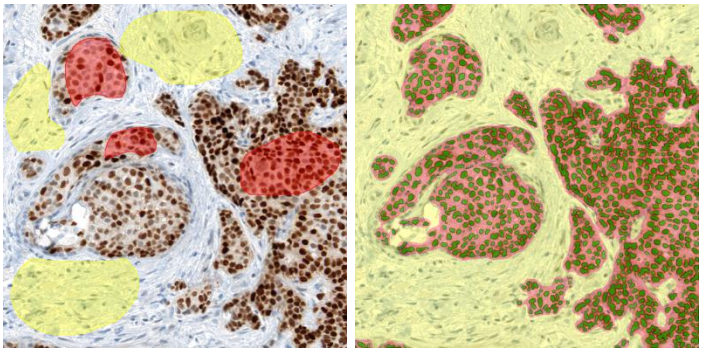

Figure 7 – (Left) inForm Tissue finder training regions (Right) – cells (yellow) automatically detected within tumor tissue (red).

Lamina Multilabel Slide Scanner Specifications

	Lamina
Slide capacity	Up to 250 or continuous loading
Supported slide format	25 x 75 mm, 1-1.2 mm thickness
Imaging Modes	Brightfield, Fluorescence and Autofluorescence Reduction Technology (ART)
Fluorescence Channel	DAPI, FITC, Cy3, Cy5
Brightfield magnification	32x (20x objective with 1.6x coupler)
Fluorescence magnification	20x, 40x
Brightfield camera	CMOS
Fluorescence camera	Monochrome sCMOS
Brightfield illumination	6W strobe light
Fluorescence illumination	Solid state light engine
Brightfield scanning speed (15 x 15 mm)	33 slides per hour
Digital slide format	MRXS, JPG & JPG 2000 encoding
Scanner control software	Lamina scanner software, inForm for Lamina
Image analysis software	inForm Tissue Finder (2 seats)
Data sharing and storage software	CaseCenter* (2 seats optional)
Operating system	Windows 7/64-bit
Barcode reader	Yes
W x D x H (cm)	68 x 70 x 55
Weight (kg) (instrument only)	46

*Minimum IT requirements apply

'For laboratory use only. This product is intended for research purposes only and not for use in humans.'

For more information, please visit www.perkinelmer.com/lamina

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