BioPipeline SLIDE 8

Research Use Only (RUO) —
not for use in in vitro diagnostic procedures.

BioPipeline SLIDE 8

Walk-away Whole Slide Imaging for the modern research lab.

BioPipeline Slide 8 is an automated, medium-throughput whole slide imaging (WSI) system built on Nikon's industry-standard Ni-E motorized upright microscope and an all-new multimode slide scanning software functionality with motorized XYZ control. Designed for multiplexed immunofluorescence, H&E, and digital research pathology workflows, BioPipeline Slide 8 brings unattended throughput for high-resolution imaging with the optical performance researchers expect from Nikon Instruments.

Load up to 8 slides, queue your protocols in NIS-Elements, and scan slides rapidly. The system handles autofocus, multi-channel acquisition, large-area stitching, and (optionally) AI-driven analysis from a single software platform.

BioPipeline Slide 8 is Research use only (RUO) and should not be used for in vitro diagnostics.

CAPACITY	PLATFORM	MULTI-CHANNEL	SOFTWARE
8 Slides	**Ni-E Upright**	**Brightfield or Fluorescence**	**NIS-Elements AR**
Standard glass, 25 × 75 mm (Optional 4 slide holder for 50 x 75mm slides)	Motorized, research-grade with Nikon Lambda D optics	Multicolor fluorescence or Transmitted light / contrast images	Slide Scanning

Key Features

Eight slides, one workflow - engineered for high precision and high resolution slide imaging.

8-slide automated stage with kinematic loading

The 8-slide stage holds standard 25 × 75 mm glass slides in precision-machined kinematic mounts. Slides drop into place in seconds, and encoders on every axis precisely move the sample for fast imaging.

- Sub-micron stage repeatability (XYZ)
- Tool-free slide loading and removal
- Automatic exposure and automatic focus surfacing by AI-driven software control
- Continuous movement XYZ image acquisition

Dedicated Turn-key Slide Scanning workflow

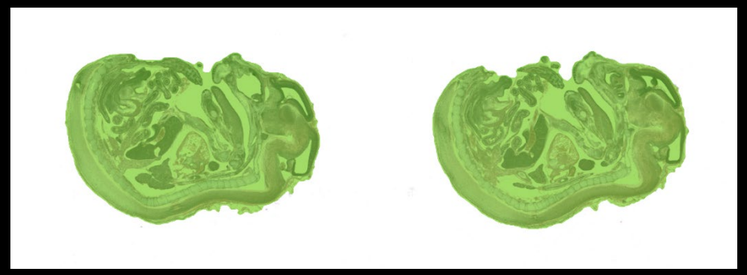
NIS-Elements slide scanning interface provides just the tools needed and a smooth start to finish workflow designed for whole slide imaging.

Overview, automatically detect samples on the slides, read slide labels, acquire multiple ROIs per slide, review and annotate, and view and export all in one workflow interface.

NIS-Elements + AI: from acquisition to insight

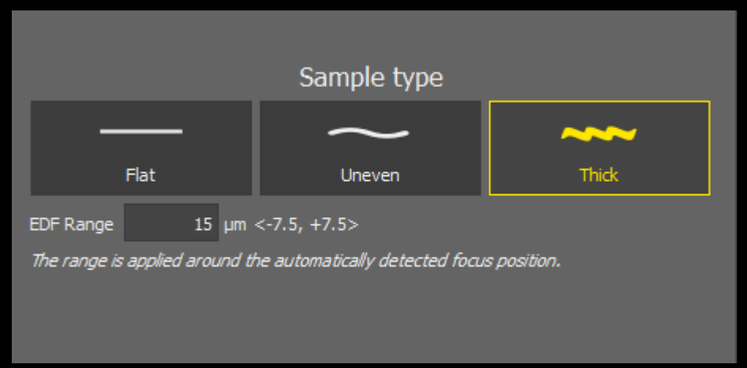
BioPipeline Slide 8 software features enable multiple AI tools for automated slide scanning with minimal user interventions.

Automatic detection and recognition of slide label text (including barcodes), with customizable fields.



Automatic sample border detection from slide overview images, with user-defined borders and editing possible.

Automatic Exposure and focus map surface maintains consistent acquisition properties for multiple slides in an experiment run.



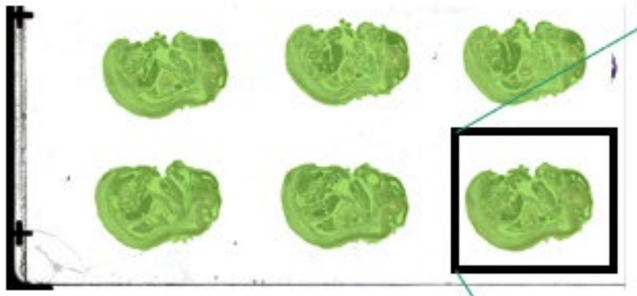
Multiplexed immunofluorescence made simple

Acquire multiple fluorescence channels in turn-key step by step protocols. NIS-Elements drives the illumination, motorization, and camera in lockstep.

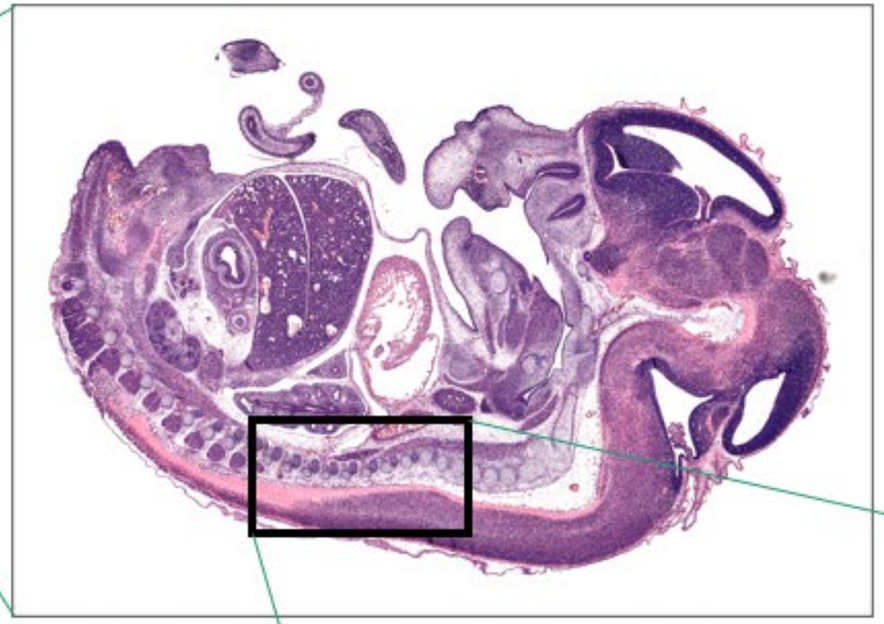
Acquire multiple high-resolution ROIs on slides without operator intervention — the software handles objective changes, autofocus, and stitching.

From whole-slide survey to subcellular detail

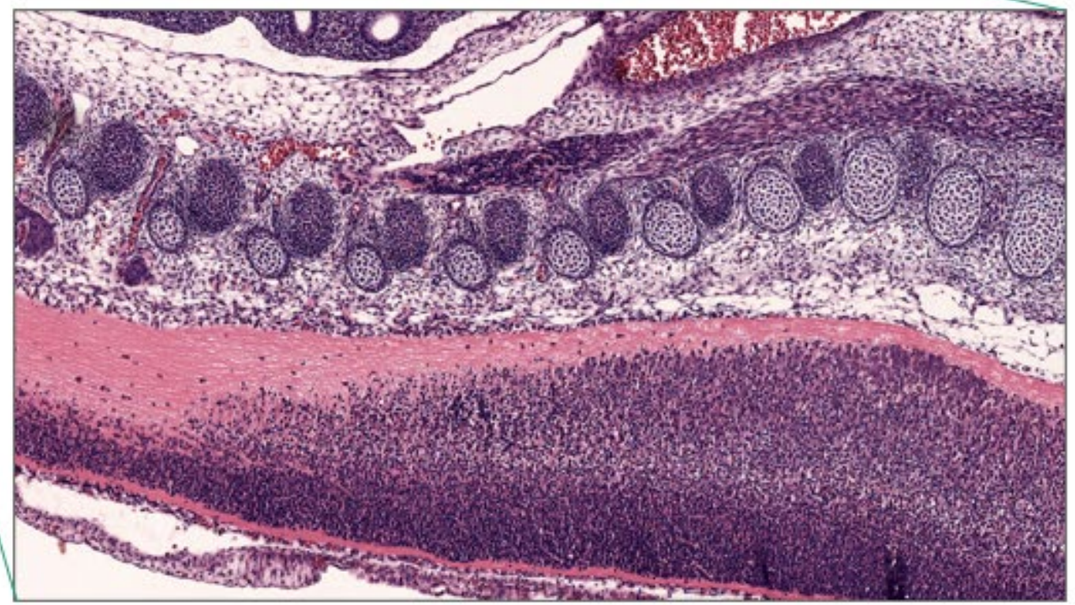
BioPipeline Slide 8 captures the full slide at low magnification, then automatically drives to automatically detected or user-defined regions of interest for high-resolution follow-up imaging — all within a single queued protocol.



Smart sample detection
Low-magnification preview locates specimen, then acquires only the sample region at high magnification — saving both scan time and storage.



Automatic focus surface mapping
Multipoint focus maps are rapidly computed. These compensate for uneven samples, coverslip variation, and multi-layer specimens without operator intervention.

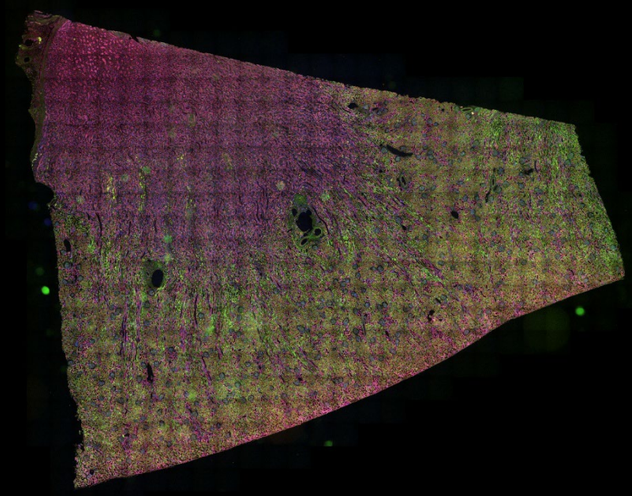


This multi-resolution workflow lets researchers screen many slides quickly, then zoom into the structures that matter most.

- Automatic overview → high-mag handoff
- Operator-defined or AI-detected regions of interest
- Slide label, overview, ROI thumbnails, and high-resolution ROI scans all saved together.

Seamless tiling, Even with multichannel epifluorescence

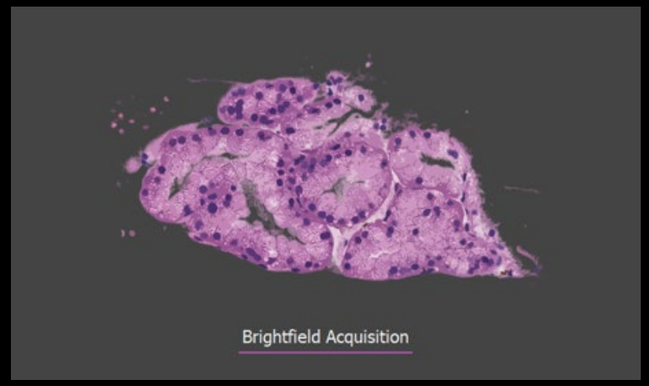
Compared to traditional systems, BioPipeline Slide 8 acquires multi-frame data and stitches it effectively, resulting in images made up of hundreds of frames that appear as if they were from a single snapshot.



Traditional large image tiling present with classic pattern artifacts due to illumination and acquisition shading.

Built for Speed

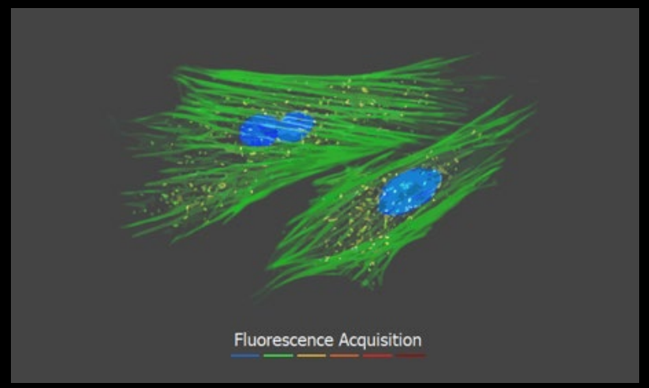
As a medium throughput whole slide imager, BioPipeline 8 is built for minimizing overhead and maximizing acquisition speed.



Fast Continuous Scanning

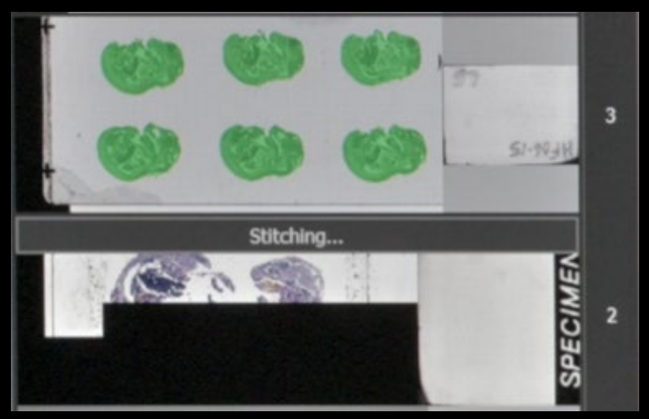
A 10mm^2 tissue section acquired with continuous XYZ scanning can be captured in just 60 seconds.

(file size 3GB, 32,000 x 32,000 pixels at 10x magnification)



Rapid Fluorescence Acquisition

Fluorescence acquisition speed is limited only by the exposure time required to capture each channel. Acquire up to 8 fluorescence channels with one epifluorescence light source.

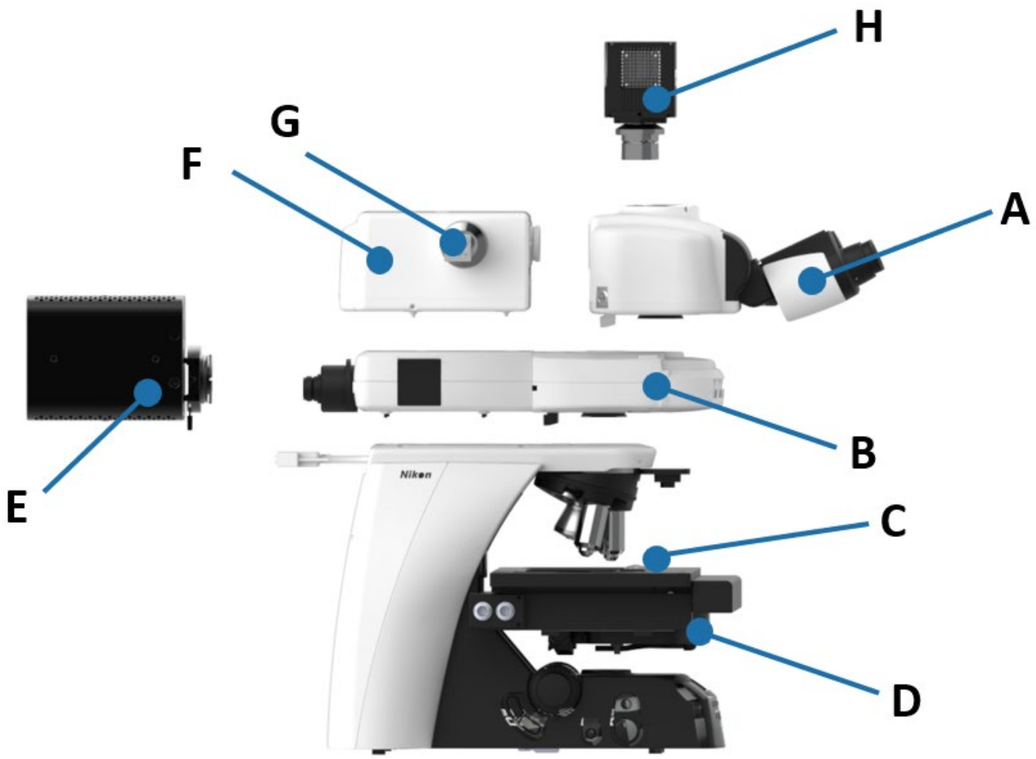


Multiplexed Processing

While the current slide is being scanned, NIS-Elements is simultaneously processing and tiling (stitching) the previous slide. This multiplexed action results in fast overall performance for scanning and processing multiple slides.

Configuration Options

BioPipeline 8 offers several options and accessories, and can be configured for Brightfield color, Fluorescence, or both Brightfield and Fluorescence whole slide imaging.



	Feature	Option	BF	Fluor
A	Microscope Eyepiece tube	Required for single camera configurations	✓	✓
B	Epifluorescence filter turret and light train	Required for fluorescence		✓
C	Slide holder	8 slide 1x3” 4 slide 2x3”	✓	✓
D	Contrast methods	Brightfield Darkfield Phase Contrast DIC	✓	
E	Epifluorescence source	4 channel Nikon D-LEDI 8 channel Lumencor Spectra III		✓
F	Microscope Zoom port	Required for dual camera configuration	✓	
G	Brightfield color camera	Required for brightfield color slide scanning	✓	
H	Monochrome camera	Required for fluorescence scanning Teledyne BSI series or Hamamatsu Fusion series		✓

1 2 3

Shown are:

1. Configuration for Brightfield only
2. Configuration for Fluorescence only (shown here with Nikon D-LEDI and Teledyne BSI Express)
3. Configuration for both Brightfield and Fluorescence with second microscope port

Specifications

PLATFORM

Microscope base	Nikon Ni-E motorized upright microscope
System type	Microscope-based semi-automated whole slide imaging system
Primary application	Medium-throughput whole slide imaging (WSI); also supports routine research microscopy
Configurations	Brightfield, Epifluorescence, or Brightfield and Epifluorescence
Antivibration table	Recommended, especially for 20x/40x magnfication imaging to reduce environmental vibration

IMAGING SPECIFICATIONS

Imaging modalities	Transmitted light brightfield and brightfield contrasting techniques (phase, darkfield, DIC); widefield epifluorescence
Illumination	Up to 8-channel epifluorescence LED; LED transmitted light
Objectives	All air objective lenses compatible; selectable per configuration
Autofocus	AI-assisted; automatic mult-focus surface map for uneven samples
Imaging methods	Multidimensional XY, Z, wavelength, multi-stage position including tiling
Hardware triggering	Enabled for continous acquisition during XYZ movement

BRIGHTFIELD COLOR CAMERA SPECIFICATIONS

Sensor type	CMOS
Shutter type	Global shutter
Resolution	5 MP (2448 × 2048 px)
Pixel size	3.45 µm × 3.45 µm
Interface	USB 3.0

THROUGHPUT & PERFORMANCE

Standard slide capacity	8 slides per run
Optional stage insert	4-slide insert for 2×3" / 52×76 mm slides
Focus surface mapping	Various modes and sampling frequency according to the sample flatness
10 x 10mm Scan Speed	Continuous scanning acquires 10x10mm in 60 seconds @10x; tiling and blending occurs in parallel with the acquisition of the next slide.
Z stack capability	Extended Depth of Focus (EDF) result images are acquired

SOFTWARE & ANALYSIS

Software platform	NIS-Elements AR with dedicated slide scanning module
Acquisition interface	Guided wizard for brightfield and fluorescence; suitable for novice users
Sample detection	AI-assisted automatic sample selection with user interaction
Annotation	Project and slide annotation; multiple ROI support
Analysis modules	Optional NIS-Elements GA3; NIS-CC; additional modules selectable
Data sharing	Unified acquisition and analysis across all Nikon microscope platforms
Optional storage	BioPipeline Server: 10GbE dedicated network, 30× workstation capacity
File Formats	Nikon ND2, OME-TIFF, JPEG
Barcodes	1D: Codabar, Code39, Code93, Code128, EAN8, EAN13, ITF, DataBar, DataBarExpanded, UPCA, UPCE2D: Aztec, DataMatrix, MaxiCode, PDF417, QRCode, MicroQRCode, RMQRCode

PHYSICAL SPECIFICATIONS

Dimensions (W × D × H, without detector)	32 cm × 60 cm × 510 cm typical; +70 mm H with additional EPI port
Weight (approx)	32 kg
Power consumption	140 W (microscope body only)

SELECTABLE & OPTIONAL COMPONENTS

Objectives
Nikon Plan Apo Lambda D series recommended. All Nikon air objective lenses. Selection varies by configuration.

Monochrome Detectors
Teledyne BSI series or Hamamatsu Fusion series are options for Epifluorescence.

Epifluorescence Light Source
Nikon 4 channel D-LEDI or Lumencor 8 channel Spectra III are options for Epifluorescence.

Brightield, Epifluorescence, or both modalities
System can be configured for either modality, or with two detectors for both modalities.

Additional Software Modules
GA3, NIS-CC, and other NIS-Elements modules selectable.

4-Slide Stage Insert
Optional insert for 2×3" / 52×76 mm non-standard slide formats.

Specifications and equipment are subject to change without any notice or obligation on the part of the manufacturer.

⚠ WARNING	TO ENSURE CORRECT USAGE, READ THE CORRESPONDING MANUALS CAREFULLY BEFORE USING YOUR EQUIPMENT.

NIKON INSTRUMENTS INC.
1300 Walt Whitman Road, Melville, N.Y. 11747-3064,
U.S.A.phone: +1-631-547-8500; +1-800-52-NIKON (within the U.S.A. only)
fax: +1-631-547-0306
http://www.nikoninstruments.com