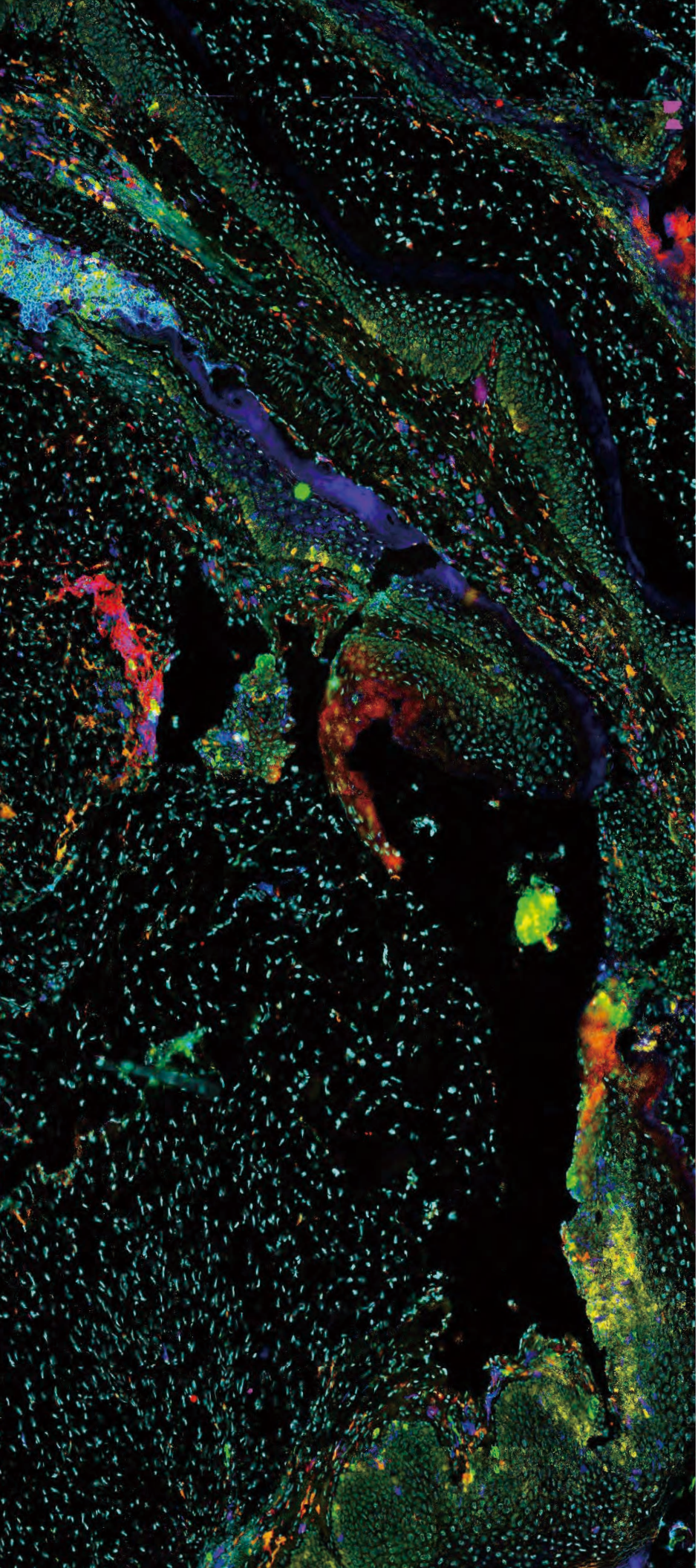
BRUKER SPATIAL BIOLOGY

CellScape™

Precise Spatial Proteomics

At the Forefront of Spatial Biology

The CellScape platform is your end-to-end solution for highly multiplexed spatial proteomics and single-cell analysis. With an advanced imaging system, streamlined fluidics for walk-away automation, and unprecedented flexibility in assay design, the CellScape platform accelerates biological research from discovery to translation.



From Images to Discovery

Quantitative Performance

The only spatial biology platform with both single-cell resolution and high dynamic range (HDR) microscopy, the CellScape platform enables truly quantitative phenotyping with exceptional data quality.

Straightforward and Reliable

Simple chemistry and robust performance that gets you productive sooner, with scalable cost, throughput, and plex.

Unmatched Flexibility

An open platform that supports the assays and sample types you need, including fresh frozen tissue, FFPE tissue, and cell suspension samples from any model organism.

Modularity at Any Time

Seal, store, and probe samples with additional modular panels or markers days or months after an initial experiment, enabling an unparalleled hypothesis-driven approach to high-plex spatial biology.

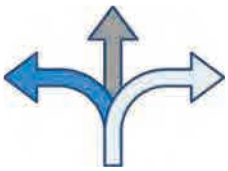
Introducing EpicIF™ Technology

Enhanced Photobleaching in Cyclic Immunofluorescence

Introducing our groundbreaking cyclic immunofluorescence workflow—gentle yet powerful signal removal, compatible with nearly any fluorophore, and designed to enhance your unique high-plex spatial proteomics research without compromise.

Expansive

Use any organic dye from the rhodamine, cyanine, or BODIPY families on the CellScape instrument.



Flexible

Combine multiple fluorescence-based assays, including IF, RNA-ISH, and proximity ligation, on the same sample.

Reliable

Gentle signal removal with EpicIF Solution and white light preserves epitope and tissue integrity.

EpicIF is powered by the new CellScape Navigator software for intuitive experiment planning, instrument control, and data export.

Learn More about EpicIF Technology

The EpicIF Workflow

For the CellScape Precise Spatial Proteomics platform

1

STAIN

Stain sample with up to 5 fluorescently labeled antibodies in a single cycle

2

IMAGE

Quality optics and HDR imaging achieve true single-cell resolution

3

ERASE

Filtered photobleaching with EpicIF Solution gently eliminates fluorescence signal to start the cycle again

4

REPEAT

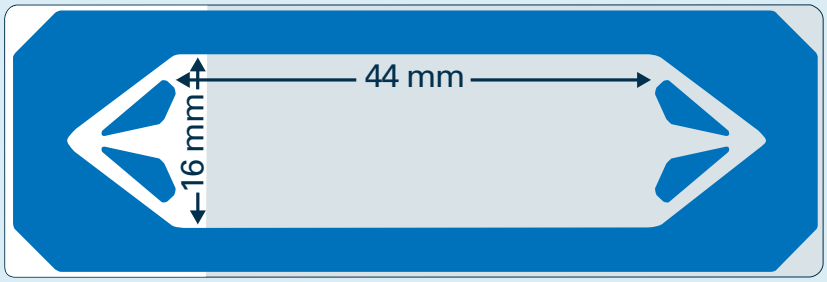
Utilize unlimited cycles to achieve highly multiplexed biomarker detection

Flexibility for Today... And Tomorrow

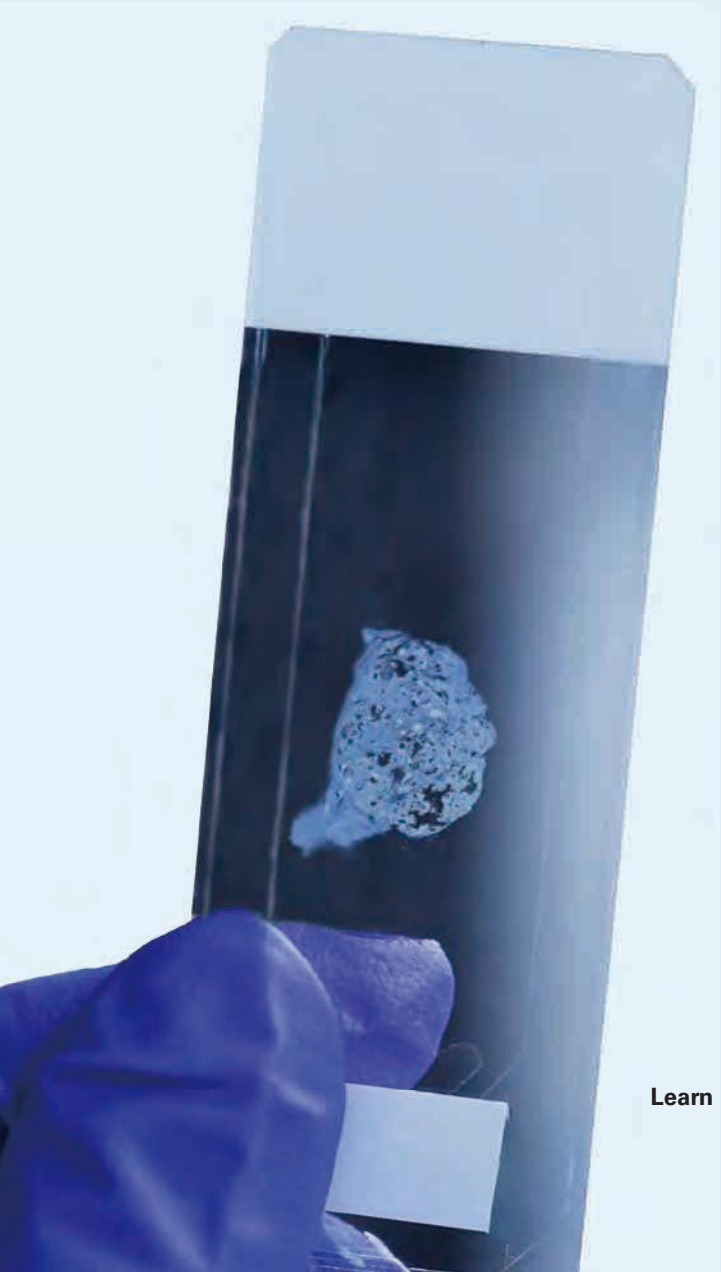
Use the CellScape Whole-Slide Imaging Chamber for automated multiplex staining, high-resolution imaging, and safe sample storage.

See Everything

View large tissue sections to uncover key biological insights and enable complex analyses. Uncover tissue diversity, identify patterns of cell-cell interactions, and locate regions of interest for further exploration.



Convert any standard microscope slide into a microfluidic chamber, maximizing available imaging area.



Versatile Sample Compatibility

The CellScape Whole-Slide Imaging Chamber enables the analysis of:

- Large tissue sections (FF or FFPE)
- Technical replicates on the same slide
- Tumor microarrays (TMAs)

Future-Proof Spatial Biology

Once samples are loaded in a Whole-Slide Imaging Chamber, they can be safely stored for future analysis. CellScape analysis is non-destructive and the same sample can be explored repeatedly, adding new markers each time.

Learn more about Data-Driven Assay Expansion

Accessible Platform, Reagent Flexibility

With flexible reagent choices and panel design, researchers can design custom panels for any immunology, oncology, or neurobiology application.

Use Your Markers

Compatible with fluorescently labeled antibodies from any vendor.

Use Our Markers

Select from 350+ verified compatible antibodies from our list.

Explore our Marker Database

Use Pre-Optimized Panels

Ready-to-use, expandable multiplex antibody panels with optimized protocols, designed and validated for CellScape give you a jump start on successful assay design.

Compatible with the new EpicIF workflow, VistaPlex™ Next-Generation Assay Kits support key research applications, including:

- Cell Segmentation
- Tissue Architecture
- Immune Profiling
- Coming Soon: Myeloid Profiling

Fully Automated & Ultra High Plex

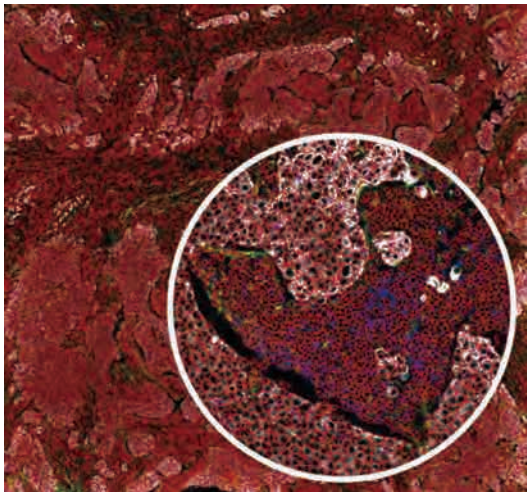
Automated liquid handling and a 4-sample holder allows for continuous data acquisition around the clock. The iterative staining,imaging, and signal removal workflow enables hands-free execution of highly multiplexed assays.

Designed for Quantification

The CellScape platform enables advanced quantitative analyses of every cell in your sample via any third-party analysis pipeline.

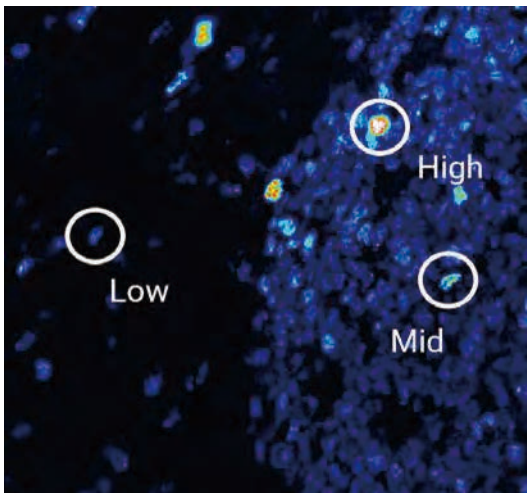
Cell Segmentation

Pair the high-resolution imaging of the CellScape platform with the VistaPlex Segmentation Kit for accurate definition of cell boundaries. This method is more precise than nuclear segmentation and enables the capture of diverse cellular morphologies.



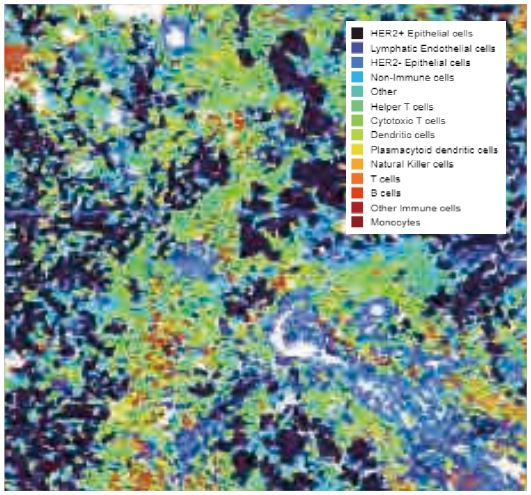
HDR Enables Quantitative Phenotyping

Sub-cellular resolution and high dynamic range (HDR) together are required for quantitative and precise deep phenotyping. With this combination fully automated, the CellScape platform is optimized for generating spatial proteomics datasets.



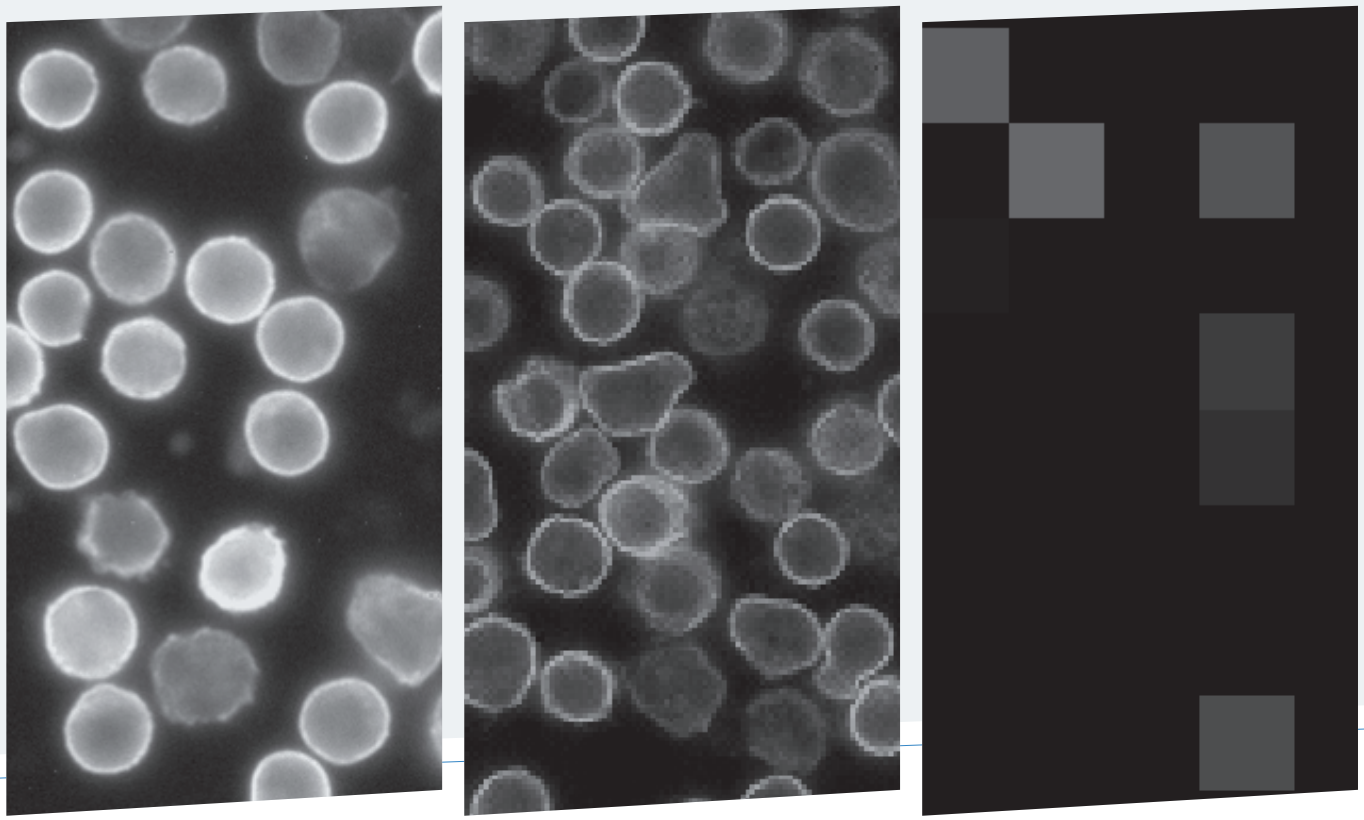
Advanced Spatial Analyses

With a standard OME-TIFF file output, data from the CellScape platform can be analyzed with open-source or subscription-based spatial analysis pipelines, providing versatility in data analysis to advance your research and discovery.



Resolve Every Detail

With a crisp, 182 nm/pixel digital sampling rate, CellScape can not only clearly define cell boundaries, but also reveal the subcellular information critical to your studies.



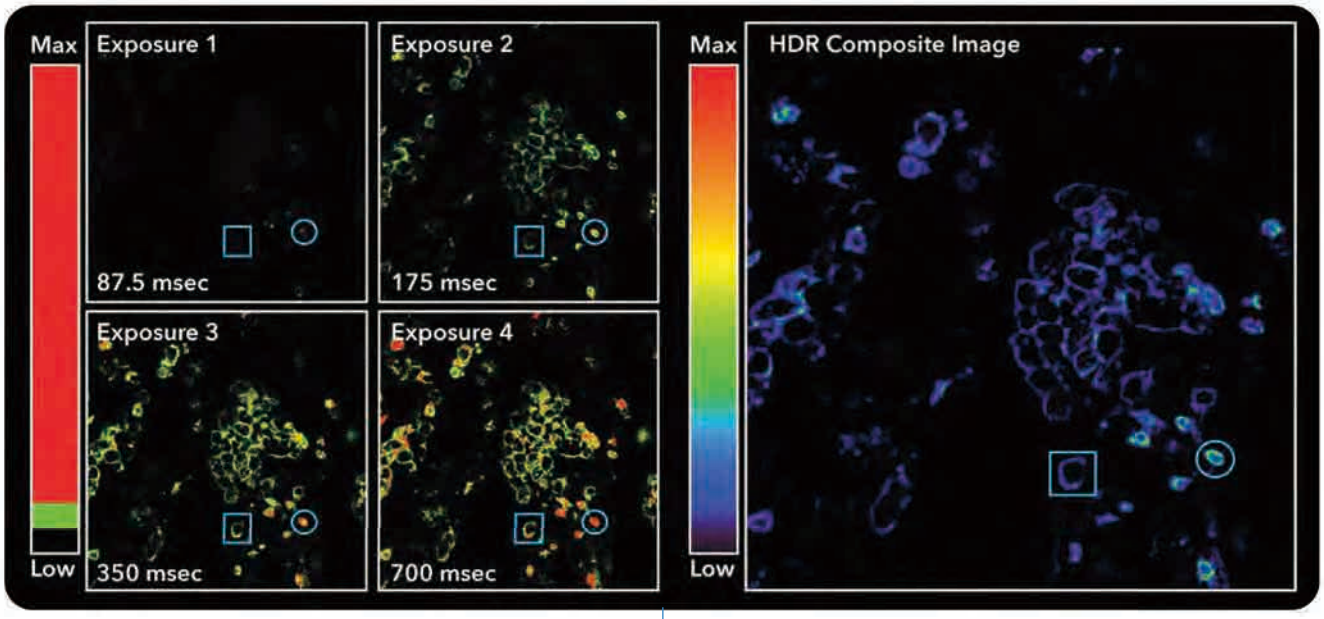
CellScape
182 nm/pixel

Other spatial biology platforms
500 nm/pixel

Multicellular resolution
10,000 nm/pixel

Accurate Phenotyping

See what you've been missing. Our unique High Dynamic Range (HDR) image acquisition pipeline enables accurate capture of both high-and low-expressing targets simultaneously.

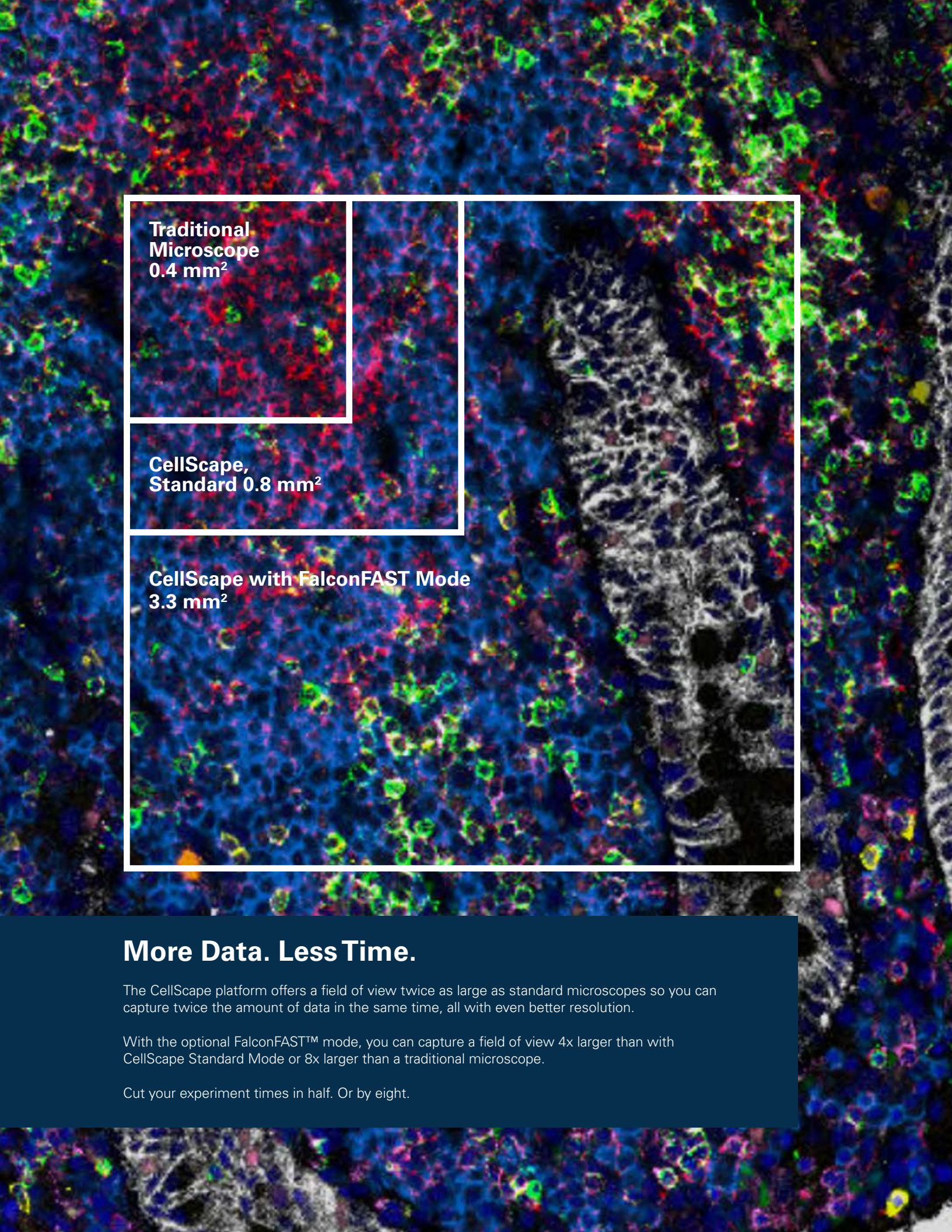


Low Expression can only be detected with long exposures, yet this over-saturates bright cells.

High Expression may be captured with shorter exposures, but at the loss of dim signal.

Only **HDR multi-exposure fusion** can depict the dimmest cells and the brightest cells on a single scale without oversaturation.

Learn more about HDR microscopy



More Data. Less Time.

The CellScape platform offers a field of view twice as large as standard microscopes so you can capture twice the amount of data in the same time, all with even better resolution.

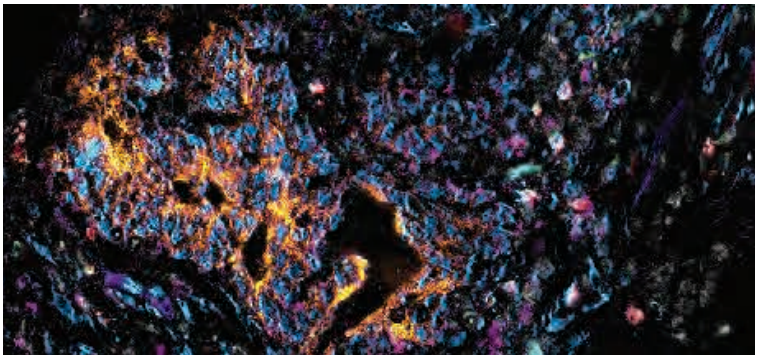
With the optional FalconFAST™ mode, you can capture a field of view 4x larger than with CellScape Standard Mode or 8x larger than a traditional microscope.

Cut your experiment times in half. Or by eight.

Explore Applications

Develop Custom Assays

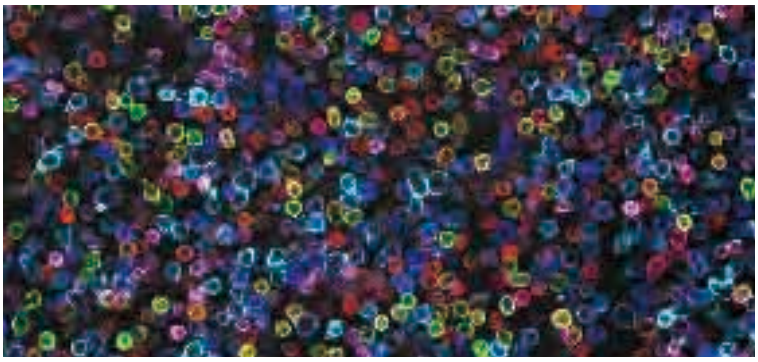
Because CellScape Precise Spatial Multiplexing uses open-source reagents and protocols, the platform supports researchers developing new methods, including combining spatial proteomics with spatial transcriptomics on the same sample (Jarosch et al., 2022).



Human colon cancer tissue stained with a 21-plex assay panel.

Resolve Distinct Subpopulations

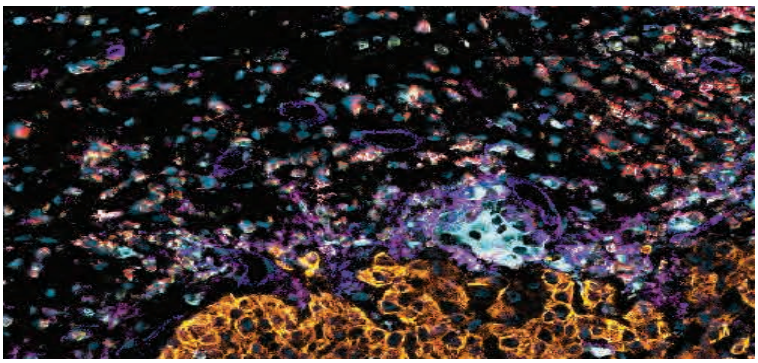
Most cameras are insufficient to capture the full range of protein expression within a single tissue specimen. CellScape uses HDR imaging and first-rate optical components to provide the greatest sensitivity for the highest quality data.



Human PBMCs stained with an 11-plex assay panel.

Discover Rare Cell Types

Cells of biomedical interest are often present in low quantities. CellScape technology has been utilized to identify rare cell populations in colon epithelial tissue (Leng et al., 2019) and identify rare B cell types in tumor microenvironments (Zhang et al., 2024).



Human lung cancer tissue stained with a 12-plex assay panel.

Visit our Resource Library

CellScape Platform

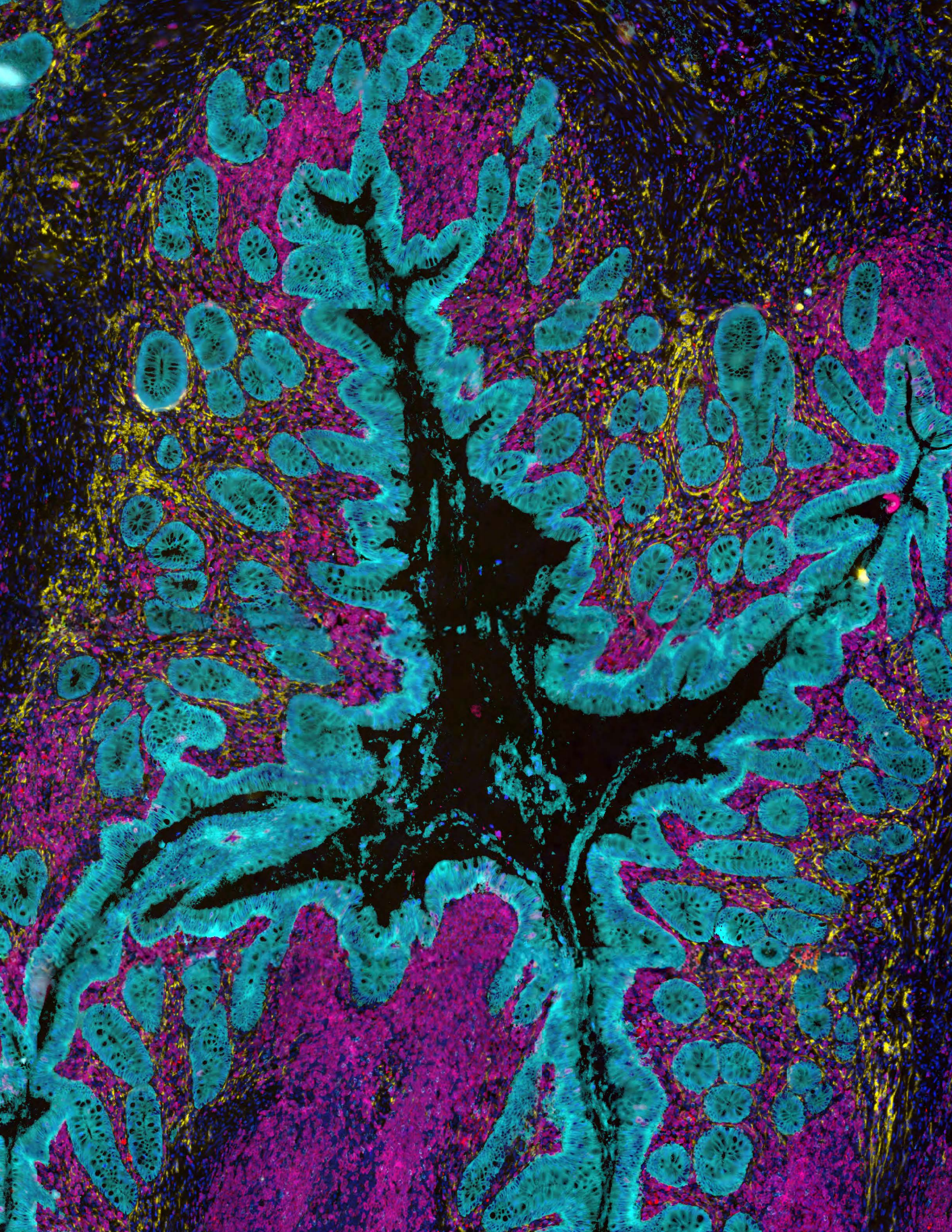
Product Specifications

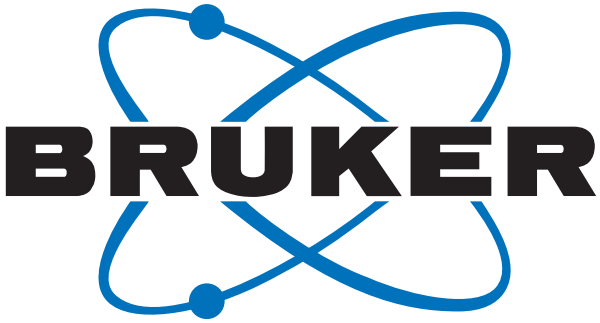
Instrument Specifications	
Dimensions	CellScape Instrument: 57 cm x 38 cm x 32 cm PlexFlo Fluidics Unit: 37 cm x 30 cm x 20 cm
Weight	60 kg
Additional Components	Light source, eBox, degasser, computer and monitor, barcode scanner
Automation	Walk-away staining, image acquisition, and enhanced photobleaching
Light Source	120 W Mercury arc lamp
Imaging Modes	Transmitted and fluorescence light
Sample Compatibility	FFPE tissues, FF tissues, Cell suspensions
Fluorescence Channels	Spectrally distinct filter sets for 5 color imaging
File Formats	OME-TIFF files
Software	CellScape™ Navigator: Single application that integrates experiment planning, instrument control, and data export

	CellScape Standard Mode	CellScape FalconFAST Mode
Objective	Plan Apo 20X | 0.80 NA	Plan Fluor 10X | 0.30 NA
FOV Size	0.8 mm^2	3.3 mm^2
Resolution*	278 nm	742 nm
Digital Sampling**	182 nm/pixel	365 nm/pixel

* Resolution is calculated with the following equation: $r = 0.61\lambda/NA$ using the shortest excitation wavelength (λ = 365 nm). The resolution in other channels will be higher.

** Digital sampling is independent of resolution and is calculated by dividing the pixel size of the camera by magnification.





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