BRUKER SPATIAL BIOLOGY

CellScape™

Precise Spatial Proteomics

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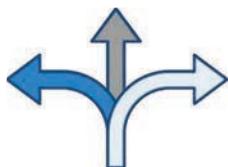
Introducing our groundbreaking cyclic immunofluorescence workflow—gentle yet powerful signal removal, compatible with nearly any fluorophore, and designed to enhance your unique high-plex spatial proteomics research without compromise.

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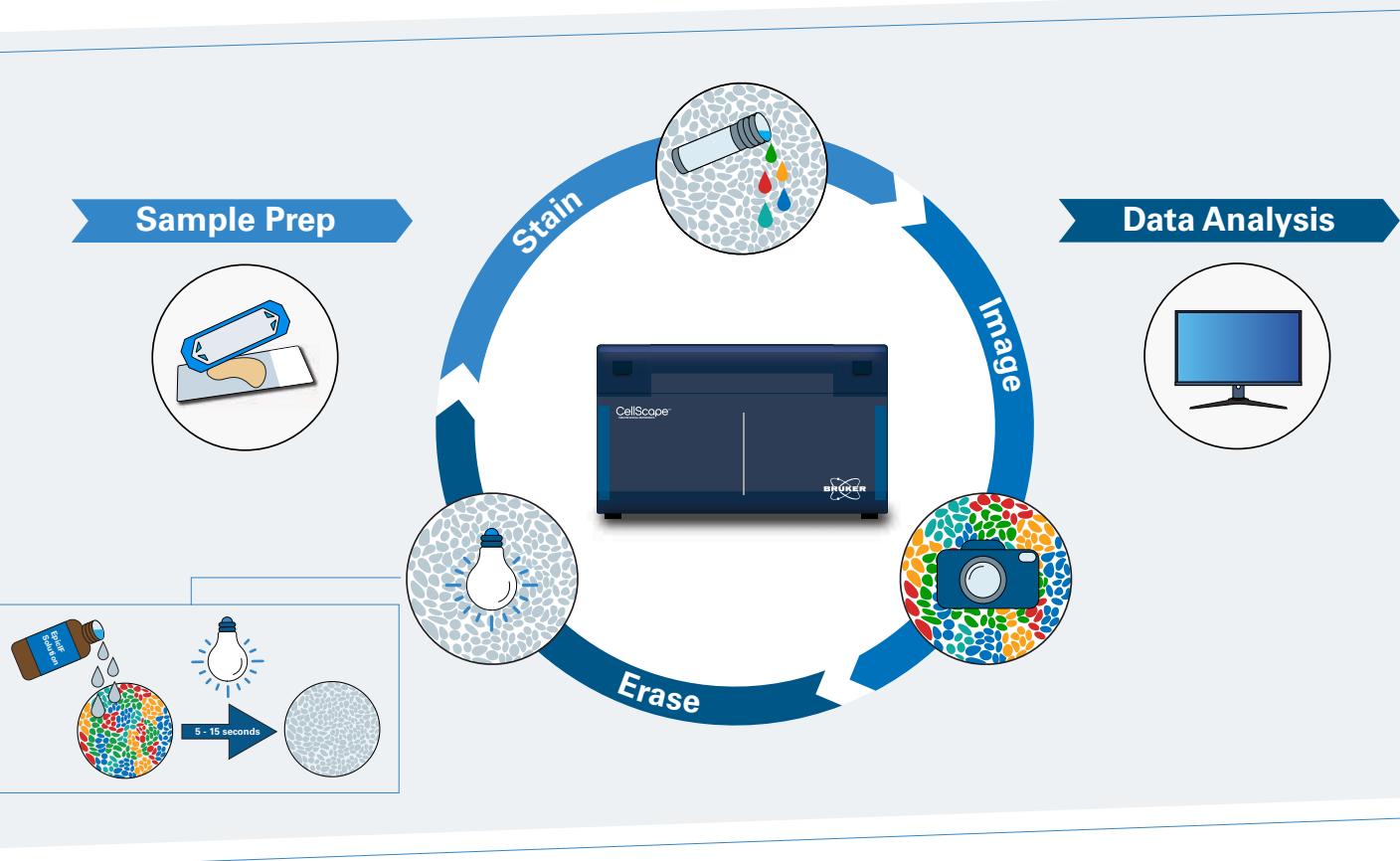
Reliable
Gentle signal removal with EpicIF Solution and white light preserves epitope and tissue integrity.

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

Sample Prep

Stain

Image

Erase

Data Analysis

CellScape

BRUKER

5 - 15 seconds

EpicIF Solution

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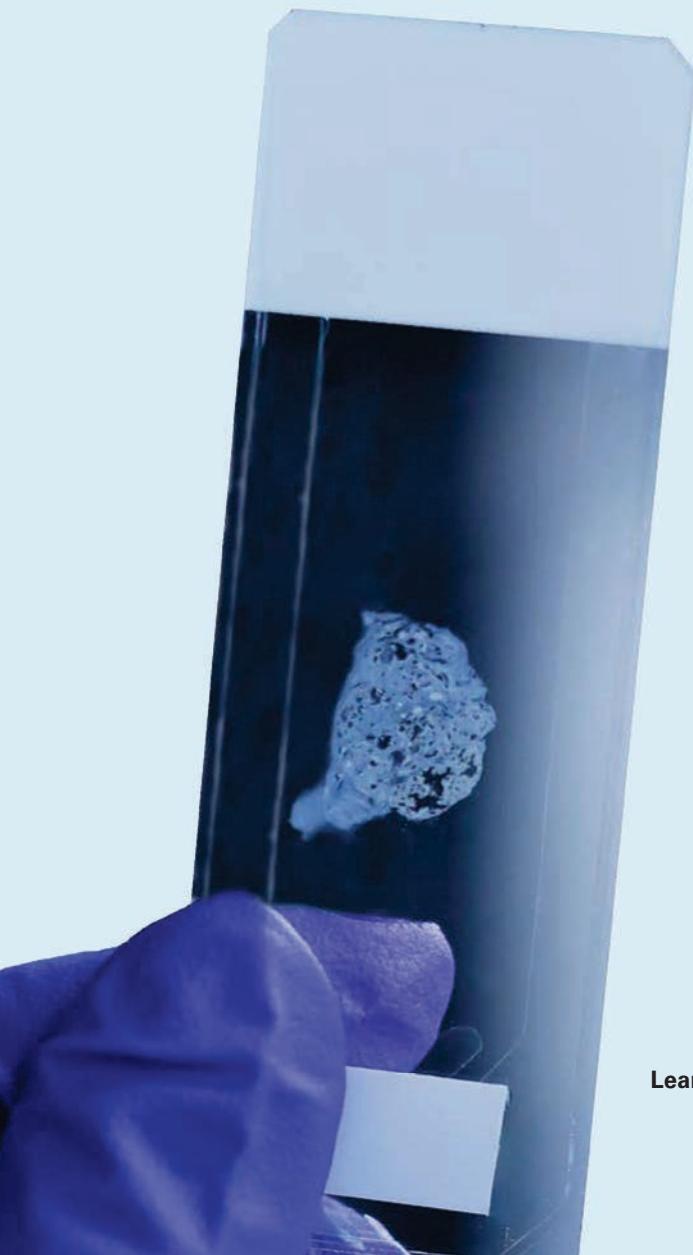
Use the CellScape Whole-Slide Imaging Chamber for automated multiplex staining, high-resolution imaging, and safe sample storage.

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)
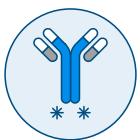
Future-Proof Spatial Biology

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
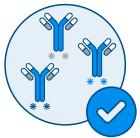
Compatible with fluorescently labeled antibodies from any vendor.

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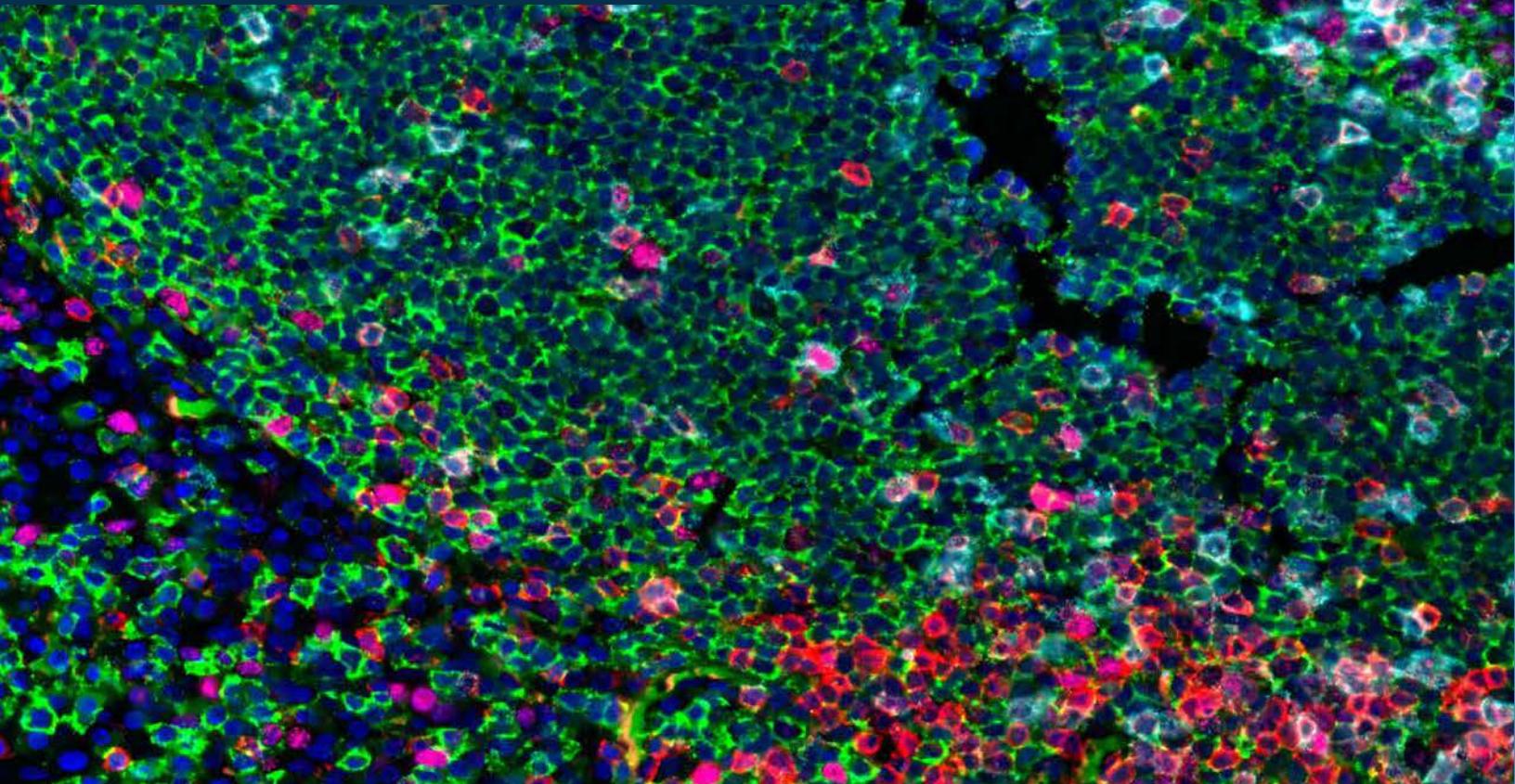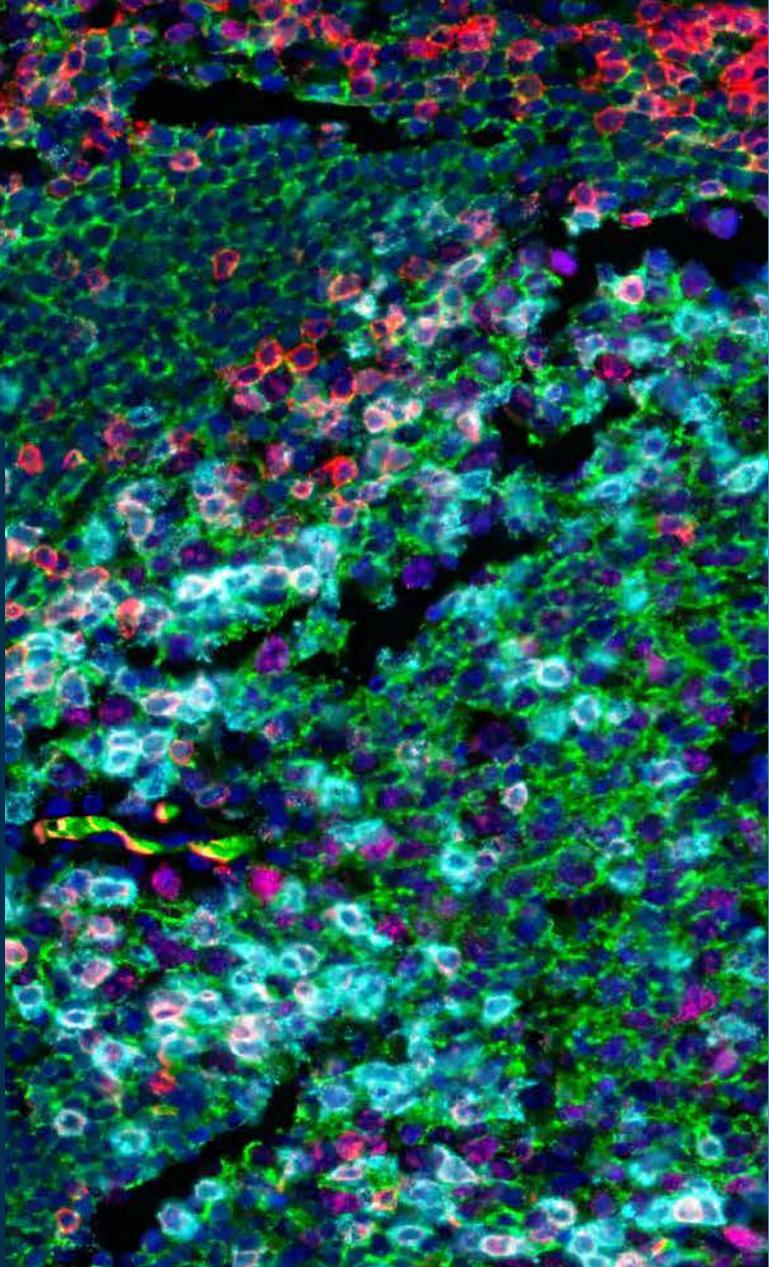
Compatible with the new EpicIF workflow, VistaPlex™ Next-Generation Assay Kits support key research applications, including:

- 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.
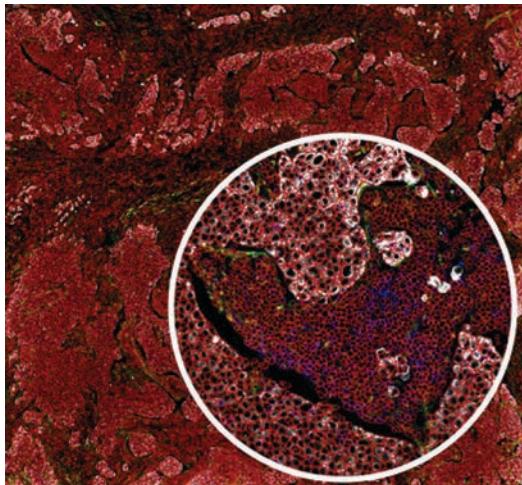
Designed for Quantification

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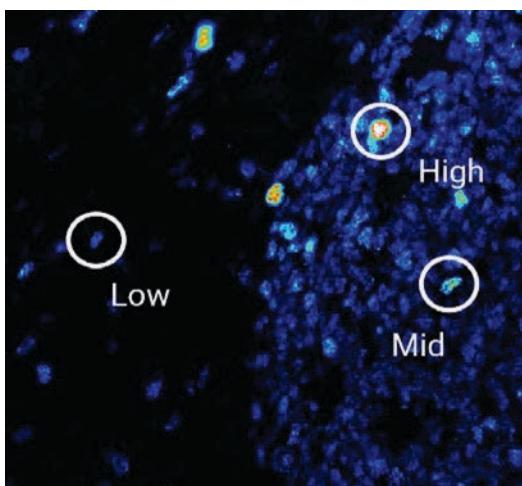
Cell Segmentation

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.
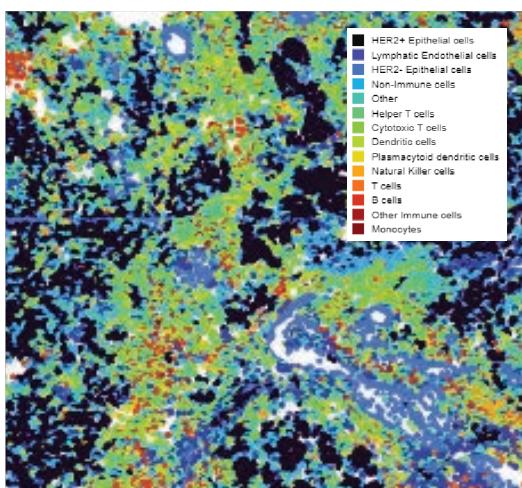
## HDR Enables Quantitative Phenotyping

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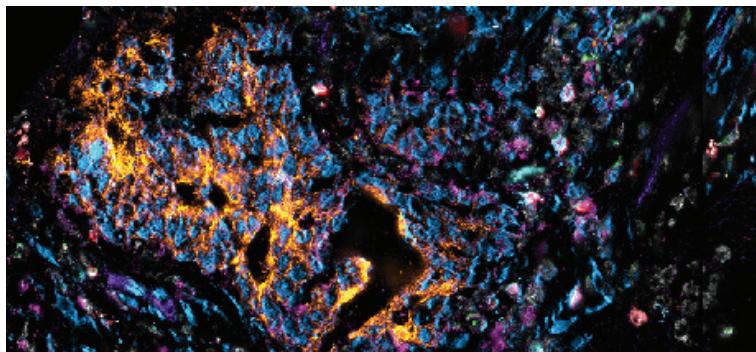
With a standard OME-TIFF file output, data from the CellScape platform can be analyzed with open-source or subscription-based spatial analysis pipelines, providing versatility in data analysis to advance your research and discovery.


HER2+ Epithelial cells
Lymphatic Endothelial cells
HER2- Epithelial cells
Non-Immune cells
Other
Helper T cells
Cytotoxic T cells
Dendritic cells
Plasmacytoid dendritic cells
Natural Killer cells
T cells
B cells
Other Immune cells
Monocytes

Explore Applications

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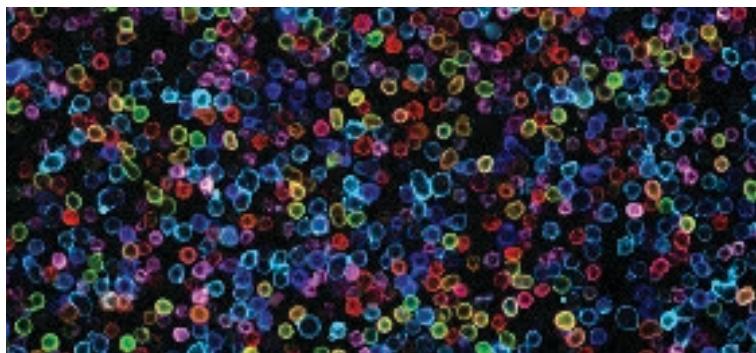
Because CellScape Precise Spatial Multiplexing uses open-source reagents and protocols, the platform supports researchers developing new methods, including combining spatial proteomics with spatial transcriptomics on the same sample (Jarosch et al., 2022).


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

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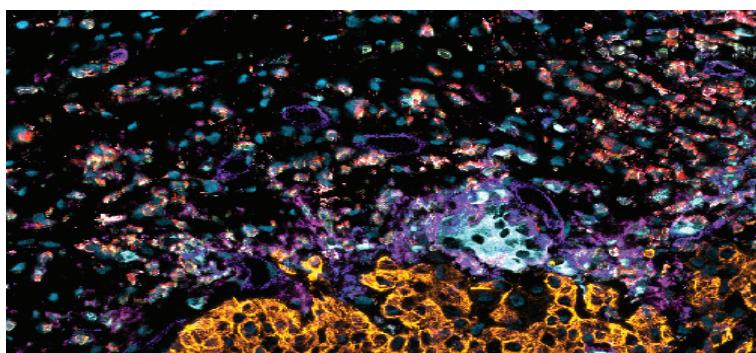
Most cameras are insufficient to capture the full range of protein expression within a single tissue specimen. CellScape uses HDR imaging and first-rate optical components to provide the greatest sensitivity for the highest quality data.


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.