



# CellScope™

PRECISE SPATIAL MULTIPLEXING

More Detail. More Data. Less Time.

The Next Generation of ChipCytometry™ Instrumentation



## At the Forefront of Spatial Biology

CellScope is your end-to-end solution for highly multiplexed spatial omics and single-cell analysis. With an advanced imaging system, streamlined fluidics for walk-away automation, and unprecedented flexibility in assay design, the CellScope platform accelerates biological discovery, therapeutic development, and precision medicine.

## From Images to Discovery



### HIGH MULTIPLEXING

Detect virtually unlimited protein biomarkers on a single sample.



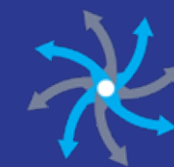
### THROUGHPUT & AUTOMATION

Expedite discovery with 4 sample capacity and walk-away automation.



### QUANTITATIVE IMAGING

Combine high resolution and innovative high-dynamic range imaging for true single-cell quantification.

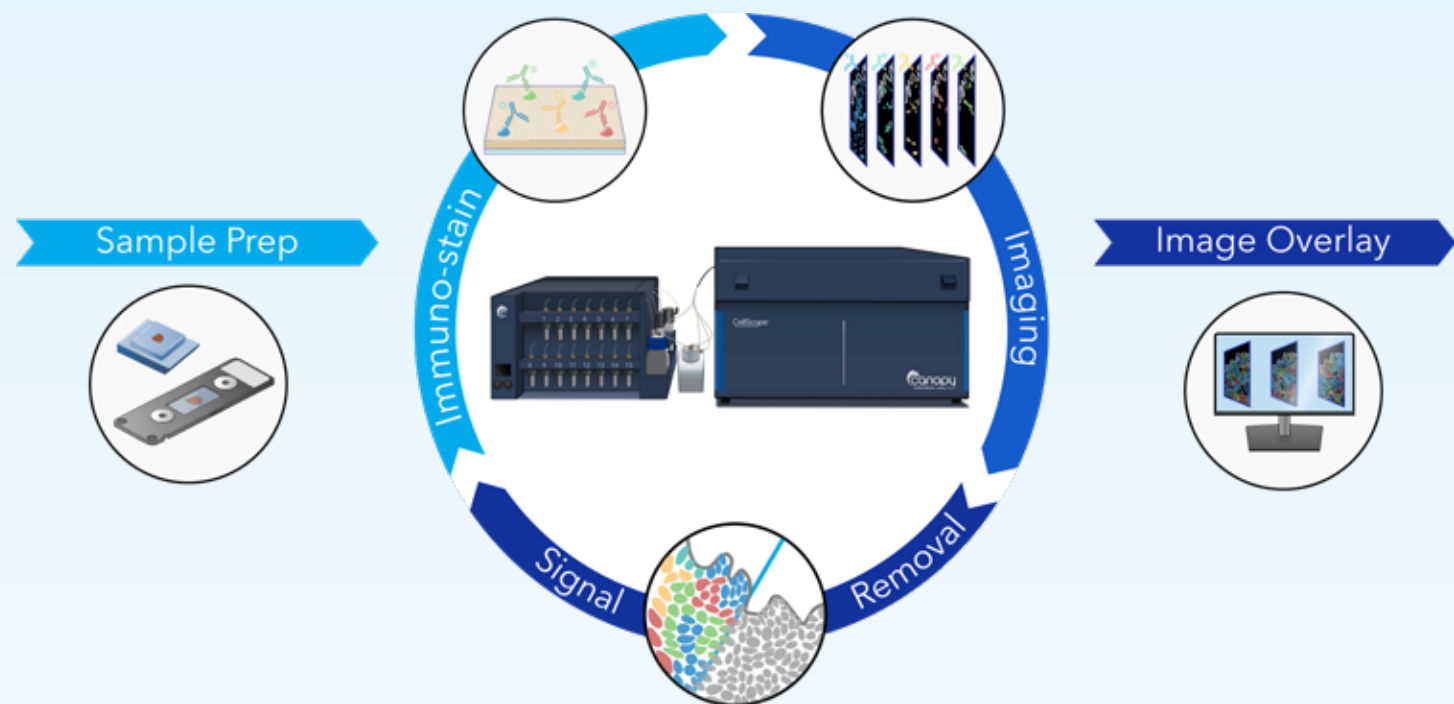


### VERSATILITY

Simple easy-to-use workflow and open-source reagents make spatial biology accessible.

Photo courtesy of Dr. Gustavo Monasterio, Karolinska Institutet  
For research use only. Not for use in diagnostic procedures.

# The ChipCytometry Workflow



## STAIN

Immuno-stain sample with up to 5 fluorescently labeled antibodies in a single cycle

## IMAGE

Quality optics and HDR imaging achieves true single-cell resolution

## ERASE

Photobleach sample to eliminate fluorescence signal to start the cycle again

## REPEAT

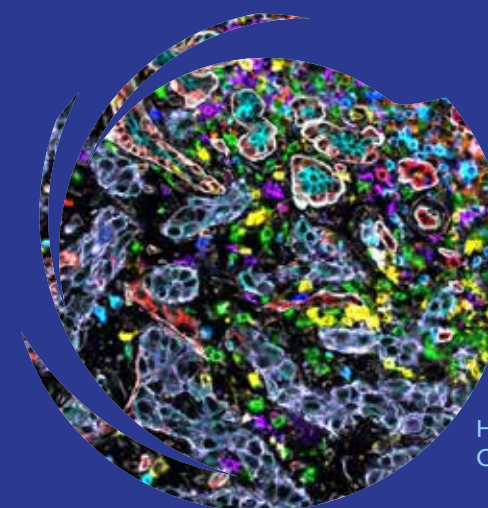
Utilize unlimited cycles to achieve highly multiplexed biomarker detection

# Flexibility for Today... And Tomorrow

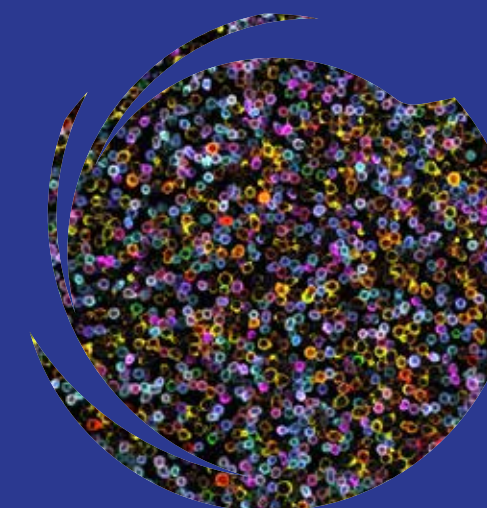
Biobanking on proprietary chip technology preserves precious samples with the option to interrogate and re-interrogate the same sample for up to 2 years.

## ONE INSTRUMENT, MANY SAMPLE TYPES

CellScape Chip technology enables the analysis of many different types of samples, including tissue sections (FF or FFPE) and cell suspensions, all on a single instrument.



Human Breast Cancer Tissue



Human PBMCs

## GET MORE OUT OF YOUR PRECIOUS SAMPLES

Once samples are loaded on CellScape Chips, they are stable for over two years. ChipCytometry analysis is non-destructive and the same sample can be interrogated repeatedly.



## COMING SOON:

Imaging of larger tissue sections on standard microscope slides

# More Data. Less Time.

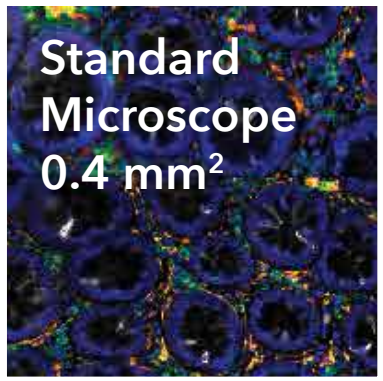
CellScape offers a field of view twice as large as standard microscopes so you can capture twice the amount of data in the same time, all with even better resolution.

And with the optional FalconFAST™ mode, you can capture a field of view 8x larger than our last generation instrument and with improved resolution.

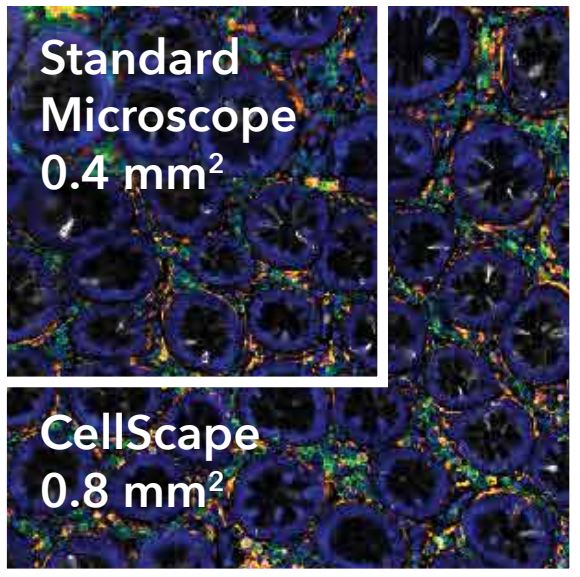
Cut your experiment times in half. Or by eight.

Image up to 8 samples in 24 hours.\*

\* For a standard 20-plex CellScape assay with FalconFAST mode. Imaging time is influenced by a number of factors including sample type, plex, and total scan area.



Standard  
Microscope  
0.4 mm<sup>2</sup>



CellScape  
0.8 mm<sup>2</sup>



CellScape with FalconFAST Mode  
3.3 mm<sup>2</sup>

Tissue not displayed to scale

## 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.

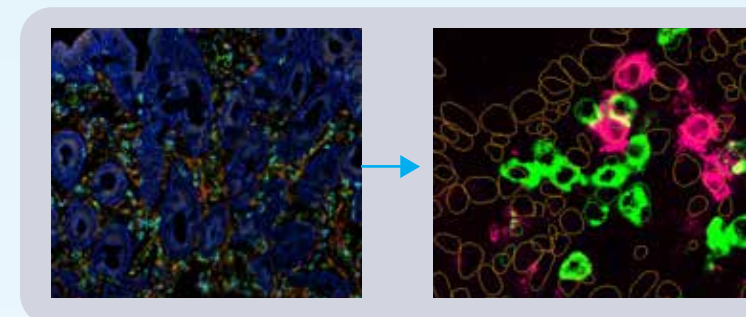


## Designed for Quantification

CellScape enables advanced quantitative analyses of every cell in your sample via built-in software and third party platforms for image processing and spatial analyses.

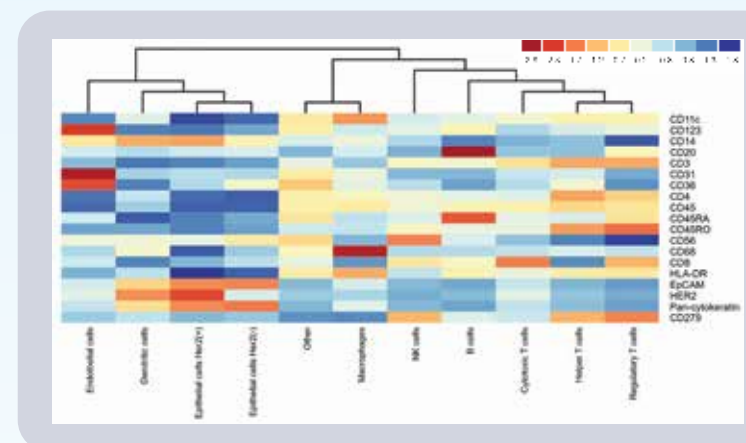
### Cell Segmentation

After automated HDR image acquisition on CellScape, individual cells can be segmented for downstream analysis.



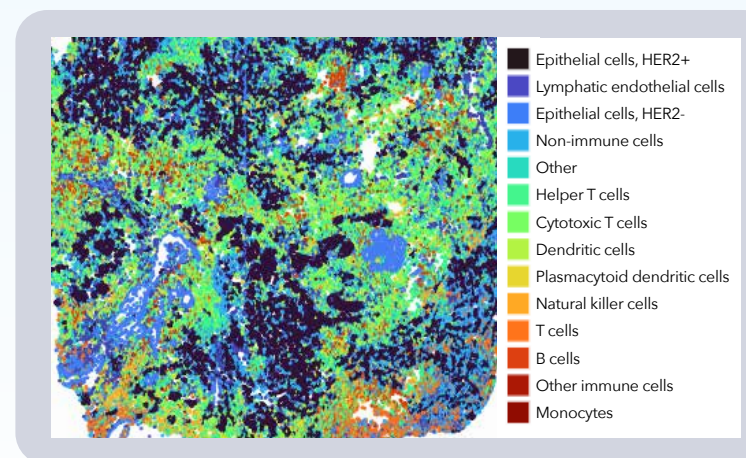
### Unsupervised Clustering

In partnership with Enable Medicine, CellScape data can be analyzed using advanced spatial analysis and AI to phenotype cells and visualize relative biomarker expression in identified cell types.



### Advanced Spatial Analyses

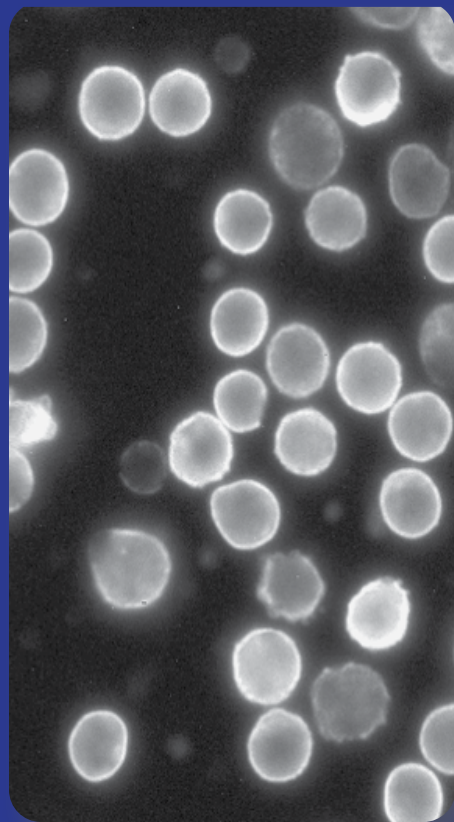
With standard image file outputs, CellScape data can be analyzed with open-source or subscription based image analysis pipelines. From cell segmentation to nearest neighborhood analyses, CellScape provides versatility in data analysis to advance your research and discovery.



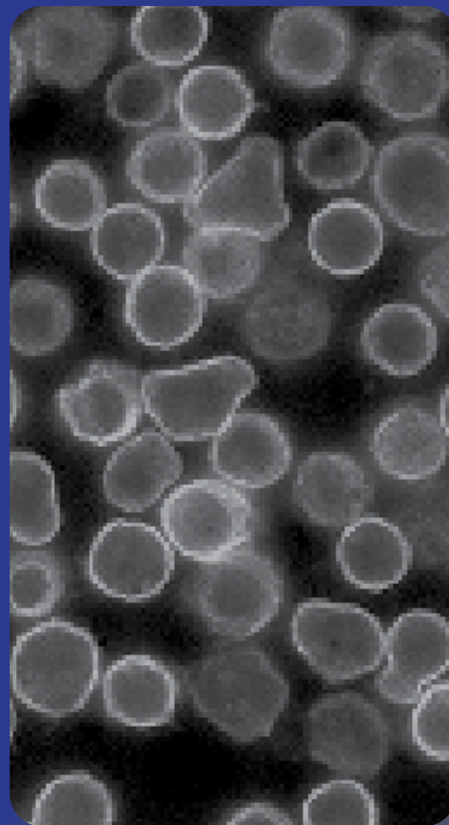
# Resolve Every Detail

Other spatial biology instruments only have multicellular resolution as low as 10,000 nm/pixel. 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.

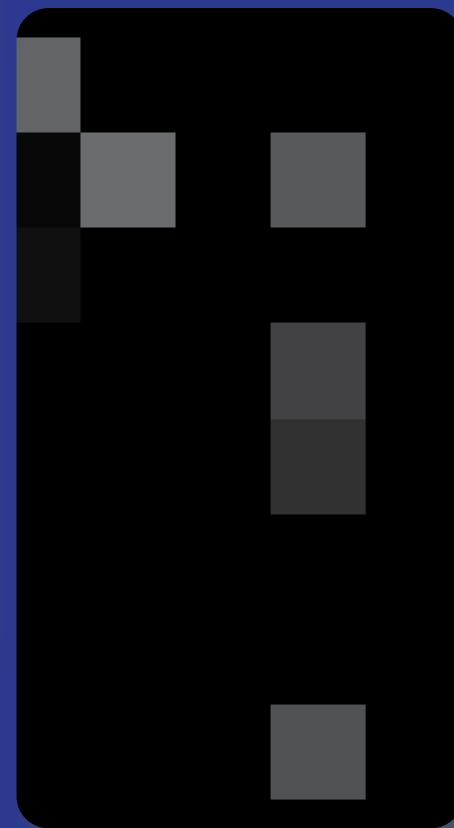
CellScape  
182 nm/pixel



Other spatial biology  
platforms  
500 nm/pixel



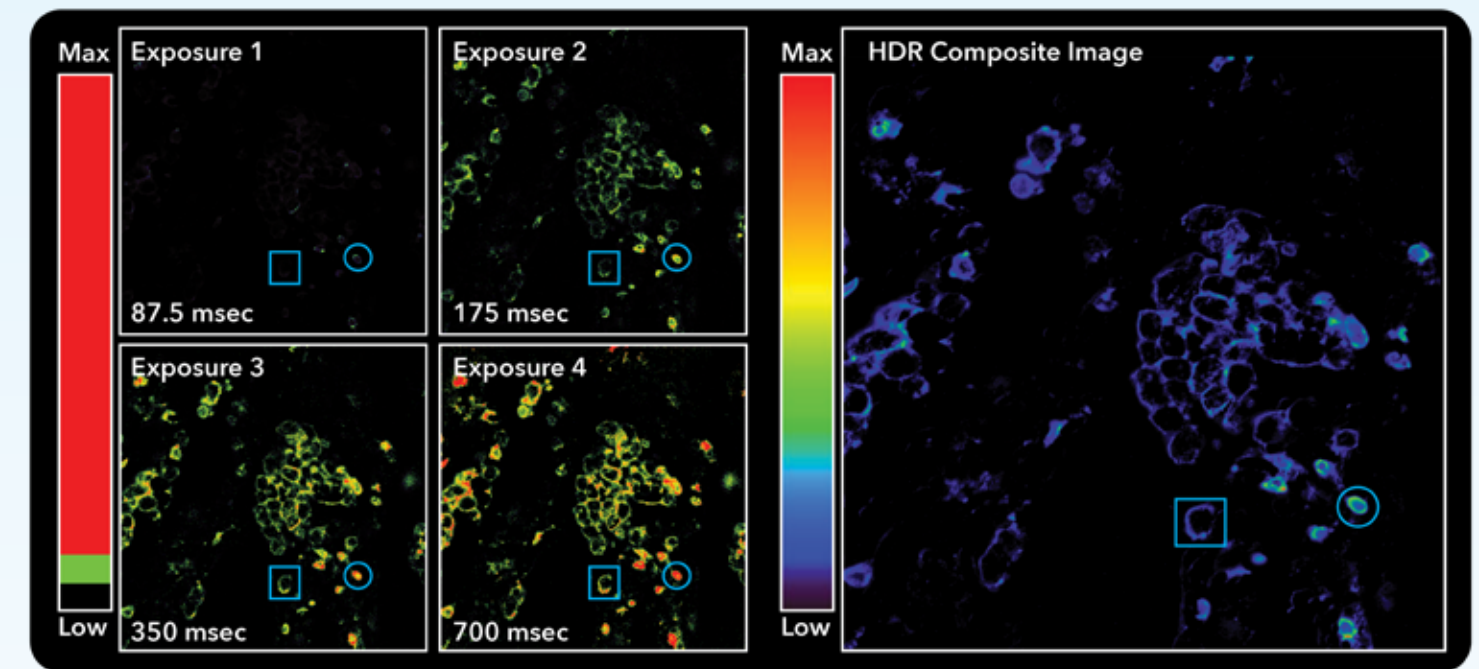
Multicellular resolution  
10,000 nm/pixel



# 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.

Extraordinary signal-to-noise ratio enables superior phenotypic precision.



**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.

# 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 Biomarker Catalog



## 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.



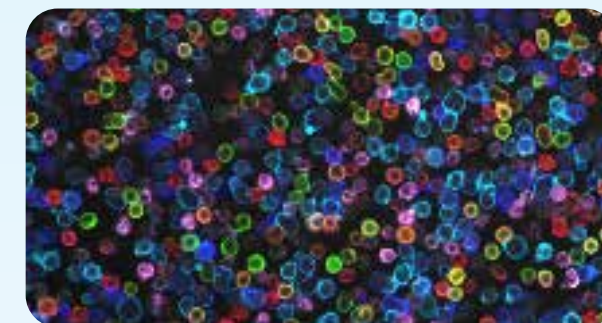
Designed for CellScape, VistaPlex™ Multiplex Assay Kits support key research applications, including:

- Immune Profiling
- Tissue Architecture
- T Cell Subtyping
- Lymphoid and Myeloid Profiling

# Explore Applications

## Resolve Distinct Subpopulations

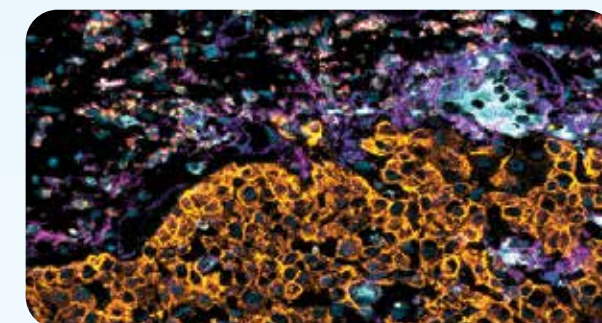
Most cameras are insufficient to capture the full range of protein expression within a single tissue specimen. CellScape uses HDR imaging and first-rate optical components to provide the greatest sensitivity for the highest quality data.



Human PBMCs stained with an 11-plex ChipCytometry assay panel.

## Discover Rare Cell Types

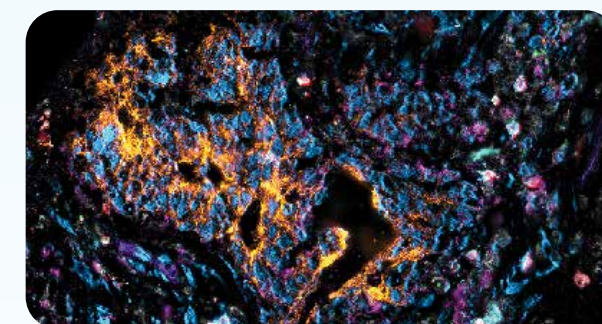
Cells of biomedical interest are often present in very low quantities. Researchers at the University of Oxford used ChipCytometry to demonstrate its utility to study rare cell populations in colon epithelial tissue (Leng et al., 2019).



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

## Develop Custom Assays

ChipCytometry uses open-source reagents and protocols to support researchers developing new methods. Researchers at the Technical University of Munich described the use of ChipCytometry to combine RNA in situ hybridization and antibody staining on the same tissue specimen (Jarosch et al., 2022).



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



Visit our Resource Center to learn more



# Specifications

CellScape can be used with any fluorescent dyes compatible with the installed filter sets. Examples of photo-inactivatable fluorophores include the verified compatible dyes shown below.

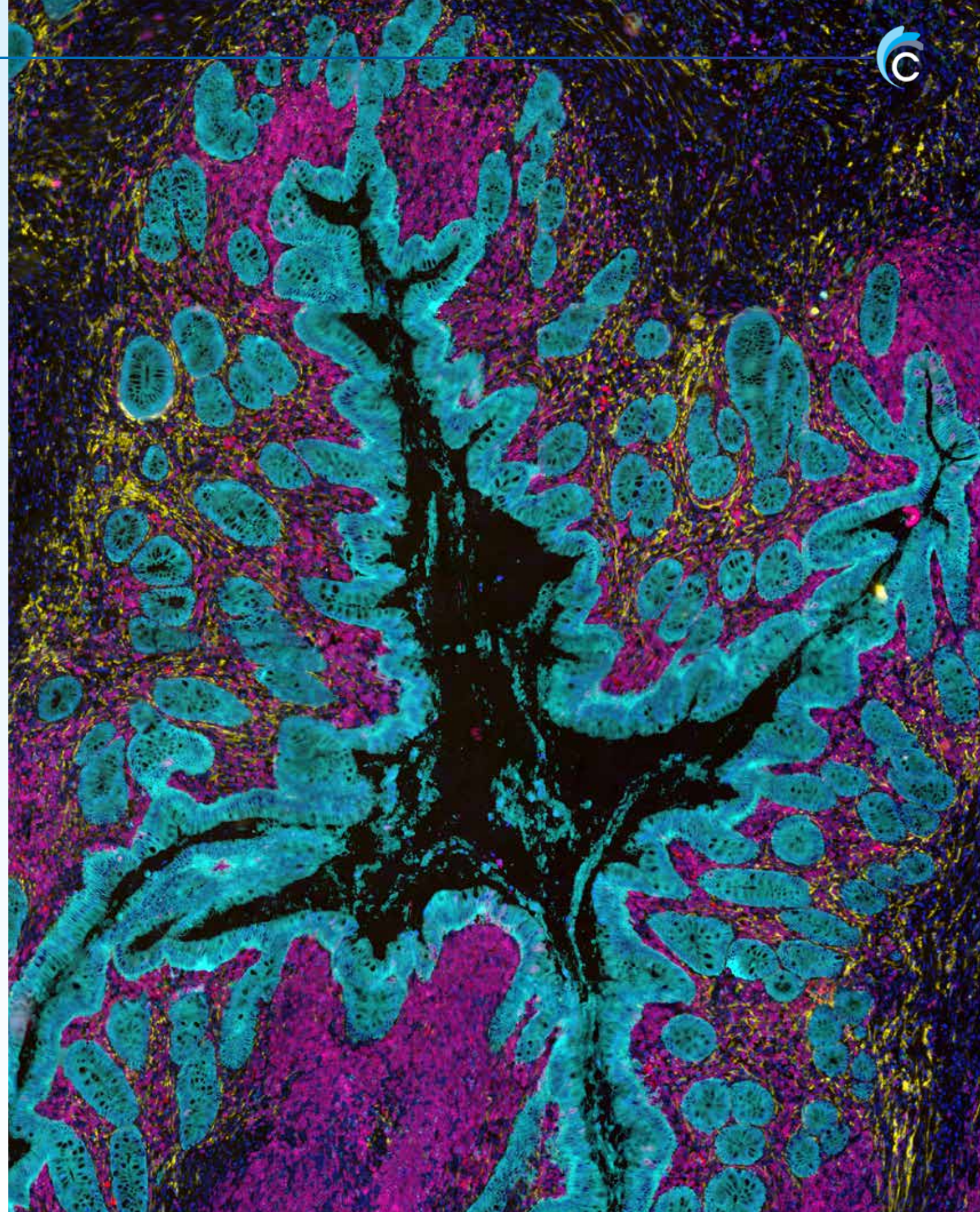
Fluorescence Detection Specifications			
Filter Set	Excitation (nm)	Emission (nm)	Verified Compatible Dyes
FS395	364-366	381-403	Brilliant UltraViolet 395, Atto 390
FS421	370-410	440-485	Brilliant Violet 421, Pacific Blue, AF405, Atto 421
FS488	450-490	500-550	FITC, Atto 465
FS560	525-575	570-640	Phycoerythrin (PE)
FSPerCP	456-484	672-748	PerCP-Cy5.5

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 photo-inactivation
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, TIFF, PNG, and FCS files
Image Analysis Software	Image processing, cell segmentation, and hierarchical gating managed through CellScape App

	CellScape Standard Mode	CellScape FalconFAST Mode
Objective	Plan Apo 20X   0.80 NA	Plan Fluor 10X   0.30 NA
FOV Size	0.8 mm <sup>2</sup>	3.3 mm <sup>2</sup>
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 ( $\lambda = 365$  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.







To learn more, visit [CanopyBiosciences.com/CellScape](https://CanopyBiosciences.com/CellScape)  
or email us at [hello.canopy@bruker.com](mailto:hello.canopy@bruker.com)

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