The Next Generation of ChipCytometry™ Instrumentation
At the Forefront of Spatial Biology

CellScape 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 CellScape platform accelerates biological discovery, therapeutic development, and precision medicine.

From Images to Discovery

**HIGH MULTIPLYING**
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
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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.

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.
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.

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.

CellScape
182 nm/pixel

Other spatial biology platforms
500 nm/pixel

Multicellular resolution
10,000 nm/pixel

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.

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.

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.

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).

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).

Visit our Resource Center to learn more

Designed for CellScape, VistaPlex™ Multiplex Assay Kits support key research applications, including:
- Immune Profiling
- Tissue Architecture
- T Cell Subtyping
- Lymphoid and Myeloid Profiling

Visit our Biomarker Catalog

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

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

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

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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.

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

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

<table>
<thead>
<tr>
<th>Objective</th>
<th>FOV Size</th>
<th>Resolution*</th>
<th>Digital Sampling**</th>
</tr>
</thead>
<tbody>
<tr>
<td>CellScape Standard Mode</td>
<td>Plan Apo 20X</td>
<td>0.8 mm²</td>
<td>278 nm</td>
</tr>
<tr>
<td>Plan Fluor 10X</td>
<td>3.3 mm²</td>
<td>742 nm</td>
<td>365 nm/pixel</td>
</tr>
</tbody>
</table>

* Resolution is calculated with the following equation: \( r = \frac{0.61\lambda}{NA} \) using the shortest excitation wavelength (\( \lambda = 365 \text{ nm} \)). 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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