



RARECYTE

Orion Spatial Proteomics Platform

Designed for spatial biomarker development at clinical scale

The Orion single-round high-plex advantage

Powered by paradigm-shifting 20-channel technology, Orion™ uniquely delivers the biomarker depth, throughput, and data quality clinical researchers require to translate spatial insights into clinical impact.



Biomarker depth

- * Resolve tissue microenvironments with panels incorporating phenotypic, functional, and structural biomarkers
- * Preserve precious clinical samples by measuring multiple predictive and prognostic markers on a single tissue section



High throughput

- * High-capacity automation and parallel workflow for large cohort studies and multi-user environments
- * Ultra-high-speed scanning for whole slide and high volume



Rapid, flexible panel development

- * Extensive portfolio of Orion antibody conjugates — assemble in any combination
- * Simple conjugation chemistry enables easy incorporation of your custom biomarkers
- * Single-round staining eliminates staining order complexity, accelerating panel development



Quantitative data you can trust

- * Single-round staining preserves tissue and antigen integrity
- * Ultra-bright dyes combined with high-powered laser excitation ensures detection of low expression biomarkers
- * Standard pathology protocols and direct conjugate staining ensures reproducible results



A complete **spatial proteomics platform**

Precision instruments

- * 20 channels in a single imaging round
- * >100 slides per week
- * Up to 30-slide automation
- * High-speed whole slide scanning
- * High-powered laser excitation

Validated reagents

- * >500 products; >200 biomarkers
- * Single-round cocktail staining
- * IHC-validated
- * Bright, photostable, long shelf life
- * Low per-slide run cost

Data analysis

- * On-board segmentation and feature calculation
- * Batch analysis in parallel to imaging
- * Advanced visualization tools
- * Remote access for collaborative analysis
- * OMERO Plus data management

"Every Pathology field has a set of molecular questions that have remained unanswered, and now we have the tool that can provide the answers."

Dr. Sandro Santagata, MD, PhD
Associate Director, Laboratory of Systems Pharmacology, Harvard Medical School

High-capacity workflow for large studies and multi-user environments

1 Prepare

Large or multiple specimens on a single slide with >8 cm² imaging area. Compatible with both FFPE and fresh frozen samples. A single antigen retrieval condition for all biomarkers enables a flexible mix-and-match approach to panel design.

2 Stain

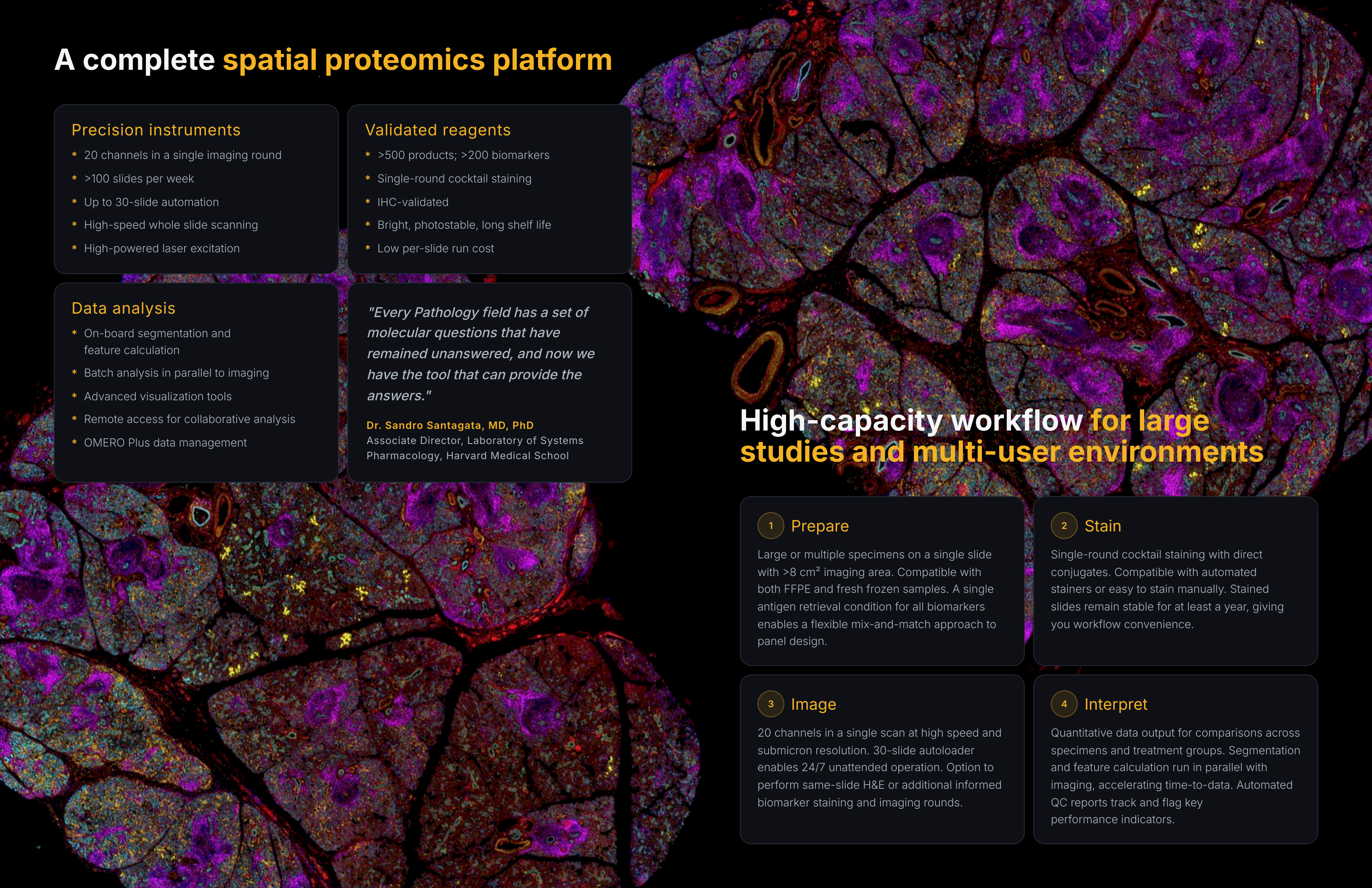
Single-round cocktail staining with direct conjugates. Compatible with automated stainers or easy to stain manually. Stained slides remain stable for at least a year, giving you workflow convenience.

3 Image

20 channels in a single scan at high speed and submicron resolution. 30-slide autoloader enables 24/7 unattended operation. Option to perform same-slide H&E or additional informed biomarker staining and imaging rounds.

4 Interpret

Quantitative data output for comparisons across specimens and treatment groups. Segmentation and feature calculation run in parallel with imaging, accelerating time-to-data. Automated QC reports track and flag key performance indicators.



Panels unlimited. Any tissue. Any indication.

The Orion reagent ecosystem provides the necessary components to rapidly build high-performance, validation-ready custom panels.

Antibody conjugates

- * >500 products; >200 biomarkers, ultra-low run cost
- * IHC validated ArgoFluor® conjugates
- * All validated to work in multiplex with the same antigen retrieval condition

Panels

- * High-plex, containing phenotypic, functional, and indication-specific biomarkers
- * Human and mouse, spanning a wide range of indications
- * Fully customizable: add, remove, or swap markers

ArgoFluor® dyes

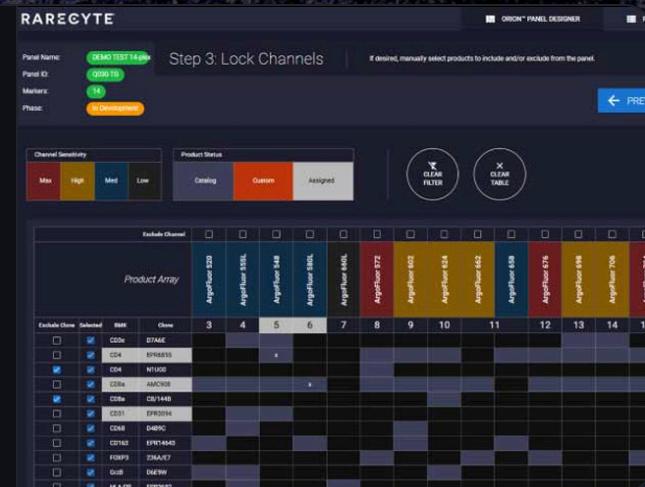
- * Used to create your own custom conjugates
- * Ultra-bright and photostable for sensitivity and durability
- * Simple amine chemistry — only requires pipets and spin columns

Services

- * Custom biomarker and panel development and transfer programs
- * Validated on your tissue type
- * Transfer package ensures reproducibility

Put it all together with the Panel Designer

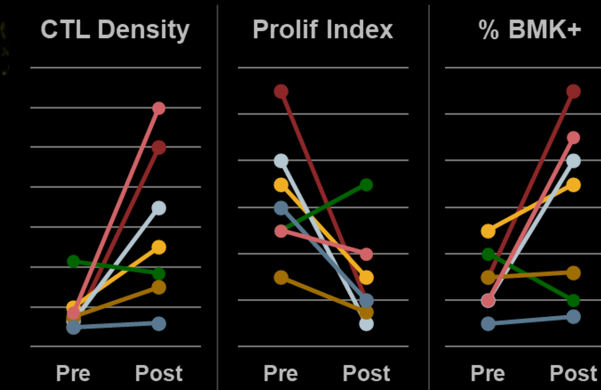
- * Select biomarkers from library, core panels, or biomarker themes
- * Automatically assigns biomarkers to optimal channels
- * Share panel designs with your collaborators



Translating spatial biomarkers into clinical impact

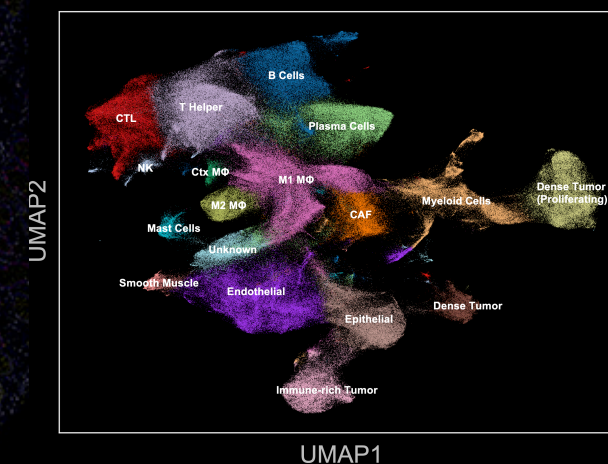
Orion uniquely resolves tissue microenvironments at scale, and is routinely used to develop spatial biomarkers that measure response to therapy and for unlocking mechanistic, prognostic, and predictive value for patient care.

Response to therapy. Predictive and prognostic biomarkers.



- Measure response to therapy in clinical trials
- Develop predictive panels for stratification
- Perform drug target expression profiling
- Uncover prognostic markers tied to clinical outcomes

Biomarker discovery and validation



- Protein validation of biomarkers downstream of transcriptomics
- Immune profiling of host response to treatment or transplant
- Single-round high-plex panel determination for clinical applications

Designed to support biomarker development **at every stage**



Orion HT
High-capacity 24/7 automation



Orion
Biomarker depth with panel flexibility



Orion LE
Multiplexed imaging for targeted panels

Orion bridges the gap between discovery research and clinical-scale studies. Choose the configuration that fits your program today — with a clear path to scale.

Specification	Orion HT	Orion	Orion LE
Channels	20	20	14
Slide Capacity	30	2	2
Scan Speed (per cm ² per channel)	4 min	4 min	4 min
Whole Slide Scanning	✓	✓	✓
Quantitative Analysis Software	✓	✓	Optional
Imaging Mode	IF, BF	IF, BF	IF
Barcode Workflow	✓	—	—
Ability to Cycle	✓	✓	✓
Storage Capacity	28 TB	28 TB	12 TB
Resolution	4X, 20X (0.325 μm)	4X, 20X (0.325 μm)	4X, 20X (0.325 μm)
Panel Design Tool	✓	✓	✓
Data Management Software	✓	✓	✓

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