

Product Sheet

Teton™ CytoProfiling

Single cell, spatial co-detection of RNA, protein, and cell morphology

Highlights

- Simultaneous multiomic profiling of RNA, protein, and cell morphology with automated onboard detection
- Rapidly resolve complex biological systems at scale with no library prep and next-day results
- Curated panels and protein customization options tailored to your experimental needs

Introduction

Every layer of the cell—from RNA to protein to cell morphology and the spatial and dynamic relationships between them—reveals critical insights into biology. With co-detection of RNA, protein, and cell morphology at subcellular spatial resolution on the AVITI24™ with Teton CytoProfiling, you can explore each of these layers at unprecedented depth in a single experiment. A single integrated platform, AVITI24 profiles complex biological systems rapidly at scale—with no library prep and 24 hour run times.

Ultra-fast insights at scale

Accelerate your next breakthrough with a simple workflow and next-day results. Teton CytoProfiling leverages the AVITI24 platform's core imaging and avidite base chemistry (ABC) sequencing capabilities to provide multiomic insights at scale.

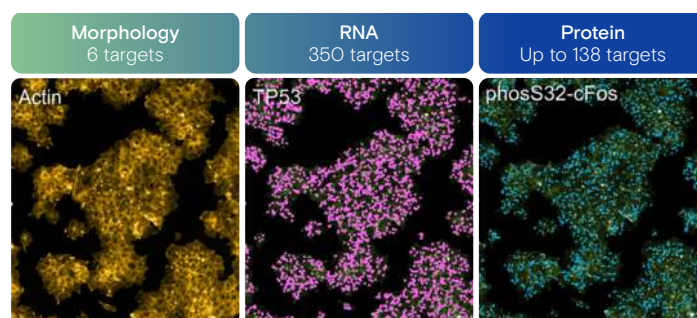
Freshly dissociated adherent cells or cell suspensions are seeded directly onto slides and fixed using validated protocols to ensure cell adhesion and confluency. With <1 hour of off-instrument workflow, your slides are assembled into Teton flow cells and run on the AVITI24.

The workflow seamlessly integrates with existing cell culture workflows, supporting 1-well and 12-well formats. The AVITI24

can image up to 20 cm² in one dual-sided run, processing up to 2 million adherent cells. Advanced cell segmentation models provide high quality results with immortalized cell lines, primary cell lines, co-cultures, and cell suspensions. Onboard primary analysis automates data processing providing ready-to-analyze data that can be easily integrated with community tools for downstream analysis.

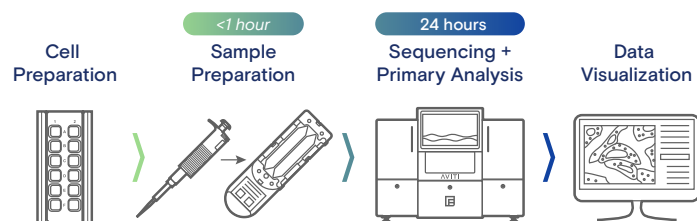
Simultaneous multiomic profiling

Teton CytoProfiling provides simultaneous detection of 350 RNA targets, up to 138 protein markers (including cell surface, intracellular, and phosphorylated proteins), and 6 cell morphology features at subcellular, spatial resolution. Onboard detection chemistries automate detection without the need to manually incubate your cells with probes or antibodies.



Cell painting of organelles uses reversible organelle probes coupled to oligo barcodes. Probes include small molecule, peptide, oligo or antibody. Avidites bind to these barcodes and the fluorescence intensity is imaged and quantified to detect nucleus, actin, Golgi apparatus, mitochondria, endoplasmic reticulum, and cell membrane.

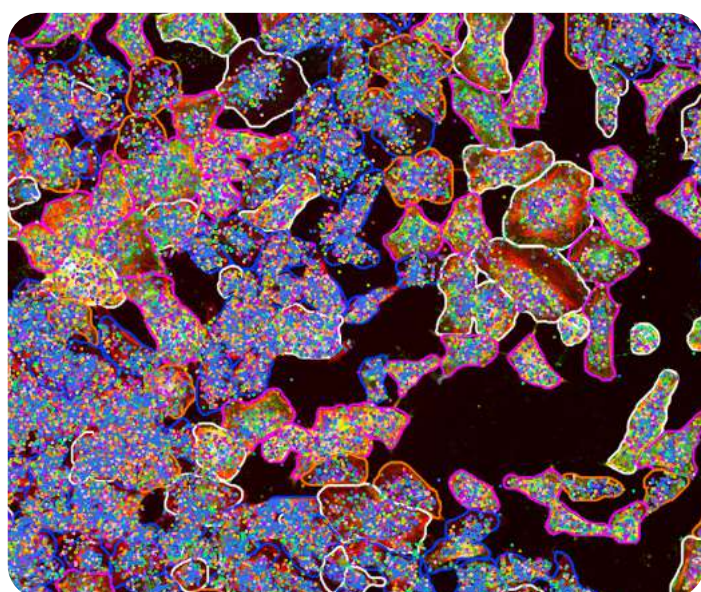
RNA detection uses transcript-specific probes hybridized to an oligo with a target-specific barcode and batch-specific sequencing primer. **Protein detection** uses primary antibodies coupled to a coordinating molecule conjugated to an oligo containing a target-specific barcode and a batch-specific sequencing primer. RNA and protein probes bind to their target, oligo barcodes are amplified by rolling circle amplification to form polonies and sequenced by ABC sequencing over multiple batches. Each polony representing an RNA or protein count retains its spatial coordinate and is assigned to segmented cells.



One instrument, infinite discoveries

Teton panels are available as curated, supported panels containing biologically relevant targets for a specific research area. Each panel is designed for the co-detection of cell typing markers, signaling molecules, and important drivers of cell function in normal and disease states.

The **Teton neuroscience panel** contains markers to study neurodegenerative disorders, like Alzheimer's and Parkinson's disease, psychiatric disorders, and neurological cancers. It can unravel the complexities of neuroscience, from understanding inflammation and identifying key drivers of neural cell function to exploring neuronal differentiation and shedding light on disease progression mechanisms.



Tracking cellular responses to $TNF-\alpha$ activation. RNA and protein data are overlaid onto cell painting images.

With the **Teton immuno-oncology panel**, you can co-detect immune cell markers, cytokines, signaling molecules, and biologically relevant targets involved in inflammation, innate and adaptive immunity, antiviral defense, and immune checkpoints. This panel is ideal for mapping immune states, uncovering inflammatory responses and signaling pathways, enabling immune monitoring, and advancing hematology-oncology research.

Our **Teton MAPK cell cycle and apoptosis panels** provide comprehensive coverage of critical signaling cascades involved in cell cycle regulation, transcription, DNA replication, stress response, and apoptosis. Use this panel to explore mechanisms of disease progression and resolve drug response and resistance.

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Flexible Protein Customization

Add customized protein panels tailored to your specific experimental needs with the Teton Custom Add-On Protein Panel Assembly Kit. In this workflow, user-supplied primary antibodies are coupled to Teton detection probes and added to any fixed panel at run time, reducing the time to generate a fully custom panel from months to hours. Protein customization requires no oligo conjugation to primary antibodies or barcoding steps, minimizing stress on the primary antibody and reducing complexity for designing custom panels. With our custom design tool, you can upload your panel targets and create a panel file to guide and simplify the process.

Teton Specifications

Analytes	RNA, protein, morphology 100 bp in situ RNA sequencing in 2025
Plex	RNA: 350 targets Protein: Up to 138 targets Morphology: 6 markers
Content	MAP Kinase Cell Cycle and MAP Kinase Apoptosis Immuno-oncology Neuroscience Custom Protein panels (user supplied rabbit-derived primary antibodies)
Imaging	< 250 nm subcellular spatial resolution with multi-feature cell segmentation
Inputs	Adherent cells Cell suspensions
Sensitivity	1 M mean counts detected per mm ²
Throughput	Up to 1 M adherent cells with 10 cm ² area per flow cell Up to 5 M suspension cells with 10 cm ² area per flow cell Two flow cells per run
Format	12 wells (0.5 cm ² /well) 1 well (10 cm ² /well)
Run Time	<24 hours
Sample Prep	45 minutes

Ordering Information



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