**Attune Xenith Flow Cytometer** 

ThermoFisher

# Understand your cells on a whole new level

Fast, flexible, and spectrally brilliant—simplify high-speed, high-parameter analysis



invitrogen

#### Maximizing speed and efficiency

## Discover the most advanced acoustic focusing flow cytometer

The Invitrogen<sup>™</sup> Attune<sup>™</sup> Xenith<sup>™</sup> Flow Cytometer is a reliable solution designed to help meet the rigorous demands of researchers. Leveraging our legacy core acoustic focusing technology, this innovative instrument combines acoustic-assisted hydrodynamic focusing with advanced spectral capabilities. With expanded optical capabilities, including UV and NIR lasers, the Attune Xenith Flow Cytometer supports both traditional compensation and spectral unmixing analysis. Additional benefits include:

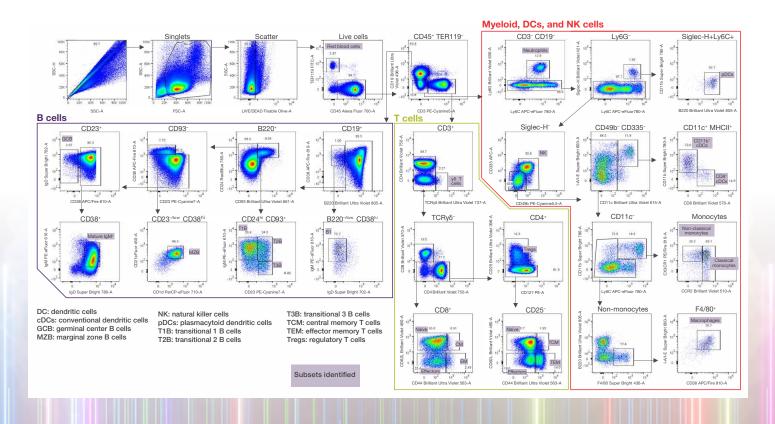
- Remarkable speed operates 5x faster than most flow cytometers
- Versatility and flexibility—supports both spectral unmixing and conventional compensation workflows, enabling optimization of experimental design and exploration of new research possibilities
- **Productivity and reliability**—designed with increased uptime and simplified operation in mind, enabled by streamlined maintenance, intuitive touchscreen operation, and advanced remote diagnostics
- **Compatibility with complex samples**—designed to handle challenging sample types, such as tumor and tissue samples, without clogging for smooth sample acquisition and reliable data analysis
- Extensive detection range—includes 6 lasers, 51 fluorescent detectors, and 6 scatter channels
- Exceptional automation options—compatible with Invitrogen<sup>™</sup> CytKick<sup>™</sup> autosamplers for efficient handling of 96- and 384-well plates





## A breakthrough in high-speed, multidimensional analysis

Advanced acoustic fluidics technology allows faster acquisition without compromising results

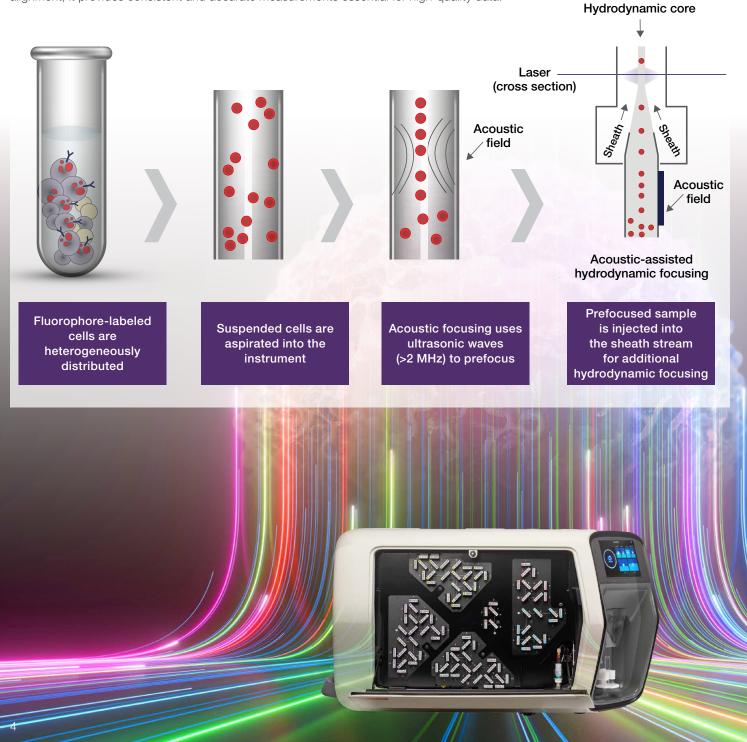


#### Immunophenotyping of mouse tissue digests using a 32-color spectral unmixing

**panel.** In this study, the advanced acoustic fluidics and high detection sensitivity of the Attune Xenith Flow Cytometer were utilized to conduct broad immunophenotyping, with a specific focus on the development and maturation of B cells across various tissues. The instrument's clog-resistant design, combined with its acoustic focusing technology, enabled rapid data acquisition without compromising the resolution of the analysis. Even at high cell concentrations of 1 x 10<sup>7</sup> cells/mL in mouse tissue digests, the Attune Xenith Flow Cytometer demonstrated its capability to deliver accurate and reliable results.

### Acoustic-assisted hydrodynamic focusing technology

Acoustic-assisted hydrodynamic focusing technology leverages ultrasonic waves to precisely align cells, delivering exceptional speed and flexibility in flow cytometry. This approach enables faster flow rates, analysis of larger cells, and the flexibility to dilute samples. By helping to ensure uniform cell alignment, it provides consistent and accurate measurements essential for high-quality data.



#### Increased uptime and simplified operation

Designed with user convenience in mind, new instrument features include:

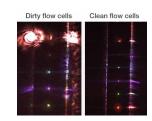


#### Simplified touchscreen maintenance

Built-in touchscreen allows simple one-touch startup and shutdown independent of a PC. Easily view the instrument's continuous fluid-level sensing, acquisition progression, and maintenance instructions.



Increased run time The fluidics cart design allows for extended runs between fluid changes, helping to enhance productivity. The unique capability to change fluids without stopping the instrument helps ensure uninterrupted sample runs, minimizing downtime and optimizing experimental efficiency.

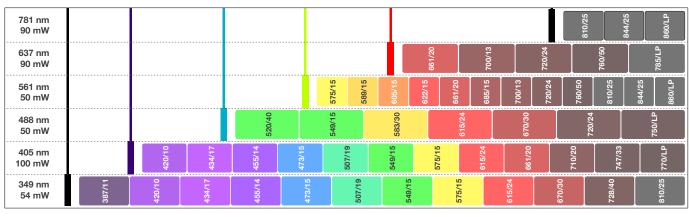


Advanced diagnostics and service

Onboard service cameras assess flow cell cleanliness and enable remote support, allowing fast and efficient troubleshooting. Automated maintenance functions and enhanced service logging further streamline operations, helping reduce downtime and maintaining optimal speed.



Innovative flexibility Designed to accommodate various tube sizes, our seal-free, volumetric syringe-based system helps minimize sample loss, enabling fast and efficient analysis. Optional automated sample recovery and rinse further enhance speed and convenience. A sample injection probe (SIP) wash helps reduce carryover and contamination.



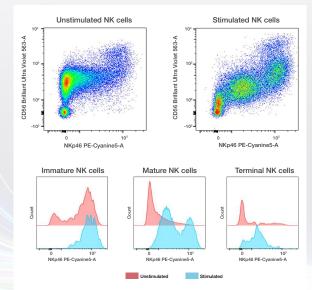
#### Extensive detection range for compatibility with large panels

Detectors

**Overview of lasers and fluorescent detectors.** The Attune Xenith Flow Cytometer includes 6 lasers (349 nm, 405 nm, 488 nm, 561 nm, 637 nm, and 781 nm) and 51 fluorescent detectors. It also includes 6 scatter detectors for enhanced resolution (488 nm standard FSC and SSC, 405 nm FSC and SSC for small-particle resolution, and 488 nm FSC and SSC for expanded range/polarized detection). The system supports both spectral unmixing and conventional compensation options, making it exceptional for high-parameter workflows.

#### Sensitivity in detection facilitates robust data resolution to differentiate rare cell populations

**Exploration of expression profiles of NK cells across activation states.** This study utilized a natural killer (NK) cell panel to investigate the expression of surface markers before and after activation. Human NK cells were incubated with or without IL-2, IL-15, and IL-21 cytokine cocktail for a duration of 48 hours. Immature, mature, and terminal NK populations were identified, and surface marker expression of each of these subpopulations was characterized. The Attune Xenith Flow Cytometer demonstrated strong sensitivity in detecting changes in marker expression before and after stimulation using a 25-color spectral panel. This data demonstrates the system's fluidic and optical capabilities for deeper understanding of even rare subpopulations at rapid acquisition rates.





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