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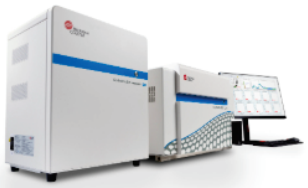
Beckman Coulter Life Sciences Launches Industry-First Modular Spectral Flow Cytometry Solution

CytoFLEX mosaic Spectral Detection Module Offers Up To 88 Detection Channels



INDIANAPOLIS – (March 18, 2025) – Beckman Coulter Life Sciences, a global leader in laboratory automation and innovation, and an Operating Company of Danaher Corporation (NYSE: DHR), revolutionizes spectral flow cytometry with the industry's first modular solution: the CytoFLEX mosaic Spectral Detection Module.

When connected to the CytoFLEX LX or S* Flow Cytometers, the CytoFLEX mosaic Spectral Detection Module delivers superior fluorescence sensitivity for dim and complex multicolor experiments and can detect nanoparticles as small as 80 nm.** It uniquely provides two unmixing algorithms and up to 10 autofluorescence channels, with up to 88 detection channels. The richer data resulting from spectral analysis can help untangle the complexities of biological systems and diseases faster, with a nuanced understanding of immune cell subsets, their functions and interactions, thanks to simultaneously detecting multiple markers.

In contrast to conventional flow cytometry, spectral flow cytometry acquires the full emission spectrum of each antibody-associated fluorophore across all lasers, rather than measuring only the peak of emission. This powerful evolution delivers a more detailed and precise characterization of cellular properties to advance understanding of complex biological systems and diseases within each sample versus legacy approaches.

"As a central feature of the CytoFLEX platform, this innovation is focused on pairing ease-of-use with powerful, sensitive acquisition technology to remove the intimidation encountered in many flow cytometry instruments," said Product Manager Matthew Goff. "Investigators can now easily switch between their true conventional detection system and this advanced spectral detection system, while maintaining a familiar sample management and user experience, all without having to invest in a separate instrument. Along with experimental continuity and evolution offered by a more flexible approach,

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this delivers a unique solution for sustainability needed by many institutions."

The CytoFLEX mosaic spectral detection module is powered by a unique algorithm capable of improving resolution compared to other available methods, along with unmixing accuracy checks to ensure efficiency. CytExpert software for spectral reduces the need for extensive training and can speed up the transition to spectral technology. Additionally, the module comes with tools to ease the full spectral workflow, with access to the FluoroFinder panel builder and a Cytobank premium license to provide all the tools researchers need to go from sample preparation to analysis of complex spectral data in an easy manner.

"I found the software very easy to learn and was able to start my first experiments in only a few hours," said Tamar Tak, Coordinator of the Flow Cytometry Facility at Leiden University Medical Center. "A feature I really like is that it allows me to do an extensive QC of the unmixing. You get a plot with all the normalized spectra of your fluorochromes and a table with similarity indices. This allows me to see if a tandem dye has degraded, or perhaps the wrong antibody was added. The autofluorescence settings are another highlight, allowing flexibility depending on your samples – from human tissue to complex samples of microorganisms."

The new spectral module is now available globally in two product configurations: CytoFLEX mosaic 88 for CytoFLEX LX Flow Cytometer and CytoFLEX mosaic 63 for 4-laser CytoFLEX S Flow Cytometer.

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About Beckman Coulter Life Sciences
With a relentless mission to empower those seeking answers to life's important scientific questions, Beckman Coulter Life Sciences is a preferred laboratory partner providing automation and innovation solutions for Centrifugation, Flow Cytometry, Genomics, Particle Analysis, and Liquid Handling workflows. With a legacy dating back to 1935, our technologies reduce manual laboratory processes and can provide greater speed, accuracy, and advanced analytics to accelerate answers with a guiding focus to improve patient care and enable pioneering discoveries. Beckman Coulter Life Sciences is headquartered in Indianapolis, Indiana with 11 operational hubs around the world and employs approximately 2,800 associates with more than 400,000 systems installed globally. Get to know us by clicking here and by following us on LinkedIn.

** Only with CytoFLEX S B2-R3-V4-Y4 flow cytometer.*
*** Polystyrene when triggering on violet side scatter. For Research Use Only. Not for use in diagnostic procedures.*

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