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Thermo Fisher introduces SPA workflow solution

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iSPA Workflow Helps Pharmaceutical Companies Bring New Drugs to Market Faster



To help pharmaceutical companies obtain faster results in their drug discovery process and reduce the cost of bringing new drugs to market, Thermo Fisher Scientific has released the Thermo Scientific iSPA Workflow, the first commercially available single particle analysis (SPA) workflow solution.

As pharmaceutical labs turn to cryo-electron microscopy (cryo-EM) to uncover the structures of difficult-to-crystalize molecules at near atomic resolution, they need ways to increase their productivity to more quickly move from early drug discovery to clinical trials.

iSPA Workflow solves this problem by providing an easy-to-use, highly productive and automation-enhanced solution to match the pace of drug discovery. Developed with input from users in the pharmaceutical industry, this SPA dedicated workflow is designed for structural biologists of all experience levels who need to deliver structural insights. With reduced manual steps, the workflow is simplified and preparing the microscope for data collection takes less than 30 minutes.

Companies can also increase productivity by using its unattended data collection feature, which allows them to collect data from multiple grids while not at the instrument. The solution offers uptime reliability of instruments, helping users avoid time spent troubleshooting equipment problems.

"Our iSPA Workflow changes the game for pharmaceutical companies by dramatically increasing their throughput with a high-quality, easy-to-use instrument that quadruples productivity compared to our current cryo-EM workflow," saidTrisha Rice, vice president and general manager of life sciences at Thermo Fisher. "The result is a convenient and reliable solution that reduces barriers to cryo-EM adoption and accelerates the path to new, more effective drugs."

Dr. Giovanna Scapin, Chief Scientist at NanoImaging Services, remarked on the throughput improvement and improved automation of the iSPA workflow, "Receiving the data we need overnight, versus a week, allows us to solve several structures as opposed to one. Automated data collection means that we can schedule a full weekend run on six grids without having to manually change them, improving the time requested from sample to structure."

The flagship of the iSPA workflow is the Thermo Scientific Krios Rx, a high-end cryo-transmission electron microscope (cryo-TEM) designed specifically for ease-of-use and enhanced automation. Automation facilitates unattended data collection, and requires minimal expertise to operate the microscope, freeing up time to focus on results.

The Krios Rx is equipped with a Falcon 4 Direct Electron Detector and EPU Quality Monitoring software, which allows users to optimize the quality of data as it's being collected. The new Electron Event Representation data format of the Falcon 4 enables substantial lossless data compression, while retaining super-resolution information. Finally, a robust and fully integrated solution with productivity and throughput of more than 400 high-quality movies per hour, helps users quickly generate new and repeat structures.

The Krios Rx comes bundled with Accelerate Rx, a unique service package that guarantees a 90 percent uptime usage of the instrument during the warranty period. Accelerate Rx is an outcome-based service package that also includes application training, remote applications support, workflow validation, a workflow application and a customer dashboard with productivity and uptime reporting.