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Japanese firm unveils advanced cold field emission cryo-electron microscope

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Quick and easy to operate and get high-contrast and high-resolution images



JEOL announces the release of a new cold field emission cryo-electron microscope (cryo-EM), the CRYO ARM™ 300 II (JEM-3300). This new cryo-EM has been developed based on the concept of "Quick and easy to operate and get high-contrast and high-resolution images".

Recent dramatic improvement of resolution in single particle analysis (SPA) using cryo-EM has led to SPA as an essential method for structural analysis of proteins. JEOL released the CRYO ARM™ 300 in 2017. Equipped with a cold field emission gun (Cold FEG) for enhanced resolution and a cryo-stage for loading multiple samples, the CRYO ARM™ 300 has continued to achieve best-in-class resolution for SPA.

However, the previous workflow of SPA using cryo-EM needs multiple electron microscopes because the workflows for sample screening and for image data acquisition are independent of one another. This demands large operating costs for cryo-EM users. Since multiple microscopes must be used, it is inconvenient to transfer cryo-samples between the cryo-EMs. Hence there was a need for cryo-EM enabling the complete workflow from sample screening to image data acquisition. Furthermore, in order for various users to use the cryo-EM, an improvement of usability has been required, allowing anyone from novice users to professional users to smoothly operate the microscope.

To meet these requests, JEOL has developed a new cryo-EM, the CRYO ARM™ 300 II. This microscope achieves a great improvement in throughput for high-quality data acquisition with quick and easy operation compared with the previous CRYO ARM™ 300.

Main Features

1. High-speed imaging achieved by optimal electron beam control

2. Improved hardware stability for high-quality image acquisition

3. Higher operability through system improvement