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Thermo Fisher unveils Tundra cryo transmission electron microscope

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Thermo Fisher Scientific has announced the new Thermo Scientific Tundra Cryo Transmission Electron Microscope (Cryo-TEM), a groundbreaking instrument that extends cryo-electron microscopy (cryo-EM) to more scientists by delivering industry-leading ease of use at an affordable price.

The Tundra uses artificial intelligence (AI), guided automation and new loader technology to dramatically simplify the microscope's use, extending cryo-EM to researchers of any experience level. The integrated cryo-loading station replaces previous manual manipulation, enabling quick, effortless and robust sample loading and transfer to the microscope for immediate assessment and structure determination. Tundra also delivers a compact footprint that fits most of today's standard-sized labs, eliminating the need for potential renovations. In addition, it's offered at a lower price-point, making it possible for more institutions and pharmaceutical companies to obtain structural insights at a biologically relevant resolution.

Trisha Rice, Vice President and General Manager, Life Sciences, Thermo Fisher Scientific said, "We worked with cryo-EM luminaries to develop an instrument that not only delivers results, but, more importantly, brings cryo-EM to more users."

The Tundra simplifies cryo-EM in several ways. It offers:

- AI and guided automation that help non-experts quickly identify the quality of their samples and easily navigate an otherwise complex workflow. As the sample moves through the cryo-EM process, the results are displayed in a 'traffic light' style that helps scientists quickly determine if their sample is viable.
- An integrated loader that makes it easier to load samples into the microscope than conventional systems. Scientists can exchange sample carriers in about two minutes. This allows researchers to rapidly optimise biochemistry sample conditions as results can be checked immediately.
- Resolutions as high as 3.5 angstrom with throughput within 24 to 72 hours.

Cryo-EM has revolutionised structural biology research in just five years, after being named the Nature Method of the Year 2015. This method allows scientists to drive impactful research, and three luminaries in the cryo-EM field won the Nobel Prize

in Chemistry 2017 for their foundational work on this technique.