

## **Thermo Scientific Aquilos 2 Cryo-FIB Speeds Sample Preparation** **Latest DualBeam system provides significant clarity of protein interactions**

HILLSBORO, Ore., Nov. 7, 2019 /PRNewswire/ -- Thermo Fisher Scientific today announced the Thermo Scientific Aquilos 2 Cryo-FIB, a DualBeam system dedicated to the preparation of thin, electron-transparent samples from biological specimens. It simplifies the cryo-electron tomography (cryo-ET) workflow by reducing sample preparation time, minimizing the risk of contamination and providing a more precise and detailed view of specific points of interest compared to earlier models. When used as part of the cryo-ET workflow, the Aquilos 2 allows researchers to prepare more and thinner samples for a clearer view of the inside of cells.

"Cryo-ET opens a new era in cell biology and may enable a dramatic change in our understanding of how the body works because it extends cryo-EM to much larger areas of cells and tissues as well as to more diverse sample types," said Trisha Rice, vice president and general manager of life sciences at Thermo Fisher. "Today, sample preparation is manual and can be difficult even for experienced users. We've improved that in the Aquilos 2 by automating several steps during the process, allowing researchers to focus more on deepening their understanding of a wide range of diseases and speeding the path to drug discovery and treatment."

Understanding the structure of cells, and the proteins within those cells, is essential to developing treatments for diseases. With cryo-ET, research scientists can create 3D visualizations of proteins at work in their environments, allowing them to see how those proteins and other molecules work together to carry out major processes in a cell. This new insight can help researchers discover treatments for diseases such as Alzheimer's, Parkinson's, or Amyotrophic lateral sclerosis (ALS).

The Aquilos 2 delivers optimal sample preparation and includes an integrated workflow with dedicated hardware and software that improves productivity and throughput compared to the earlier model. The Thermo Scientific Auto Slice and View software, integrated into the Aquilos 2, allows scientists to acquire 3D images in cryogenic conditions by sequential slicing and then capturing multiple images of the interior of a vitrified cell. The software allows researchers to remove parts of the cell, capture the 3D data from that cell part, and stop capturing data at exactly the right point before moving it to a higher resolution cryo-transmission electron microscope (cryo-TEM).

Additionally, researchers can further increase productivity with the Aquilos 2 by using the Thermo Scientific Cryo AutoTEM software, a guided solution that allows them to mark several points of interest and automatically prepare multiple samples in unattended, even overnight, runs. Dedicated hardware keeps vitrified samples frozen at all times and protected from contamination.

Finally, the Aquilos 2 includes the Thermo Scientific EasyLift NanoManipulator, which allows researchers to prepare samples from targeted regions of a cell. Site-specific regions, such as labeled proteins, can be extracted and placed in the inside autogrids for tomogram acquisition in a cryo-TEM.

For more information on the Aquilos 2 Cryo-FIB, please visit: [thermofisher.com/aquilos2](https://thermofisher.com/aquilos2).

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## Preparation