Natalia de Val, Ph.D., Senior Scientist, Senior Product Specialist, Electron Microscopy

It is vital to obtain structural information for the relevant biological machinery to fully understand biological processes and how they fail in disease. Notably, it is becoming increasingly apparent that proteins, the key biological players in fundamental biology or disease mechanisms, often adopt multiple conformations or act in complexes with other proteins.

These large and dynamic systems challenge traditional methods of 3D structural determination such as X-ray crystallography or NMR. Fortunately, in recent years, single particle analysis (SPA) through cryo-EM has emerged as a mainstream structural biology technique, which can determine the 3D structure of proteins and protein complexes at near-atomic resolution. SPA allows the determination of molecular details of purified and isolated proteins at near native conditions, albeit without the spatial and functional context of these proteins within the cell. Cryo-electron tomography (Cryo-ET) fills this gap by visualizing proteins within their functional cellular environments. This allows for observation of their relationships and interactions with other cellular components and holds great promise for cell biology.

During this seminar, Dr. Natalia de Val will present how cryo-EM (SPA and tomography) is revolutionizing structural biology. She will focus on two Thermo Fisher Scientific Transmission Electron Microscopes (TEM), Tundra and Glacios 2. Several application results for SPA and tomography will be shown coming from Tundra and Glacios 2 TEM.

CBSR - RESEARCH TECHNOLOGIES SEMINAR SERIES

IN-PERSON: WEDNESDAY, NOV. 8th NOON-1pm in HSRF 200
OR
HYBRID: https://uvmcom.zoom.us/j/92756034603?from=addon