



**POSTER #4**

**RESOLVING THE STRUCTURAL ORGANIZATION OF THE ESCRT COMPLEX  
DURING CYTOKINETIC ABSCISSION AT NANOSCALE**

**Inna Goliand**<sup>1</sup>, Shachar Sherman<sup>1</sup>, Tali Dadoosh<sup>2</sup>, Michael Elbaum<sup>3</sup> and Natalie Elia<sup>1</sup>

<sup>1</sup> Department of Life Sciences and the National Institute for Biotechnology in the Negev, Ben-Gurion University, Israel

<sup>2</sup> Faculty of Chemistry, Department of Chemical Research Support, Weizmann Institute of Science, Israel

<sup>3</sup> Faculty of Chemistry, Department of Materials & Interfaces, Weizmann Institute of Science, Israel

The ESCRT machinery is designated as a system for membrane remodeling and fission inside cells. To execute their function, cytosolic ESCRT-III proteins assemble into cortical filaments to induce membrane fission. This machinery operates during the last step of cytokinesis (abscission) to resolve the intercellular membrane bridge that connects two daughter cells and terminate the division process. While much has been clarified on the topology and kinetics of abscission through a range of microscopy techniques, key questions regarding the mechanism of abscission remain open. Recently we have employed soft-X-ray tomography to characterize the topology of cytokinetic abscission at different stages. Through this analysis we identified an organization of two nested spirals inside the membrane tube of late intercellular bridges. The outer spiral exhibited a diameter of 556 nm, consistent with previous reports, while the inner spiral exhibited a much smaller diameter (150 nm). These results raised the hypothesis that the ESCRT machinery forms an array of nested spirals to mediate its function at the intercellular bridge. To test this hypothesis we employed a systematic super resolution microscopy assay to map the distribution of different ESCRT-III components inside the intercellular bridge at nanometer scale. By labelling different ESCRT III components and measuring the diameter of spirals containing these components we aim to resolve the complex organization of the ESCRT machinery at the intercellular bridge.