

**Abstract for invited talk at the:**

**15<sup>th</sup> Symposium on the Practical Applications of Mass Spectrometry in the Biotechnology Industry**

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**Talk Title and Abstract**

**Proteomic characterization of exosomes and their impurities**

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Extracellular vesicles (EVs) are a heterogeneous population of nano-sized cell-derived membrane vesicles that are actively released into the extracellular space. Once released, EVs perform critical roles in intercellular communication by transferring their biological content (i.e., proteins, lipids, nucleic acids, and other compounds) between cells. Consequently, and because EVs are nontoxic and nonimmunogenic, they have become an attractive option for delivering pharmaceutical and biopharmaceutical payloads for a variety of medical conditions. However, given their inherent heterogeneity, EVs are often difficult to purify and characterize. Here, EVs from a human cell-line were purified by two different methods. The EV samples were then extensively characterized by proteomic analysis, which enabled the identification of proteins, their content, and supported the comparison of different isolated populations. These data were critical for the identification of EV associated proteins and proteinaceous particulate impurities from the host cell line, which helped drive improvements to the EV purification process.