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Title: Revealing the Unseen with the High-Resolution Ion Mobility MOBIE Platform: A 13 Meter Serpentine Journey to the Future of Separations

Abstract: High-resolution ion mobility (HRIM) has emerged as a transformative tool in the analytical sciences, offering unparalleled resolution, reproducibility, and specificity in ion separation. This presentation explores the profound impacts of the MOBIE HRIM platform from MOBILion Systems on a multitude of applications, ranging from biopharma to biomedical analyses. Specifically, we explore:

- **Therapeutic Peptides:** HRIM facilitates the elucidation of conformational dynamics of therapeutic peptides, a pivotal step for drug development to ensure optimal efficacy and safety.
- **Biologics Characterization:** By offering rapid separations and reduced sample complexity, HRIM streamlines the characterization of complex samples, accelerating therapeutic development and biomarker discovery.
- **PFAS Analysis:** The ability of HRIM to differentiate subtle structural variants in complex matrices ensures the reproducible identification and classification of per- and polyfluoroalkyl substances (PFAS), aiding in monitoring and mitigation efforts, even in the absence of available standards.
- **Glycan Analysis:** With its sensitivity to structural isomers, HRIM offers insights into the nuanced world of glycans, advancing our understanding of their role in disease pathogenesis and therapeutics.
- **Lipid Analysis:** HRIM allows for detailed targeted and untargeted lipidomic studies, distinguishing lipid classes and species that were previously challenging, paving the way for a deeper understanding in diverse areas such as lipid-related diseases and foods.
- **Food Testing:** By detecting contaminants, adulterants, and pathogens with heightened sensitivity and specificity, HRIM ensures the safety and authenticity of our food supply at an unprecedented level of speed and simplicity.
- **Toxicology and Natural Extracts:** HRIM provides CCS identification, classification and the ability to unravel the complexity of drug exposure and natural extract compound studies even in the absence of available standards.

The availability of the MOBIE platform from MOBILion Systems is set to revolutionize analytical workflows across diverse sectors, underlining its potential to help us turn the corner on the most pressing analytical challenges of our times.