Advances in Orbitrap Instrumentation for Native Top-Down Analysis of Non-Covalent Protein Complexes

Eugen Damo1, Rosa Viner2, Albert Konijnenberg3, Kyle Fort1, Maria Reinhardt-Szyba1, Mikhail Belov1, Alexander Makarov1
1Thermo Fisher Scientific, Bremen, Germany; 2Thermo Scientific, San Jose, CA; 3Thermo Fisher Scientific, Eindhoven, Netherlands

ABSTRACT

Purpose: Evaluate the performance of the new Thermo Scientific™ Q Exactive™ UHMR mass spectrometer for native MS and native top-down analysis of larger protein complexes.

Methods: Native MS and native top-down analysis using a Q Exactive™ UHMR mass spectrometer.

Results: Demonstrated excellent performance of the new Q Exactive™ UHMR mass spectrometer for structural characterization of non-covalent protein complexes.

INTRODUCTION

Native mass spectrometry has emerged as a powerful tool to study protein-ligand interactions outside of the context of monomeric components, including non-covalent protein complexes. Top-down analysis of intact protein complexes has been reported since the early 1990s, but significant technical challenges prevented widespread application of this approach. The Q Exactive™ UHMR mass spectrometer has been developed to address these challenges, providing a unique opportunity for the structural characterization of complex native protein assemblies.

MATERIALS AND METHODS


RESULTS

Example: Analysis of the multidrug transporter membrane protein LmrP from L. lactis, which resulted in the structural characterization of the complex.

CONCLUSIONS

In this work we demonstrated outstanding performance of the new Q Exactive UHMR mass spectrometer for structural characterization of non-covalent protein complexes.

REFERENCES


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TRADEMARKS/LICENSING

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