Customer case study

Dr. Jason Tonillo

Senior scientist in ADCs and targeted NBE therapeutics, Global R&D, Merck KGaA, Darmstadt, Germany. Merck is a vibrant science and technology company focused on discoveries that save and improve lives around the world.

Project goal
Characterize antibodies and antibody drug conjugates (ADCs) in terms of amino acid sequence, drug-to-antibody ratio (DAR) and post-translational modifications.

The Challenges
• Establishing a native mass spectrometry method that maintains the quaternary structure of interchain cysteine conjugated ADCs.
• Establishing a label-free method for the quantification of serum incubated ADCs.

The solution
• Top-down approach for quick confirmation of proteins, identification of common post-translational modifications and determination of the DAR.
• Bottom-up mass spectrometry for in-depth analysis of the amino acid sequence and site localization of modifications.
• BioPharmaView™ Software automatically calculates the DAR and creates a report, which can be sent to customers without further manual changes.

The outcome
• Generic method for routine analysis of the DAR, regardless of antibody, linker and payload.
• Quick confirmation of the protein identity of small-scale expressions.

“The 6600+ system provides important data for the development of new biological drugs.”

Goals
Achieve in-depth characterization of antibodies and ADCs

SCIEX products
• TripleTOF® 6600+ LC-MS/MS System
• X500R QTOF System