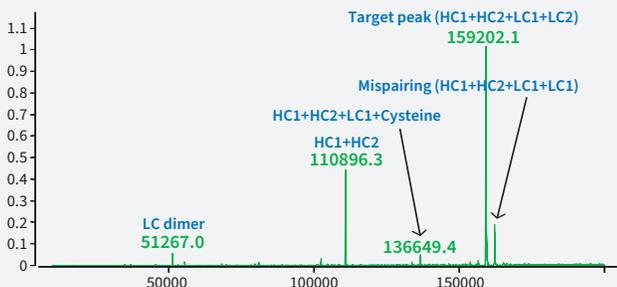
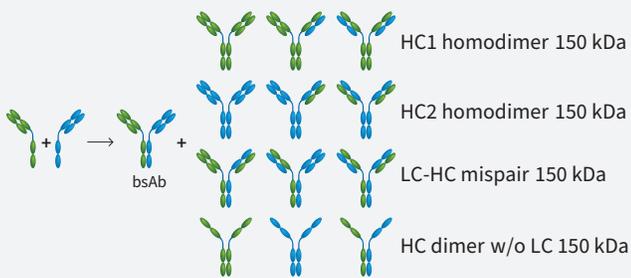




At WuXi Biologics, our Protein Sciences (PS) Department provides comprehensive protein characterization testing during early-stage R&D activities. Our extensive capabilities cover routine testing of the critical quality attributes and additional product characterization aspects of your lead molecule. Capabilities include purity/impurity testing, structural characterization (e.g., mass spectrometry- based protein ID and post translational modification analysis), and SPR/ELISA/cell-based activity assays. This comprehensive analysis enables our clients to thoroughly assess their molecules much earlier during the discovery stage and triage/optimize the leads more effectively.

### Detailed characterization of bispecific antibodies by intact mass analysis

Our experience extends beyond standard monoclonal antibodies to more complex biologics like bispecific and multi-specific antibodies. The most common contaminant in bispecific antibody production are homodimers. Other mispairings can happen that can be revealed by mass intact mass analysis.



#### Mass Spectrometry

- Intact Mass/PeptideMap/Disulfide
- N-/O- Glycan Analysis
- De Novo Antibody Sequence
- Proteomics
- HCP

#### Impurity Test

- Residual DNA
- Host Cell Protein
- Residual Protein A
- Endotoxin

#### Micro Developability Package

- Biophysical: DSF, DLS
- Polyspecificity/PK Indicating Assay: Baculovirus/DNA/Insulin Binding

#### Solutions



#### Purity Test by LC&CE

- SEC-HPLC
- SEC-MALS
- CEX-HPLC
- NR/R CE-SDS
- icIEF

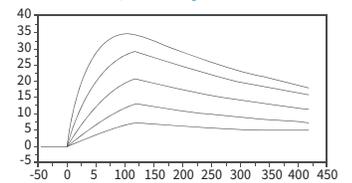
#### Binding Activity & MOA Related Bioassay

- SPR/BLI Binding Assay
- Enzymatic Activity Assay
- ELISA/Cell-based Bioassay

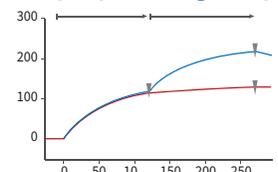
### Surface Plasmon Resonance (SPR)

Surface Plasmon Resonance (SPR) is an optical technique used to measure molecular interactions in real time. SPR can occur when plane-polarized light hits a metal film under total internal reflection conditions.

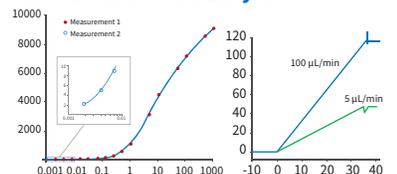
#### Kinetics/Affinity



#### Epitope Binning/Competition



#### Concentration Analysis



**Benefits of SPR:** an ideal tool for evaluating product characteristics such as binding affinity and kinetics and product concentration

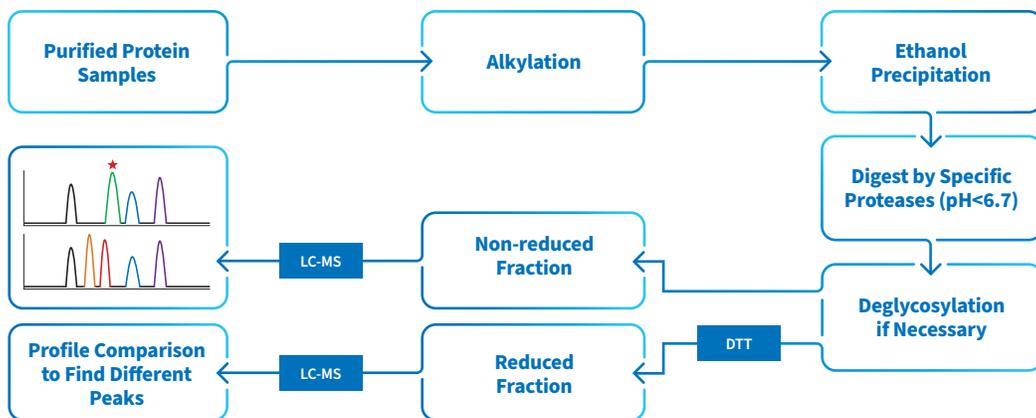
**Versatile:** capable of detecting most types of molecules

**Wide range:** capable of analyzing from μM to fM binders

## Disulfide mapping analysis to determine unknown disulfide linkage

### Deliverables:

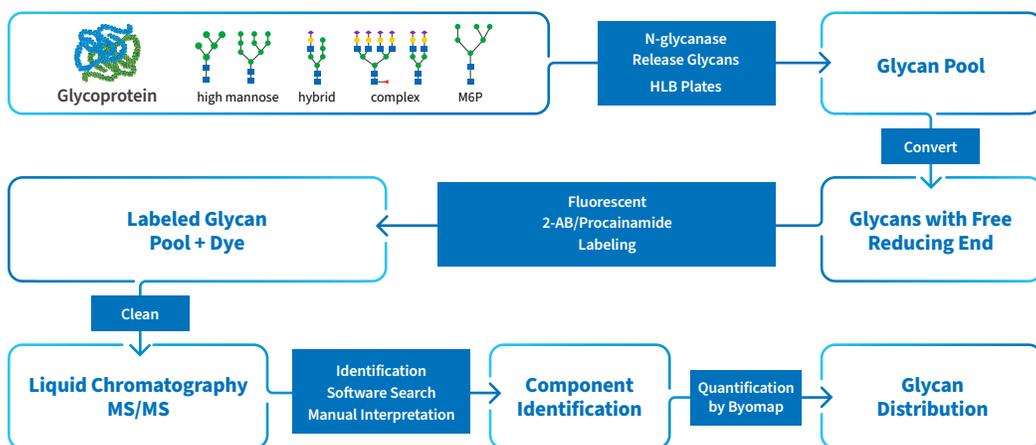
- Confirm known disulfide linkage information
- Report free cysteine amount and any mis-linked disulfide bond with >5% abundance
- Determine unknown disulfide linkage for every cysteine



## N-glycan analysis by LC-Fluorescence-MS/MS for complex glycosylation

### Deliverables:

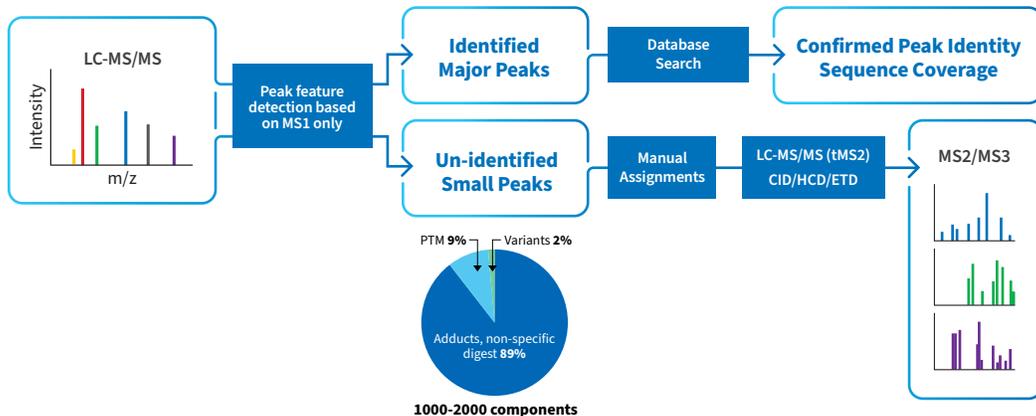
- Report any glycan relative abundance >1% based on fluorescence
- Report glycan ID based on mass spec results



## Detailed peptide mapping for sequence coverage, PTM, sequence variant analysis

### Deliverables:

- Confirm protein sequence: sequence coverage map
- Software-based identification for PTM, SV and fragment et al analysis
- Check sequence homogeneity: manual check for all components with user defined intensity threshold (>1%) for detailed PTM, SV and fragment et al analysis



## About WuXi Biologics

WuXi Biologics is a leading contract research, development and manufacturing organization (CRDMO) that provides end-to-end capabilities to healthcare organizations worldwide. With operations in China, the United States, Ireland, Germany, and Singapore, we enable our partners to effectively and efficiently bring biologics and vaccines to patients worldwide through our comprehensive and high-quality drug development model.

The world's leading global single-source platform from concept to commercialization.

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**WuXi Biologics**  
Global Solution Provider

### Learn more:

Protein Sciences: Early-Stage R&D Protein Characterization Services

