

Protein characterization workflow solutions

Complete columns and consumables offerings

Primary structure analysis/peptide mapping (U)HPLC reversed-phase separations

Primary structure is the simplest level of protein structure. The amino acid sequence determines the protein's shape and structure and consequently its function. The specific sequence is very important, since even a small change (called a mutation) could cause a disorder.



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| Sample preparation <ul style="list-style-type: none"> Thermo Scientific™ SMART Digest™ Kits | LC columns <ul style="list-style-type: none"> Thermo Scientific™ Hypersil GOLD™ Peptide Columns | Sample handling <ul style="list-style-type: none"> Thermo Scientific™ SureSTART™ Vials and Caps Thermo Scientific™ WebSeal™ Plate+ Plates | HPLC systems <ul style="list-style-type: none"> Thermo Scientific™ Vanquish™ Duo UHPLC Systems for tandem LC or LC-MS Thermo Scientific™ Orbitrap™ Mass Spectrometer |
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Charge variant analysis (CVA) Ion-exchange chromatography

Heterogeneity of monoclonal antibodies due to production and manufacturing processes can have potential effects on product efficacy, safety, and stability and must be monitored and revealed by charge sensitive techniques. Separation by charge followed by mass spectrometry (CVA-MS) allows for characterization of posttranslational modifications (PTMs) at the intact protein level.



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| Mobile phase buffers <ul style="list-style-type: none"> Thermo Scientific™ CX-1 pH Gradient Buffers for use with cation exchange columns | LC columns <ul style="list-style-type: none"> Thermo Scientific™ ProPac™ 3R SAX¹ Columns Thermo Scientific™ ProPac™ 3R SCX² Columns Thermo Scientific™ ProPac™ Elite WCX Columns | Sample handling <ul style="list-style-type: none"> Thermo Scientific SureSTART Vials and Caps Thermo Scientific WebSeal Plate+ Plates | HPLC systems <ul style="list-style-type: none"> Thermo Scientific Vanquish Duo UHPLC Systems for tandem LC or LC-MS Thermo Scientific Orbitrap Mass Spectrometer |
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¹ SAX is best for acidic therapeutic protein, AAV characterization and QC
² SCX is best for mAb characterization and QC

Glycan characterization and monitoring Hydrophilic interaction chromatography

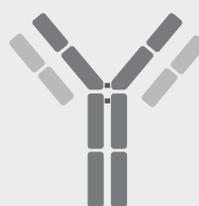
The complete analysis of a glycoprotein provides information on the primary structure of the oligosaccharides as well as their variation at individual glycosylation sites. Glycosylation is a key critical quality attribute (CQA) of biotherapeutics, and any change can impact safety, efficacy, clearance, and immunogenicity.



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| LC columns <ul style="list-style-type: none"> Thermo Scientific™ Accucore™ 150-Amide-HILIC Columns | Sample handling <ul style="list-style-type: none"> Thermo Scientific SureSTART Vials and Caps Thermo Scientific WebSeal Plate+ Plates | HPLC systems <ul style="list-style-type: none"> Thermo Scientific Vanquish Duo UHPLC Systems for tandem LC or LC-MS Thermo Scientific Orbitrap Mass Spectrometer |
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Intact analysis/protein folding Hydrophobic interaction and reversed-phase chromatography

Intact protein analysis is performed for a number of reasons, including determination of molecular mass (during top-down analysis) and posttranslational modifications (PTMs) (e.g., monoclonal antibody glycosylation).



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| LC columns <ul style="list-style-type: none"> Thermo Scientific™ MABPac™ HIC-10, HIC-20, HIC-Butyl Columns Thermo Scientific™ MABPac™ RP Columns | Sample handling <ul style="list-style-type: none"> Thermo Scientific SureSTART Vials and Caps Thermo Scientific WebSeal Plate+ Plates | HPLC systems <ul style="list-style-type: none"> Thermo Scientific Vanquish Duo UHPLC Systems for tandem LC or LC-MS Thermo Scientific Orbitrap Mass Spectrometer with biopharma option |
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Aggregation and fragment analysis Size exclusion chromatography

Protein aggregation gives rise to higher order structures which can significantly affect the efficacy of biologic drugs and cause harmful side effects such as risk of increased immunotoxicity and therefore needs to be monitored and controlled.



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| LC columns <ul style="list-style-type: none"> Thermo Scientific™ MABPac™ SEC-1 Columns | Sample handling <ul style="list-style-type: none"> Thermo Scientific SureSTART Vials and Caps Thermo Scientific WebSeal Plate+ Plates | HPLC systems <ul style="list-style-type: none"> Thermo Scientific Vanquish Duo UHPLC Systems for tandem LC or LC-MS Thermo Scientific Orbitrap Mass Spectrometer |
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Titer determination Affinity chromatography

Accurately quantifying total protein concentration is a key step in most experiments and workflows involving isolation, separation, and analysis of proteins by biochemical methods.



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| LC columns <ul style="list-style-type: none"> Thermo Scientific™ MABPac™ Protein A Columns | Sample handling <ul style="list-style-type: none"> Thermo Scientific SureSTART Vials and Caps | HPLC systems <ul style="list-style-type: none"> Thermo Scientific Vanquish Duo UHPLC Systems for tandem LC or LC-MS Thermo Scientific Orbitrap Mass Spectrometer |
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