Multi-level structural and functional characterization of therapeutic glycoproteins by mass spectrometry

Lippold, S.

Stellingen

behorende bij het proefschrift

MULTI-LEVEL STRUCTURAL AND FUNCTIONAL CHARACTERIZATION OF THERAPEUTIC GLYCOPROTEINS BY MASS SPECTROMETRY

door

Steffen LIPPOLD

1. Fc gamma receptor III affinity chromatography - mass spectrometry provides unprecedented insights into glycoform-resolved structure-function relationships of antibodies omitting the need for glycoengineering (this thesis).
2. The pairing of IgG Fc glycans, rather than isolated glycosylation information, is crucial for functional understanding (this thesis).
3. MALDI FT-ICR MS is a powerful alternative to ESI MS for the analysis of complex intact glycoproteins (this thesis).
4. If there is no natural trypsin cleavage site, look for cysteines (this thesis).
5. There will always be ambiguities in the intact mass analysis of glycoproteins, which can only be reduced by the integration of multiple analysis levels.
6. Determining the functional importance of Fc gamma receptor III glycoforms in health and disease is needed for concluding on the relevance of receptor glycosylation for antibody binding assays.
7. In the future, affinity chromatography will be more important for defining critical quality attributes of biopharmaceuticals than common physicochemical methods such as ion-exchange chromatography.
8. A glycoproteomic workflow is only as efficient and complete as its data analysis strategy.
9. Mass spectrometry has a key role in the biopharmaceutical industry for addressing the complexity of new medicines.
10. Most things have been already done – just not combined.
11. One should be most concerned about how to invest time.
12. The development of biopharmaceuticals has greatly contributed to the revolution of medical treatments in the last decades.