Assessing Oxidation in IgG1 Monoclonal Antibodies and Correlating at both Intact Protein and Peptide Levels

Ipi Met 429 (Fc)

Gol Met 83 (Fd')

Gol Met 51 (Fd')

ABSTRACT

Methods:

INTRODUCTION

Oxidation is a common PTM, with methionine residues particularly susceptible. During the production of biotherapeutics, the levels of oxidation must be assessed as it is known to have an impact on product safety and efficacy. Here, we investigate the susceptibility of methionine residues by subjecting the IgG1 mAbs ipilimumab and golimumab to oxidative stress by incubation with hydrogen peroxide (H\textsubscript{2}O\textsubscript{2}), to determine the sites of potential Critical Quality Attributes (CQAs). Samples were assessed at the intact, subunit, and peptide levels to pinpoint the locations of oxidation hotspots within the primary sequence, and to provide a comprehensive orthogonal characterization.

RESULTS

The Orbitrap Exploris 240 MS delivers confident tracking of post-translational modifications (PTMs) in mAbs at intact, subunit, and peptide levels with operational simplicity, simplified spectral interpretation, and exceptional mass accuracy.

BIOSAFETY

The Orbitrap Exploris 240 MS is equipped with BioPharma option for the oxidation assessment of monoclonal antibodies (mAbs).

TRADEMARKS/LICENSING

1. Tomo, H; et al. 2011, 12, 432-430
2. Guan, Z; et al. 2006, 11, 605-613
3. Pan, Y; et al. Protein Sci. 2009, 18, 424-433

REFERENCES

TRADEMARKS/LICENSING

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