

## Mammalian Cell Glycomics

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The great majority of mammalian proteins can be subjected to a variety of post-translational modifications. Glycosylation is a major protein modification occurring in mammalian cells. Mammalian glycoproteins functioning as hormones, cytokines, and antibodies have now been widely used as biopharmaceuticals. The sugar chains not only influence the physical properties of proteins such as solubility and thermostability, but also govern their biological properties including serum half-life and functional protein-protein interactions. Therefore, glycosylation is currently considered as a crucial factor in developing biopharmaceuticals, which can be manufactured using various production vehicles in pharmaceutical industry. The glycans displayed on the proteins can also serve as regulatory signals through interactions with variety of lectins in cells as well as in extracellular environments and thereby control cellular functions, communications and fates in mammalian systems. The carbohydrate-protein interaction

systems involved in these processes can be novel therapeutic targets. In addition, glycosylation profiles of mammalian glycoproteins can be reliable reflections of physiological and pathological conditions at cell, tissue, and whole-body levels, offering unique biomarkers of cellular developmental stages and a variety of diseases. Hence, mammalian cell glycomics will provide new clues for clinical diagnosis and regenerative therapy. However, complexity and heterogeneity of glycan structures have often discouraged researchers other than glycomacists from actively challenging and addressing this important issue. In view of the situation, the special issue is edited to publish the articles demonstrating state-of-the-art approaches in glycomics using high performance liquid chromatography, mass spectrometry, and lectin microarray techniques. The editor hopes that recent technological advances in glycomics enable even researchers with *glycophobia* to perform quantitative glycosylation profiling of mammalian cells.

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