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Glycobiology-Based Drug Development

Guest Editor:

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Message from the Guest Editor

The target molecules of almost all currently used drugs are proteins, which are always glycosylated if they are synthesized in human cells and transported to cell surfaces and/or secreted. The patterns of glycosylation depend on the lineage and the stage of differentiation of the producing cells and they modulate proteins' molecular function, stability, interactions and trafficking. When a druggable protein plays a crucial role in a pathogenic process, glycosylation is potentially useful as a drug target. The glycosylation of proteins should also be useful in cell-type-specific targeting based on epitopes formed by glycan–peptide complexes. Many protein drugs, including antibodies and growth factors, are glycosylated, and proper glycosylation is an indispensable element to obtain the optimal effects of these protein drugs. Finally, deficiency or malfunction of enzymes involved in biosynthesis or degradation results in severe diseases, which can be treated based on glycobiology.

This Special Issue covers basic, translational, and preclinical research involving glycans towards the development of new drugs.

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Message from the Editor-in-Chief

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