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From Functional Carbohydrates to Novel Glycomimetic Drugs

Every living cell is coated with carbohydrates that extend further out from the cell surface than the proteins in an area called the glycocalyx. These carbohydrates carry structural information that is used in recognition processes of cells with pathogens, receptors, enzymes, recognition molecules, and other cells. Bioactive conformations of these functional carbohydrates represent a relatively untapped source of novel drugs and innovative therapies. Progress in the field of Glycobiology presents many opportunities to transform current therapies and address unmet clinical needs with a novel technology of designing a new class of glycomimetic drugs based on the bioactive conformations of functional carbohydrates. This presentation will discuss the use of a novel glycomimetic antagonist to treat a life-threatening disease with historic unmet needs, and illustrate the validation of this approach by the current interest and investment of the Pharmaceutical industry.