

Srinivas, O.; Jayaraman, N., 2005, “Synthetic multivalent glycoclusters and their importance to probe intricate carbohydrate-protein interactions”, *Proc. Indian Natl. Sci. Acad.*, 71 A, 187 – 211.

An overview of the multivalent requirements of the ligands and the receptors in the general class of carbohydrate-protein interactions is presented. The discovery that multivalent, clustered patches of carbohydrate ligands are required to initiate a highly avid interactions with proteins has led to a series of studies, aimed to unravel the mechanisms of carbohydrate-protein interactions. Synthetic glycoconjugates with clustered sugar ligands have been and continue to contribute in a significant manner to realize finer details of these interactions. Successful among synthetic glycoconjugates are the multivalent and polyvalent sugar clusters based on different types of proteins, polymers and small molecular scaffolds. The extent of clustering of the ligands, their spatial and topological orientations and the nature of underlying scaffolds are few pertinent issues that have been addressed partly so far to account carbohydrate-protein interactions in general. Although an unified rationalization is yet to be achieved, few mechanisms have been established that help to understand molecular level details of these interactions. Various aspects of synthetic multivalent cluster glycosides, mechanisms of their interactions with lectins and the generally adopted methods of study are presented.