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# DESIGN OF GLYCOCLUSTERS AND GLYCODENDRIMERS TOWARDS PROMISING THERAPEUTICAL AGENTS

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Glycodendrimers are a class of monodisperse macromolecules harbouring surface glycan moieties that can play several biological functions. Amongst these, bacterial adhesion and biofilm formation inhibitors, potential prevention of the metastatic behaviour of certain cancers cells, together with vaccine preparations, biosensors, and drug delivery to specific tissues, constitute few examples of these therapeutically promising molecules.

Particularly, glycodendrimers composed of α-D-mannopyranoside residues and analogs thereof have been used to block the adhesion of uropathogenic *E. coli* to host cell walls, while α-L-fucopyranosides and Lewis A oligosaccharides are blockers of biofilm formation and adhesion of *Pseudomonas aeruginosa* lectins to the epithelial lining of lungs in cystic fibrosis populations. A few other oligosaccharide motifs are implicated in animal infections and are therefore the subject of recent initiatives.

In order to widen the scope of applications of these fascinating molecules, fundamental understanding of the multiple variables involved in the careful design of glycodendrimers has been investigated. Hence, scaffolds, linkages, nature of the glycans and their replacement mimetics, their densities together with biodegradation processes have been studied. Recent conclusions regarding the multi-facets of glycodendrimers will be presented.