# Recent Demands of Glycomics: Subprojects and the Role of New Journals

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Glycome has been the latest project to show up in biology. After the famous projects like genomics for nucleic acids, proteomics for proteins, lipidomics for lipids, and metabolomics for metabolites, glycomics concerns now the science about the complex class of carbohydrates and their relations. Glycomics not differs from the other "omics" projects only with respect to its timeline, but mainly due to its fast progress and complexity, both in terms of structure and function. Hence, glycomics is demanding new achievements throughout the scientific community like a conventional classification of its subprojects and creation of more new journals about glycobiology. This editorial aims to highlight the importance of the creation of this new journal, the Journal of Glycobiology, as the introduction and adoption of new terminologies designing relatively new class of sugars like Galactanome and Fucanome, discussed in a paper of the first issue of this journal.

Within its very short time, glycomics has already proved to be much more complex than the other omics. This with regards the number of biological functions, that is as big as the structural diversity of sugars. The long-term conception of carbohydrates as only energetically involved class of molecules has fallen apart as innumerous other essential biological roles have appeared, with different levels of relevance and impact in the organisms. It's worth mentioning that carbohydrates play roles not exclusively in cell (like growth, migration, differentiation and signaling events) or physiology (like hormone actions, hemosthasis, hystomorphologycal integrity), but also they may exhibit potential therapeutic application against diseases like those for preventing coagulation and thrombosis, in combating virotic and pathogenic infections, and in diminishing inflammation and cancer states. Moreover, the vast number of invaluable functions both in cell physiology and pharmacology is surrounded by a great extension of structural possibilities of this molecule type. In glycobiology, carbohydrates are well-known to be much more structural diverse than any other class of biomolecules. This arises from differential enantiomers, anomers, linkage positions, monosaccharide types, chemical groups and their respective positions, sugar ring conformations, all these in either linear or branched, homo or heteropolysaccharides. Another aggravating factor is the big number of determinants in biosynthesis of carbohydrates such as expression levels of transferases as the amounts of substrates available for polymerization (nucleotide-sugar donors). Since carbohydrates are made up by a non-driven template mechanism, is difficult to map all determinants in their synthesis and control all pathways.

The complexity of glycomics not comes only from the big structural and functional varieties, but also from the large number of sugar classes and sub-classes of glycoconjugates. Nowadays, specific terminologies involving these classes or subclasses have been naturally appearing just as a simple consequence of the overwhelming project regarding carbohydrates and their complex relationships. These terminologies are glycolipidomics, proteoglycomics, glycoproteomics, and subdivisions like sialomics, or glycosaminoglycomics which can be further hierarchically divided in heparanomics and others.

Therefore, would be of fundamental significance with other classes and subclasses got use to be considered as well. They would involve other glycan families such as agaran (agaranomics), carrageenan (carrageenomics), both in the major class of galactanomics. Other examples would be chondroitinomics, dermatanomics, both inside galactosaminoglycanomics, fucanomics, and glucuronoxylomannomics. This is relevant to make also more recognizable these glycan families.

The diversity of data that glycomics can generate, within too many glycan classes and subclasses undoubtedly enforces the idea of creation of new journals as specific as one like the hypothetical Journal of Glycosaminoglycanomics, or more general glycan-related journals such as Journal of Glycomics.

In this way, the creation of this journal (the Journal of Glycobiology) with Open Access, online submission system, international perspective, peer-reviewed article system, and under management of the renowned OMICS Publishing group have proved to be a big step forward into the progress of glycomics and glycobiology. To combine with this first issue of this brand new journal, a paper regarding the marine glycomics contribution discussing the biology and chemistry of sulfated galactans and sulfated fucans covered respectively in the proposed galactanomics and fucanomics is presented.

We look forward to the success of the Journal of Glycobiology and its impacting contribution on development of glycomics. Hopefully many publications in this Journal make glycan's classes and subclasses, as well as their functions and chemistry more and more noticeable not only throughout the glyco-society but also in the biochemical community as a whole.

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