Special Focus On Glycomics In OMICS: A Journal Of Integrative Biology

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New Rochelle, NY, September 10, 2010-The glycome, encompassing all of the complex sugars produced by an organism, is comprised of multiple families of molecules whose function in the human body is often determined by the structure, composition, and placement of the attached sugars, as explored in a comprehensive look at the field of glycomics in a group of key articles in *OMICS: A Journal of Integrative Biology*, a peer-reviewed journal published by Mary Ann Liebert, Inc. (www.liebertpub.com [1]). The relevant articles are available free online at www.liebertpub.com/omi [2]

Guest Editors Jeremy E. Turnbull, from the University of Liverpool, U.K., and Ram Sasisekharan, from Massachusetts Institute of Technology (Cambridge, MA), have compiled a series of informative articles that present the most recent scientific advances in this rapidly evolving field of study. In the editorial entitled, "Glycomics: Technologies Taming a Frontier Omics Field," they describe how the challenges associated with studying the complex field of glycomics have given rise to a set of robust and high-throughput research tools capable of probing this diverse family of compounds and producing a wealth of information about how they function and help to regulate biological systems.

This Special Issue takes a comprehensive approach to glycomics, incorporating a broad range of glycan-conjugated compounds, such as glycoproteins, glycolipids, and proteoglycans. In particular, for example, are articles that focus on the sialome, a subclass of the glycome comprised of sialic acid-based core structures present on the surface of cells. Miriam Cohen and Ajit Varki, from University of California, San Diego, in La Jolla, coauthored "The Sialome-Far More than the Sum of its Parts." They describe the sialome as being analogous to the canopy of a forest, covering the cell surface with an array of complex structures that differ in the nine-carbon sugars that comprise their backbone, how they are attached and arranged on the cell membrane, and their overall structure. In the article, "Proteoglycomics: Recent Progress and Future Challenges," Mellisa Ly, Tatiana Laremore, and Robert Linhardt, from Rensselaer Polytechnic Institute (Troy, NY), describe the unique challenges involved in characterizing the composition, structure, and structure-function relationships of proteoglycans, which are comprised of core proteins modified through the attachment of varied sugar structures.

"Although glycomics may still be a frontier omics field, we believe that it has a bright future in the postgenome era," says Jeremy Turnbull. "Glycosylation of biomolecules alters their biological function and, in some cases, the glycans themselves have intrinsic and independent functions. This affords diverse opportunities for subtle regulation of biological processes at a higher level of complexity than DNA or proteins."

SOURCE [3]

Links:
[1] http://www.liebertpub.com
[2] http://www.liebertpub.com/omi
[3] http://www.eurekalert.org/pub_releases/2010-09/mali-sfo091010.php