

## Fifth Annual Conference of the Glycobiology Society

The conference was held November 8–11, 2000, in Boston (Massachusetts, USA). Four hundred fifty scientists from 24 countries participated in this meeting. The highest number of participants was from the USA (334); large groups of scientists arrived from Japan (28), England (16), Canada (14), Germany (13), and Israel (8). Other countries were represented by 1 to 3 delegates including Argentina, Austria, Brazil, Denmark, Italy, Mexico, New Zealand, Croatia, Czech Republic, Finland, France, Switzerland, Sweden, Scotland, Taiwan, and Uruguay. Two satellite symposia were organized during the conference, “Analytical methods in glycobiology” and “Hereditary disorders associated with glycosylation”.

Professor Sam Turko, President of the Glycobiology Society, opened the conference. Then, Professor N. Sharon presented a lecture on lectins. The lectures and posters presented during the conference were divided in the following major sub-sections: carbohydrate-binding proteins, glycoconjugate ensembles I and II, glycobiology and genetics, functions of glycans, glycobiology and signal transduction, glycobiology and lower organisms, and glycobiology and diseases.

The meeting devoted to analytical methods in glycobiology included 11 oral presentations that summarized recent advances in mass-spectrometry, resonant fluorescence, capillary electrophoresis, etc.

Satellite symposium on hereditary disorders associated with glycosylation included 15 presentation which were focused on the role of the Golgi complex glycosyltransferases in development of glycosylation diseases, gene therapy of these diseases, molecular pathophysiology of galactosemia, international nomenclature of glycosylation diseases, and therapy of these diseases with carbohydrates.

The section devoted to the carbohydrate-binding proteins considered properties and specificity of various types of galectins, specificity of Man/GalNAc-4-SO<sub>4</sub> receptor, methods of detection of mouse B cell surface antigen CD22, and other issues of carbohydrate–protein recognition.

The role of peptide-N-glycanases,  $\alpha$ -mannosidases, and polysialyltransferases in biosynthesis of N-glycans was discussed in the glycoconjugate section. Also, preparation of highly phosphorylated lysosomal enzymes was presented as well as their application for therapy of lysosomal accumulation disorders.

A new disorder was characterized by cooperative study of a large group of scientists from the Netherlands, Belgium, Germany, and Canada; this disease develops as the result of insufficiency of glucosidase 1, which modifies carbohydrate chains of N-glycans during their biosynthesis in endoplasmic reticulum. Presentations of this section (glycobiology and genetics) were devoted to biosynthesis of the anti-thrombin binding site on the heparin sulfate molecule, and chromosomal localization and genomic organization of galactose-N-acetylglucosamine-6-O-sulfotransferase.

The section on the function of glycans included problems of *in vivo* activation of luteinizing hormone receptor via GalNAc-4-SO<sub>4</sub> and Man/GalNAc-4-SO<sub>4</sub> receptors. A specific presentation discussed the functions of gangliosides in physiology and pathology of the nervous system. The data of Californian scientists included the relationship between platelet function, P-selectin, mucins of carcinoma, metastases, and heparin.

During the section on glycobiology and signal transduction, the role of galectins 1 and 3 in T cell death and migration of keratoepithelial cells during wound healing was considered.

Presentations of the section on glycobiology and lower organisms were devoted to mechanisms of interaction of parasite cells and the host and to various approaches regulating these interactions.

During the section on glycobiology and diseases, the functions of glycosphingolipids on the plasma membrane surface were considered as well as the pathogenesis of neurodegenerative and dermatological diseases. One of the reports described gene therapy of cystic fibrosis. Japanese scientists reported an original approach of activating  $\alpha$ -galactosidase A in Fabry disease by deoxygalactonoirimycin and its derivatives. Interesting data were presented on expression of N-glycolylneuraminic acid in normal human tissues, in embryogenesis, and in malignancy.

A specific section of the conference was devoted to the announcement of the Karl Meyer award, which was won by the prominent American scientist Phil Robbins.

Apart from lectures, 207 posters were presented. The most interesting posters were specifically discussed during the corresponding section.

The conference was sponsored by a number of biotechnological companies, and ten companies showed information about their products.

The data presented during the conference indicate that glycobiology is a rapidly advancing science. At present, research in this field asks new questions and solves new problems in medicine including mechanisms and therapy of various human diseases, including hereditary, infectious, neurodegenerative, etc. diseases.

Biotechnological companies very often use the methods of glycobiology for development of various vaccines, highly efficient biopreparations, and stabilization of bioactive macromolecules.

Unfortunately, development of glycobiology in Russia is not so advanced. The number of publications on glycobiology in the leading Russian journals is very limited. Carbohydrate conferences have virtually ceased to exist, and these conferences were very successful and attracted attention of a number of scientists including young researchers. At the Fifth Glycobiology Conference, scientists from 24 countries participated, but there was no official representative from Russia. It is tempting to believe that this situation will change, and Russian scientists will actively join the field of modern glycobiology.

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