

INTERNATIONAL SYMPOSIUM ON "PROSPECTS OF BIOORGANIC CHEMISTRY AND MOLECULAR BIOLOGY"

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An international symposium on "Prospects of biorganic chemistry and molecular biology" began its work in Moscow on September 25 and 26, 1978 and then continued from September 27 to October 2 in Tashkent. The symposium, which was organized by the Academy of Sciences of the USSR and the Academy of Sciences of the Uzbek SSR, was held under the aegis of the International Union of Theoretical and Applied Chemistry and the International Union of Biochemistry and was dedicated to the seventieth anniversary of the birth of the founder of the Soviet school of physicochemical biology Academician M. M. Shemyakin (1908-1970).

At this enormous scientific forum, current directions of physicochemical biology were considered. Eminent scientists from 20 countries of Europe, America, and Asia took part in it. They included the Lenin Prize holders Academicians Yu. A. Ovchinnikov and A. Spirin; Academicians of the Academy of Sciences of the USSR M. N. Kolosov, P. G. Kostyuk, A. S. Sadykov, S. E. Severin, and N. M. Émanuél'; Corresponding Member of the Academy of Sciences of the USSR S. Yu. Yunusov; the winner of the Nobel Prize and the Lomonosov Gold Medal (which was presented on September 25 at the opening of the symposium) Professor L. Pauling (USA) the Nobel prize winners A. Todd and D. Hodgkin (United Kingdom); F. Linen (GFR); and V. Prelog (Switzerland) and other well-known Soviet and foreign workers. Lectures devoted to recent advances in the field of investigations on proteins, peptides, nucleic acids, and polysaccharides and also low-molecular weight bioregulators, including the synthesis and the demonstration of various levels of structural organization in connection with biological functions were heard at the symposium. Lectures on structural investigations and biosynthesis were heard with great attention: a lecture by C. Djerassi (USA) on the biosynthesis of the sterols of marine animals; by H. Zacha (GFR) on the structure of chromatin; by G. P. Georgiev on the isolation and study of the organization of eukaryote genes; by E. I. Smith (USA) on the structure, evolution, and regulation of glutamate dehydrogenase; by R. Hill (USA) on the lectins of mammals and glycosyl transferase; and by K. Yagi (Japan) on enzymes containing covalently bound flavins. The discussion was continued in a scientific debate organized according to the program of the symposium. Very interesting contributions to the debate on structural investigations were made by E. V. Grishin, Yu. B. Alakhov, M. Funatsu (Japan), and P. Kh. Yuldashev.

Lectures on the development of new methods and the elucidation of the mechanism of the action of biologically active substances in the process of vital activity were given by V. F. Bystrov on the mechanism of the action of neurotoxins; by K. Wutrich (Switzerland) on a dynamic model for the conformation of globular proteins; by A. E. Braunshtein on the biological functions, structure, and catalytic mechanism of transaminases; by D. Arigoni (Switzerland) on stereochemical investigations of biological methylation reactions; and by K. Narita (Japan) on the study of the microenvironment of the histidine residues in tritium-exchanged proteins. N. S. Andreeva, V. K. Antonov, S. E. Severin, and A. Ya. Khorlin participated in the discussion on this subject.

Great attention has been devoted to investigations on the synthesis of biologically active compounds. Clear and informative were the lectures by H. Zahn (GFR) on the synthesis of proinsulin (the author has succeeded in raising the yield in the synthesis of this important hormone to 42%), by V. T. Ivanov on the synthesis and chemical modification of polypeptide neurotoxins, by M. N. Kolosov on an investigation into the synthesis of an artificial gene, by I. V. Torgov on methods for the synthesis of 14-hydroxysteroids, and by M. Koczuer (Poland) on the synthesis of estrogens. N. K. Abubakirov, Kh. A. Aslanov, R. P. Evstigneeva, and G. I. Chipens participated in the discussion.

One of the most important problems discussed at the symposium concerns bioenergetic processes. The functioning of biological membranes and the physicochemical mechanisms of the transport of ions through membranes. Lectures were delivered by W. Stoeckenius (U.S.A.) on the conversion of light energy in the purple membrane of halobacteria, by V. P. Skulachev on "membrane electricity" as a converted form of energy in the cell, by L. Voitchak on the transport of metabolites through the mitochondrial membrane and its regulation, by E. Carafoli (Switzerland) on the cyclic migration of Ca^{2+} through the mitochondrial membrane, by A. Kotik (Czechoslovakia) on the sources of energy for membrane transport, by H. M. MacConnel (U.S.A.) on the lateral move-

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ment of molecules in membranes, and by P. G. Kosyuk on a complex investigation of the ionic channels of electrically excited membranes. P. Buffa (Italy), A. Azzi (Switzerland), Ya. Kh. Turakhlov, and B. A. Tashmukhamedov took part in the discussion.

Great interest was aroused by the lecture of Professor L. Pauling (U.S.A.) on "The nature of the bonds formed by the transition metals in bioorganic and other compounds."

Thus, having heard lectures by representatives of various countries of the world, the scientists summed up the advances in the main directions of investigation into physicochemical biology. The connection with the solution of the practical problems of modern medicine and agriculture, routes for the further development of this science were marked out.

The investigations of Soviet scientists occupy leading positions in this field and the holding of the symposium in our country was a confirmation of this.

Uzbekistan was not a fortuitous selection of the site for holding the symposium. At the present time investigations in the field of physicochemical biology are being intensively developed, as was observed by the lecturer of the Academy of Sciences of the Uzbek SSR, A. S. Sadykov.

The high level of culture of one of the leading republics of the Union and its ancient and present history aroused great interest among the participants of the symposium. In his concluding remarks at the close of the symposium, Professor S. P. Datta (United Kingdom) mentioned the creative atmosphere of the symposium which permitted a broadening and deepening of the contacts between the specialists of the various countries that will lead in the future to a more intensive development of bioorganic chemistry and molecular biology.