

A. P. F. Turner and Yu. M. Yevdokimov (Eds.)
Biosensors: A Russian Perspective

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Anthony P. F. Turner, an expert on biosensors, defines biosensors as »analytical tools or systems consisting of an immobilized biological material which converts information about the properties of the analyte(s) into quantifiable signal *via* suitable transducers«. Biosensors are products of new multidisciplinary technologies, which span biotechnology, molecular biology, material science and microelectronics. Owing to their very attractive characteristics, they have been subjects of many studies and publications. Only last year, more than 1 000 publications on biosensors appeared. The book *Biosensors: A Russian Perspective* is the third volume in the series »*Advances in Biosensors*« that *Croatica Chemica Acta* presents to its readers. This volume includes results of the biosensors development and of their practical application in Russian scientific centres. The book is divided in ten chapters. The introductory chapter presents the main interests, approaches and movements of Russian science and technologies in the field of biosensors: Biosensor Research in Russia (A. Bayev and M. P. Kirpchnikov). The following three chapters describe electrochemical biosensors in Russia: Principles of Electrochemical Biosensor Development (M. R. Tarasevich and V. A. Bogdanovskaja), Mechanism of Electron Transport Between Redox Proteins, Enzymes and Electrodes: Biosensors Based on Mediatorless Electron Transport (A. I. Yaropolov and B. A. Kuznetsov) and Development of FET and LAPS-Based Biosensors (A. N. Reshetilov and S. M. Khomutov). Two chapters deal with immobilization of molecules by means of a new Langmuir-Blodgett method: Amphiphilic Polyelectrolytes as the Basis of the New Generation of Biosensors (I. N. Kurochkin) and Langmuir-Blodgett Monolayers as a Basis for Advanced Optical Biosensors (A. P. Savitsky and V. V. Savransky). The rest of the book deals with different optical biosensors, which are a popular research topic all over the world: A Family of Sensors Based on Porphyrin Phosphors (D. B. Papkovsky), Immunoenzyme Sensors Based on an Immunosorbent Flow-Injection Technique with Enhanced Chemiluminis-

cence Detection of a Peroxidase Label in a Kinetic Regime (A. P. Osipov, B. B. Kim, and A. M. Egorov), The Background for Creating Biosensors Based on Nucleic Acid Molecules (Y. M. Yevdokimov, S. G. Skuridin, and B. A. Chernuha) and Light Biosensors Based on Bacteriorhodopsin and Photosynthetic Reaction Centers (A. A. Kononenko and E. P. Lukashev). The chapter on biosensors based on bacteriorhodopsin and photosynthetic reaction centres, such as natural chlorophyll-containing protein complexes is worth pointing out. Inovative and very interesting is also research into biosensors containing nuclear acid as sensing element. Such biosensors are capable of »recognizing« different biologically important substances – from nucleotide sequences forming complementary hybrid complexes to a wide range of antitumour compounds reacting with the nitrogen basis of nucleic acids. However, many problems have to be solved before such sensors find practical application.

The aim of this book is to introduce Russian scientists and their work to western readers. Exchange of scientific data with Russia is still not efficient enough and a great deal of information gets lost or comes late. The book shows that relevant scientific data on biosensors from Russia are abundant. The main idea of this book – to stimulate contacts between scientists different countries – is therefore given its full meaning.

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