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CHRONICLE

A Review of the Monograph by V.K. Plakunov *Osnovy enzimologii* (Fundamentals of Enzymology), Moscow: Logos, 2001

The monograph written by professor V.K. Plakunov *Fundamentals of Enzymology* was published within the scope of the Federal Program "The State Promotion of Integration of Higher Education and Fundamental Sciences."

Monographs like this, which are intended for students and postgraduates with insufficient fundamental biochemical knowledge, are scarce, and the present book is a welcome addition to scientific literature.

V.K. Plakunov is a recognized authority on the biochemical mechanisms of regulation of metabolic processes. For many years he read lectures at the Moscow State University, the Moscow Chemical Engineering Academy, and some other educational institutions.

In writing the monograph, the author creatively combined his extensive research and teaching experience.

The monograph gives quite a full account of the current state of the art of the biosynthesis and functioning of enzymes (particularly microbial). The titles of the main chapters show how wide the coverage of basic biochemical problems is:

Chapter 1. Structure and composition of a living cell.

Chapter 2. The notion of compartmentation in a living cell.

Chapter 3. Enzymes as catalysts of biochemical reactions.

Chapter 4. Enzyme kinetics.

Chapter 5. Inhibition of enzymes.

Chapter 6. Principles of bioenergetics.

Chapter 7. Aerobic energy processes.

Chapter 8. Anaerobic energy processes.

Chapter 9. Photosynthesis.

Chapter 10. Constructive metabolism.

Chapter 11. Regulation of protein biosynthesis at the stage of transcription.

Chapter 12. Regulation of protein biosynthesis at the stage of translation.

Chapter 13. Regulation of the activity of protein mediators of biochemical processes.

Chapter 14. Transport of substrates and products.

Chapter 15. Regulation of cell division and growth.

The monograph is very readable. This is due to a good many illustrations and examples of practical applications of enzymes in biotechnology. For instance, Chapter 15, which describes the mechanisms of stringent control with the involvement of guanosine polyphosphates, exemplifies the use of specific mutagenesis to obtain microorganisms capable of the overproduction of enzymes and other proteins (including those of nonmicrobial origin).

Chapter 3 is primarily devoted to the methods of enzyme purification and assessment of enzyme specificity and will be of great interest to specialists working in the microbiological industry.

Information given in Chapters 4, 5, and 13, particularly that dealing with enzyme kinetics and the mechanisms of enzyme regulation, will be valuable for students, postgraduates, and junior researchers.

A detailed and up-to-date account of the processes of membrane transport in Chapter 15 reflects the author's particular interest in this subject. The chapter considers not only the traditional models of nutrient supply to cells but also the mechanisms of metabolic regulation based on the reverse transport of substrates and products from cells. The author presents evidence indicating that these mechanisms represent a specific type of metabolic regulation called membrane regulation.

The coverage of the biochemical and molecular biological problems is comprehensive, which makes me think that the monograph could have well been entitled *Fundamentals of Biochemistry.* Lacking superfluous details, common of many-volume biochemical books, this monograph may certainly be a source of biochemical knowledge for research related not only to biology but also to medicine, chemistry, and other disciplines.

Because of a limited number of printed copies, the monograph is not available from bookshops and can be purchased only from the Logos Publishers Distributor (105318, Moscow, Izmailovskoe shosse, 4; Telephone/fax: (095) 369-5819, 369-5668, 369-7727; e-mail: universitas@mail.ru).

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