

CURRENT TOPICS IN CELLULAR REGULATION

EDITED BY

BERNARD L. HORECKER and EARL R. STADTMAN

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edited by

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CURRENT TOPICS IN
Cellular Regulation
Volume 7

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Preface

Recent years have witnessed rapid advances in our knowledge of the basic mechanisms involved in the regulation of diverse cellular activities such as intermediary metabolism, the transfer of genetic information, membrane permeability, and cellular differentiation and other organ functions. Information gained from the detailed analyses of a large number of isolated enzyme systems, together with results derived from physiological investigations of metabolic processes *in vivo*, constitutes an ever-increasing body of knowledge from which important generalized concepts and basic principles of cellular regulation are beginning to emerge. However, so rapid are the present advances in the general area of cellular regulation and so diverse are the disciplines involved, that it has become a formidable task for even the expert in a specialized area to keep abreast of the progress in his field. This series of volumes is concerned with such recent developments in various areas of cellular regulation. We do not intend that it will consist of comprehensive annual reviews of the literature. We hope rather that it will constitute a medium which will, on the one hand, provide contributing authors with an opportunity to summarize progress in specialized areas of study that have undergone substantial developments and, on the other hand, serve as a forum for the enunciation of general principles and for the formulation of provocative theories and novel concepts. To this end editorial review of individual contributions will be concerned primarily with the clarity of presentation and conformity to publication policies. It is hoped in this manner to bring together current knowledge of various aspects of cellular regulation so as both to enlighten the uninformed and to provide a base of knowledge for those engaged in research in this subject.

BERNARD L. HORECKER
EARL R. STADTMAN

Preface to Volume 7

This volume explores a number of recently discovered areas and mechanisms of cellular regulation. The first two chapters take up the problem of regulation of the primary step in the incorporation of CO_2 in photosynthesis. Two puzzling earlier observations may now be explained—one is the apparent low affinity of purified RuDP carboxylase for CO_2 and the other the photoproduction of glycolic acid and the related effects of O_2 on CO_2 fixation. RuDP carboxylase now appears to be a site of regulation of photosynthesis. It may also be the first member of a novel class of oxygenase.

Other chapters are concerned with the mechanism of blood clotting and the events that may trigger this process, with the inhibition of protein synthesis by diphtheria toxin and the role of NAD and ADP ribosylation, with mechanisms of spermatogenesis and their control, and with the possible role of a novel type of protease, specific for pyridoxal phosphate enzymes, in the regulation of the levels of these enzymes in mammalian cells.

BERNARD L. HORECKER
EARL R. STADTMAN

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