

Translationally Regulated Genes in Higher Eukaryotes, edited by R. E. Thach, Basel, Switzerland: Karger Publishers, 348 pages, \$129.00 (hardcover), 1991

This volume reviews in twenty-seven chapters the current status of translational control in higher eukaryotes. The book is no doubt timely as there is renewed interest in translational control mechanisms. This volume will be helpful to individuals keenly interested in translation, but the chapters are not directed at a broad readership.

Overall, the book maintains excellent production value. The illustrations are particularly well done and represent good balance between presentations of mechanism and examples of data. Each chapter begins with an abstract which should provide guidance to the reader. The primary production deficiency is a perfunctory subject index of less than a page.

The first two chapters present overviews of the mechanism of protein synthesis initiation in general and the role of phosphorylation of initiation factors in protein synthesis regulation. Both chapters are well constructed and prepare readers by providing background information for understanding some of the following chapters. However, the first chapter on translation initiation would have benefited from a more detailed list of references as opposed to a total of 27 for a field as broad as eukaryotic translation.

The next four chapters treat translational control in iron metabolism. Three out of the four, those written by Klausner, Munro, and Theil, are highly repetitious. The remaining chapter reads more like a meeting report than a review.

The next two chapters dealing with translational regulation of ribosomal protein genes seem to be appropriate and point out the involvement of 5'UTR in regulation of ribosomal protein genes. The review by Hunt on the control of translation of masked mRNAs in clam Oocytes is particularly well written. It would be interesting to see in the future how binding of proteins

to 3'UTR would prevent entry of ribosomes to the 5'-end of maternal mRNAs. The next two reviews also analyze results suggesting a role of 3'UTR in temporal regulation of genes, either during mouse spermatogenesis or in *Xenopus* Oocytes.

Regulation of translation during heat-shock is treated in a comprehensive review which readers should find very useful. The next four reviews describe mRNA stability and the roles AU-rich sequences play in determining the stability of some mRNAs. Although the decay rate of mRNA does ultimately affect translation, most of these chapters do not relate directly to translational regulation and seem more appropriate for a volume on post-transcriptional regulation in general, rather than on translational control.

I found the chapter by Perlmutter on translational regulation of the lymphocyte-specific protein tyrosine kinase p56^{lck} highly informative, as was a chapter on Int-2 by Dickson et al. Six chapters were devoted to describing translational control in virus-infected cells. These viruses include Reo, Sendai, Adeno, Flu, Polio, EMC, and Retrovirus and the articles describe either control of viral protein synthesis or effect of virus infection on host cell protein synthesis. These will be valuable to readers interested in viruses and translation.

The review by Macejak and Sarnow on translational regulation of immunoglobulin heavy-chain binding protein mRNA is timely and articulate. This mRNA happens to be the only cellular mRNA known to initiate translation by an internal ribosome binding mechanism.

In summary, this volume offers much valuable information on translational control in eukaryotes. Unfortunately, without the inclusion of a chapter describing yeast translational control systems, it does not constitute a comprehensive treatment on the subject.

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