Volume 224, number 1, 231–245 FEB 05280 November 1987

Book Reviews

Interferons as Cell Growth Inhibitors and Antitumor Factors

UCLA Symposia on Molecular and Cellular Biology – New Series, Volume 50

Edited by R.M. Friedman, T. Merigan and T. Sreevalsan

Alan R. Liss; New York, 1986

xxxviii + 541 pages. £60.00

This book contains papers presented at a Symposium held in Steamboat Springs, Colorado in April 1986. The meeting formed part of the UCLA Symposium series established 15 years ago to bring together researchers from different disciplines who are working in rapidly developing areas of basic or applied biology. The theme of this conference was the antiproliferative effects of the interferons and their potential for anticancer therapeutic applications.

Although much is known about the mechanisms underlying the antiviral effects of the interferons, there is considerably less understanding of the molecular basis of the actions of interferons as 'negative growth factors'. This book, however, provides as up-to-date a summary of the current state of knowledge as can be expected to be found under a single cover. There are sections on gene regulation by interferons, immunoregulation, the nature and role of interferon receptors on the cell surface, the relationship between interferons, growth factors and oncogene expression, and in vivo antitumour effects in animal models and clinical situations. The whole work is prefaced by an Introduction by Peter Lengyel describing some areas of recent excitement in these fields. There is also a good, detailed index.

As usual with such multi-author volumes as this one, which are prepared in camera-ready format, the quality of both the science and its clarity of presentation is variable. However, there are some gems to be found within the 42 separate research papers presented; interestingly, these are not always the articles with the greatest amounts of data included. Personally I found the most exciting work in the sections on regulation of gene expression and the control of oncogene activity by interferons. The description by Frances Balkwill of the antitumour effects of interferons in animal models also impressed, not least because it provides a strong framework for the application of erudite molecular biology to a field which still holds potential for the treatment of at least some forms of human cancer.

A general impression which emerges from reading the book is the fact that the interferons are not just negative cytostatic or cytotoxic agents, but possess the ability to modulate gene expression in ways which markedly alter the cellular phenotype. Depending on the cell type, such alterations can lead to development of an antiviral state, inhibition of cell proliferation, promotion of cell differentiation, or activation of a variety of pathways which modulate functions of the immune system. Readers of this book can get a flavour of each of these areas where interferon treatment impinges on the biology of mammalian cells.

Mike Clemens

Copies of books for review in FEBS Letters should be sent to:

Professor H.R.V. Arnstein, Department of Biochemistry, King's College, Strand, London WC2R 2LS, England

Published by Elsevier Science Publishers B.V. (Biomedical Division)

Interferon-stimulated gene factor 3 (ISGF3), the primary transcription factor induced by interferon alpha, is a complex of four (113, 91, 84, and 48 kd) proteins. This paper reports that the 113, 91, and 84 kd (ISGF3 alpha) proteins of ISGF3 contain conserved SH2 and SH3 domains. A specific interferon alpha-induced cytoplasmic protein tyrosine kinase(s) can form a transient complex with ISGF3 alpha proteins.Â Friedman, R. M., Merigan, T., and Sreevalsan, T. (1986) Inter-ferons as Cell Growth Inhibitors and Antitumor Factors, UCLA Symposia on Molecular and Cellular Biology, New Series Vol. 50, Alan R. Liss, New York. Jan 1982. 251-282.