
Preface

Observation of the phenomenon of virus interference, by which one virus blocks the growth of another virus when both try to infect the same target cell, led the way in the development of the field of interferon research. Originally described as early as 1935, the research team of Werner and Gertrude Henle published a sentinel paper in 1943 suggesting that the interference phenomenon could be induced by inactivated virus, which further suggested that perhaps a component of the inactivated virus somehow modified the cell to become insensitive to subsequent viral infection. However, it was not until the research team of Alick Isaacs and Jean Lindenmann published their article in 1957 showing that the interference had nothing to do with the virus particle but, rather, stemmed from an unknown factor liberated from the cells in response to the virus did the scientific community begin to appreciate the potential impact that such a factor might have in medicine and biomedical research. This interference factor was termed “interferon” and so, a field was born.

Today, interferons (IFNs) composed of type I and type II IFN species are approved for therapeutic use for a number of conditions including selective malignancies, multiple sclerosis, and certain types of viral infections (e.g., hepatitis B virus). The IFN cytokines are prescribed in more than 80 countries with annual sales well over US\$1 billion annually. The success in their application stems from the antiviral, antiproliferative, and immunoregulatory properties associated with the activation of multiple IFN-stimulatory genes and pathways. With the advent of gene array techniques, we now have identified more than 300 IFN-stimulatory genes, many of which have unknown functions. It is the task of current and future researchers in this field to ascertain the functions of the IFN-stimulatory gene products in the hopes of identifying additional pathways that will facilitate our understanding of the many biological events influenced by IFNs.

Interferon Methods and Protocols, a volume in the *Methods in Molecular Medicine* series embarks on illustrating some of the current techniques developed to study specific aspects of IFN-elicited events. Unique to this series, the first two chapters are devoted to adding a historical perspective to the field in general discussing the successes and failures of past and present day technology as well as consideration to future endeavors. The remainder of the volume includes a compilation of contributions that, although not exhaustive, represents a field that has expanded exponentially since its origin nearly 50 years ago. It is anticipated that this volume will be essential to all those who

work on interferon research, as well as quite useful to investigators across such overlapping disciplines as immunology, virology, biochemistry, and molecular biology.

I am indebted to Professor John Walker who had the foresight to initiate this endeavor and allow us to organize this volume. It is worthwhile to note that many of the authors have made a significant impact in our understanding of IFN biology. I am grateful to all the authors for their willingness to contribute, in a succinct and timely manner, their experience in the form of the methods (some of which are very unique and sophisticated) included in this volume.

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