warnings and precautions. This is particularly important when the recommended agent is a new and/or infrequently employed drug.

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ISBN 3-8055-4966-0

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Acknowledgments

The organizers of the 2nd International Conference on Tumor Necrosis Factor and Related Cytokines gratefully acknowledge support provided by:

Asahi Chemical Industry Co., Ltd.
The Cancer Research Institute
Dainippon Pharmaceutical Co., Ltd.
German Cancer Research Center,
Institute of Virus Research
Chugai Pharmaceutical Co., Ltd.

BASF/Knoll Pharmaceuticals
S. Karger AG
Kureha Chemical Company
Genetech, Ind.
J.R. Prous Science Publishers
Pergamon Press, Inc.

Preface

The contents of this volume represent the efforts of leading scientists from many countries. They are the summation of results presented at the Second International Congress on Tumor Necrosis Factor and Related Cytokines. The volume contains the research progress of the last 3 years following the first International Congress held in Heidelberg, FRG in 1987. We believe you, the reader, will agree that a great deal of new information has been obtained in this short period of time. The understanding that we were dealing with cytokines in this area really began from two different directions...
in the late 1960s and early 1970s. In vivo when serum factors were shown to cause tumor necrosis and a wasting disease in animals. In vitro with the discovery that stimulated lymphocytes and macrophages could release proteins which killed cells in vitro. It became clear upon purification, sequencing and expression of the cytokines responsible for these phenomena that they are due to the same cytokines.

The early work was done BC, that is, before cloning and much of the ground work which permitted present studies was conducted during that period. Yet, investigators in the BC period had very narrow views of what effects these cytokines caused both in vivo and in vitro.

Studies from many laboratories employing recombination molecules, now reveal that these cytokines have a multitude of effects on cells and tissue both in vitro and in vivo. This was a central theme of the first International Congress. The data contained in this volume further expands the cell and tissue effects elicited by these cytokines; however, recent studies reveal some of the basic mechanisms involved in how these cytokines cause their effects.

The meeting and the volume are organized from molecular to cell tissue levels. In addition to original research papers presented and summarized

Preface X

here, there were several other papers presented and discussed in workshop sessions and the summary of these workshops has been included in the book. The congress organizing committee of the meeting and the editors of this volume wish to share these results with you and hope you will find them as exciting as we do.

The Cancer Research Institute (CRI), who sponsored this symposium, was founded as a non-profit intermediary organization to foster the field of cancer immunology. Since 1953, the CRI has provided support to scientists working to solve all aspects of the cancer/immune system puzzle. We have our roots in the pioneering efforts of Dr. William B. Coley, a New York physician who had success in treating cancer patients with a killed-bacteria vaccine in the late 19th century. His daughter, Helen Coley Nauts, compiled his records and founded the CRI to build upon her father's valuable legacy. Dr. Coley's work formed the basis for many subsequent discoveries, including the identification of tumor necrosis factors by Dr. Lloyd J. Old, Scientific Director of the CRI, and his colleagues. In 1984, the CRI sponsored a workshop entitled 'Lymphotoxin, Tumor Necrosis Factor, and T, NK, and Macrophage Cytotoxic Factors'. It also helped sponsor the first International Conference on Tumor Necrosis Factor and Related Cytokines. The sponsorship of the second meeting in this series carries on the tradition of supporting the investigation of the interaction between bacterial products and the
immune system.
The editors of the volume wish to thank the diligent participation of the
organizing committee (Drs. Cerami, Gifford, Haranaka, Kalden, Kirchner,
Maennel, Matthews, Old and Wallach), who have contributed time and effort
to make this meeting successful. Also, the assistance of the UCLA Symposia
staff and particularly Dr. Robin W. Yeaton Woo is greatly appreciated.

G. Granger
B. Bonavida