
INFLAMMATION, CHRONIC DISEASES AND CANCER

CELL AND MOLECULAR BIOLOGY,
IMMUNOLOGY AND CLINICAL BASES

Edited by Mahin Khatami

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**Inflammation, Chronic Diseases and Cancer –
Cell and Molecular Biology, Immunology and Clinical Bases**

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Published by InTech

Janeza Trdine 9, 51000 Rijeka, Croatia

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Publishing Process Manager Silvia Vlase

Technical Editor Teodora Smiljanic

Cover Designer InTech Design Team

First published March, 2012

Printed in Croatia

A free online edition of this book is available at www.intechopen.com

Additional hard copies can be obtained from orders@intechweb.org

Inflammation, Chronic Diseases and Cancer –
Cell and Molecular Biology, Immunology and Clinical Bases, Edited by Mahin Khatami
p. cm.

ISBN 978-953-51-0102-4

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Preface

In preparing the preface for this book, it is appropriate to use the historical and amusing footnote that Rudolf Virchow wrote in *Cellular Pathology* (1865) and to expand on his comment with social context. Virchow's footnote defined inflammation as *"Suppose three people were sitting quietly on a bench, and suddenly a stone came and injured one of them, the others would be excited, not only by the sudden appearance of the stone, but also by the injury done to their companion, to whose help they would feel bound to hasten. Here the stone would be the irritant, the injury the irritament [inflammation], the help an expression of the irritation called forth in the bystanders"*. Building on this simple concept, the stone and help from surrounding bystanders may be considered a temporary incident (acute inflammation) that is resolved without serious adverse consequences except that it provides heightened awareness of people in their surroundings!. However, the analogy for severe (acute) or chronic inflammatory diseases could be defined as burning of a crowded building (e.g., 9/11 terrorists attack, like a potent pathogen!) that could cause serious disruption to normal activities of the society imposing profound immediate and/or lasting impact that involves local and distant measures; requiring rescue and repair operation teams in an attempt to rescue, reconstruct, repair and salvage the devastations events (systemic involvement) that are often costly and have unwanted and irreparable consequences.

Biologically, acute inflammation is an evolutionary and protective mechanism of body's immunity that facilitates the organ systems to return to normal physiological homeostasis after encountering a wide range of unwanted internal or external foreign elements (stimuli) such as infective pathogens; viruses, bacteria or parasites, chemical and biological toxins or defective or useless cells such as cancerous cells throughout life. However, as demonstrated throughout this book, unresolved or chronic inflammation contributes to the induction of a wide range of acute illnesses (e.g., sepsis, meningitis or respiratory diseases, major trauma), or chronic and age-associated diseases such as neurodegenerative and autoimmune diseases, lupus, multiple sclerosis, Alzheimer's, stroke, osteoporosis, diabetes and cardiovascular complications and many cancers.

Experts in multidisciplinary fields of inflammatory diseases have contributed valuable reviews and perspectives on the role of inflammation in acute and chronic diseases, and current treatment options. The ultimate goal is to demonstrate that persistent or

unresolved inflammation is a common denominator in the genesis and manifestation of a wide range of diseases and many cancers, particularly in an aging body. Understanding the fundamental basis of shared and interrelated features of unresolved inflammation in the genesis and progression of diseases are expected to better guide the professionals to strategize more cost-effective designs for treatment, diagnosis and/or prevention of a number of age-associated disabling illnesses or cancer.

Editor is grateful to all contributing authors for developing comprehensive chapters on multidisciplinary fields of inflammatory diseases. This book is dedicated to the loving memory of my parents, Kazem and Badri-Zaman Khatami. The invaluable support and encouragement of the following individuals is also acknowledged with great appreciation: John H. Rockey, MD, Ph.D, mentor/friend and senior colleague at the University of Pennsylvania, who instilled the love of science and devotion to serve the public in me and who shaped my early career and initially trained me in immunobiology of inflammatory diseases that resulted in our 'accidental' discoveries in 1980's that are suggestive of the first evidence for a direct association between inflammation and tumorigenesis; Edward J. Massaro, Ph.D., Environmental Protection Agency, Editor in Chief, Cell Biochemistry and Biophysics, my mentor at the State University of New York at Buffalo and a long time colleague and friend who supported and encouraged me professionally throughout the years; and John H. Bayens, Ph.D., Distinguished Professor at the University of South Carolina and long time colleague who generously supported and encouraged my work in multidisciplinary fields of inflammation, diabetes and cancer research. The Editor also wishes to pay tribute to the memory of her good friend, Shirin (Shirley) Mirsepassi-Toloui, M.D., (1944-2011), pathologist whose true friendship and support were above and beyond the call of duty.

'There are many mirrors reflecting the light, but though all the mirrors should be shattered, the light would still remain.'

Rumi

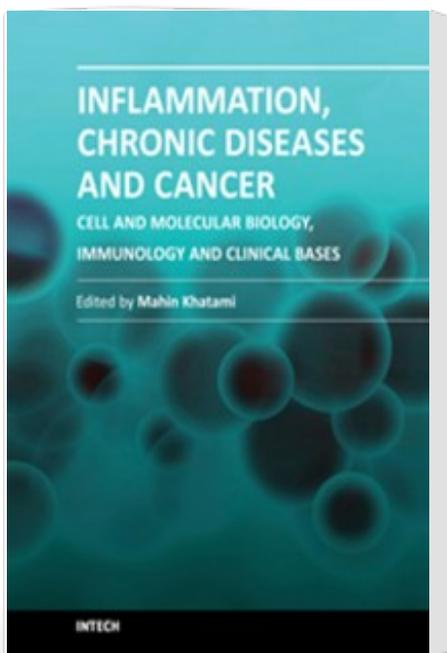
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Part 1

Dynamics of Immune System and Inflammatory Diseases

Inflammation Chronic Diseases and Cancer-Cell and Molecular Biology Immunology and Clinical Bases



Publisher : ICSI

ISBN : 9789535101024

Author : Mahin Khatami

Type the URL : <http://www.kopykitab.com/product/1774>



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