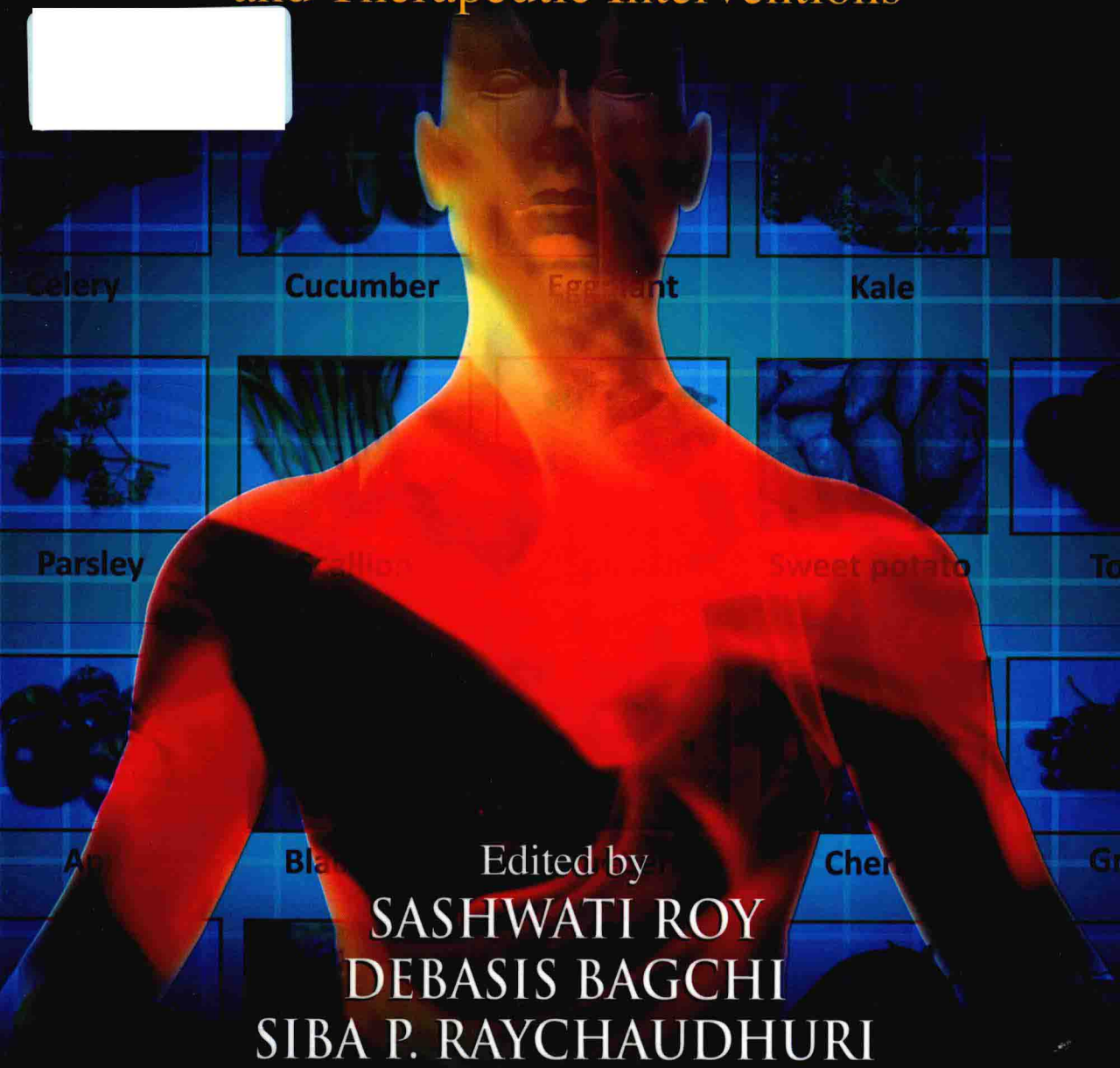


CHRONIC INFLAMMATION

Molecular Pathophysiology, Nutritional
and Therapeutic Interventions



Edited by
SASHWATI ROY
DEBASIS BAGCHI
SIBA P. RAYCHAUDHURI



CRC Press
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CHRONIC INFLAMMATION

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To my mentors in science, beloved parents, and my family and friends
Sashwati Roy

To my beloved father, the late Sri Tarak Chandra Bagchi
Debasis Bagchi

To Smriti Kana Raychaudhuri and to my mother Bilwabasani Raychaudhuri
Siba P. Raychaudhuri

Preface

While acute inflammation is a healthy physiological response aimed at wound healing, chronic inflammation has been directly implicated in a wide range of degenerative human health disorders. These pathologies encompass almost all of present-day noncommunicable diseases such as obesity, diabetes, atherosclerosis, and high blood pressure, as well as cancer. Thus, the February 23, 2004, cover of *TIME* magazine featured inflammation as “The Secret Killer.” To preserve good health, it is important that we are capable of rapidly mounting an inflammatory response to tissue injury. It is also equally important that such inflammation be resolved in a timely manner such that the state of chronic inflammation is averted. Lifestyle factors such as diet, stress, tobacco, obesity, infection, and pollutants are known to contribute to chronic inflammation. Prudent nutritional and exercise habits are powerful tools to fight chronic inflammation.

In this volume, the following three sections provide cutting-edge and comprehensive treatment of the process and factors that influence chronic inflammation.

- (I) Systems Biology of Inflammation and Regulatory Mechanisms (Chapters 1–10)
- (II) Pathologies Associated with Inflammation (Chapters 11–18)
- (III) Nutrition & Therapeutics for Inflammatory Diseases (Chapters 19–28)

Section I addresses the understanding of the process of chronic inflammation including initiation, progression, and resolution. Section II includes a rigorous and critical treatment of specific human health disorders where chronic inflammation plays a major role. Section III discusses countermeasures for protection including nutritional and other interventions. Protective abilities of structurally diverse antioxidants, phytochemicals, anti-inflammatory diets, omega-3 fatty acids, NSAIDs, disease-modifying antirheumatic drugs, and novel regimens have been extensively discussed by authoritative experts in the discipline.

We extend our special thanks to Randy Brehm and Jill Jurgensen at Taylor & Francis for their continued support and help for putting this volume together. It has been a rewarding experience to interact with the generous authors who were enthusiastic and willing to contribute to this volume. We hope you enjoy this volume as much as we have enjoyed putting it together.

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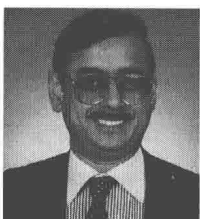
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Sashwati Roy, PhD, is an associate professor of surgery at the Ohio State University, Columbus. She received her PhD in 1994 in physiology and environmental sciences. She completed her postdoctoral training at the University of California, Berkeley. Her research interests include wound inflammation, mechanisms of resolution of diabetic wound inflammation, and the role of miRNA in tissue repair processes.

Dr. Roy has more than 150 peer-reviewed publications. She is an expert in significance of inflammation in chronic wounds and has delivered dozens of lectures in international and national level meetings. Dr. Roy's research is currently funded by the National Institutes of Health to investigate the role of inflammation in diabetic wounds.



Debasis Bagchi, PhD, MACN, CNS, MAICHE, received his PhD in medicinal chemistry in 1982. He is a professor in the Department of Pharmacological and Pharmaceutical Sciences at the University of Houston. He is also Director of Innovation & Clinical Affairs at Iovate Health Research Sciences Inc., Oakville, Ontario. Dr. Bagchi is the immediate past president of the American College of Nutrition, Clearwater, Florida; a distinguished advisor at the Japanese Institute for Health Food Standards, Tokyo, Japan; and immediate past chairman of the Nutraceuticals and Functional Foods Division of the Institutes of Food Technologists, Chicago, Illinois. Dr. Bagchi received the Master of American College of Nutrition Award in October 2010. His research interests include free radicals, human diseases, carcinogenesis, pathophysiology, mechanistic aspects of cytoprotection by antioxidants, regulatory pathways in obesity, diabetes, and gene expression.

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Dr. Bagchi has received funding from various institutions and agencies including the U.S. Air Force Office of Scientific Research, Nebraska State Department of Health, Biomedical Research Support Grant from National Institutes of Health (NIH), National Cancer Institute (NCI), Health Future Foundation, the Procter & Gamble Company, and Abbott Laboratories.



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long-term goal of his research group is to explore the inflammatory cascades in inflammatory diseases and develop safe and effective therapies by targeting the critical molecular events specific for these groups of diseases.

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