Heat Shock Proteins:
Potent Mediators of Inflammation and Immunity
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Edited by

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This book is dedicated to our children Ana-Cristina, Alexzander Jr., Edwina and Vanessa
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From their original description as primarily intracellular molecular chaperones involved in cell survival and protection against potentially harmful stimuli, heat shock proteins (HSP) have now been shown to be exit cells and exert profound effects on the host’s response to several human diseases as dissimilar as cancer, cardiovascular disease, aging and autoimmunity, and in response to previously unknown stressors like physical exercise and psychological stress including predator fear, confinement and social exclusion. This book reviews the contemporary knowledge on the role of heat shock proteins as mediators of inflammation and immunity. Using an integrative approach to understanding heat shock protein immunobiology, the contributors provide a synopsis of novel mechanisms by which HSP are released from cells, specific binding and resultant receptor-mediated signaling, the process of antigen processing and presentation and finally how HSP stimulate immune responses.

Section I reviews recently discovered mechanisms by which HSP gain access to the extracellular milieu. Classical and unique stressors that stimulate HSP release, as well as pathways by which HSP are delivered to the extracellular milieu are discussed.

Following release of HSP from cells, Section II reviews our recent knowledge of HSP specific binding to cells of the immune system. In addition, the growing number of HSP receptors and the resultant receptor-mediated signaling that occurs is comprehensively reviewed.

In Section III, immune responses elicited by exogenous HSP are reviewed. An up-to-date account of the ability of HSP to act as a danger signal and thereby augment host defense against various diseases or induce devastating autoimmune responses is also discussed in this section.

Finally, in Section IV, the role of HSP in antigen processing, presentation and its effect on inflammation and disease are reviewed. Specifically, the role of HSP-peptide complexes, controlling the inflammatory process and regulatory T cells are comprehensively reviewed.

Heat Shock Proteins: Potent Mediators of Inflammation and Immunity provides the most up-to-date and exciting insights into how heat shock proteins (HSP) modulates the host’s immune response. Written by leaders in the field of heat shock protein immunobiology, the chapters systematically and in a step-wise fashion
takes the reader through the fascinating sequence of events by which heat shock proteins activate immune responses and provides answers as to its biological significance to the host. The book takes the reader systematically and in a step-wise fashion, mechanisms of release, to specific binding and receptor-mediated signaling, activation of host defense or initiation of devastating autoimmunity and finally to antigen processing and presentation and its effect on human diseases. This book is a must read for graduate and postgraduates in the field of Biology (plant and mammal), Biochemistry (pro- and eukaryotic), Immunology, Microbiology, Exercise Medicine, Physiology, Inflammatory diseases, Autoimmunity, Pharmacology and Pathology.

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