

Heat Shock Proteins 9

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Heat Shock Protein- Based Therapies

 Springer

Heat Shock Proteins

Volume 9

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Heat Shock Proteins: key mediators of Health and Disease. Heat shock proteins (HSP) are essential molecules conserved through cellular evolution required for cells to survive the stresses encountered in the environment and in the tissues of the developing and aging organism. These proteins play the essential roles in stress of preventing the initiation of programmed cell death and repairing damage to the proteome permitting resumption of normal metabolism. Loss of the HSP is lethal either in the short-term in cases of acute stress or in the long-term when exposure to stress is chronic. Cells appear to walk a fine line in terms of HSP expression. If expression falls below a certain level, cells become sensitive to oxidative damage that influences aging and protein aggregation disease. If HSP levels rise above the normal range, inflammatory and oncogenic changes occur. It is becoming clear that HSP are emerging as remarkably versatile mediators of health and disease. The aim of this series of volumes is to examine how HSP regulation and expression become altered in pathological states and how this may be remedied by pharmacological and other interventions.

More information about this series at <http://www.springer.com/series/7515>

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Preface

The book *Heat Shock Protein-Based Therapies* provides the most up-to-date review on new and exciting therapies that utilize mechanisms based on the heat shock response and targeting various stress proteins as a promising therapeutic strategy for a wide variety of human disorders and diseases including cancer, neurodegenerative disorders (Alzheimer's disease, multiple sclerosis), and infectious diseases (HIV, periodontal disease).

This book is divided into therapies based on various heat shock proteins (HSP). Part I begins with therapies based on mechanisms dependent on HSP27 and covers plant-based therapies and their use for cancer. Part II deals with how HSP60 is targeted on Alzheimer's disease and periodontal disease. Part III covers novel ways of targeting HSP70 in therapies including infectious diseases, antiviral drug therapy, cancer, neurodegenerative disorders, and nanotechnology. Part IV comprehensively covers HSP90-based therapies in cancer, neurodegenerative disorders, and drug development.

Heat Shock Protein-Based Therapies is written by leaders in the field of heat shock protein research in clinical research, basic research, translational research, and pharmaceuticals. The contributed chapters review present cutting-edge research activities and importantly project the field into the future. The chapters systematically and in a stepwise fashion take the reader through the fascinating sequence of events by which mechanisms dependent on heat shock proteins are targeted and provide answers as to the biological significance of HSP to human health and disease.

This book is a must-read for undergraduate, graduate, postgraduates, and experts in the field of neuroscience, medicine, oncology, immunology, dentistry, microbiology and infectious diseases, autoimmunity, pharmacology, pathology, phyto-medicine, drug development, biotechnology, and pharmaceutical industry.

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Contents

Part I Heat Shock Protein HSP27-Based Therapies

- 1 HSP27 as a Therapeutic Target of Novel Inhibitors and Dietary Phytochemicals in Cancer** 3
Elena Aréchaga-Ocampo and César López-Camarillo
- 2 Heat Shock Protein 27 (HSP27, HSPB1) Is Up-Regulated by Targeted Agents and Confers Resistance to Both Targeted Drugs and Chemotherapeutics**..... 17
Daniele Musiani, John David Konda, Simona Pavan, Erica Torchiano, Jessica Erriquez, Martina Olivero, and Maria Flavia Di Renzo
- 3 Heat Shock Proteins and Cancer: Plant Based Therapy** 27
Evren Önay-Uçar

Part II Heat Shock Protein HSP60-Based Therapies

- 4 Chaperonotherapy for Alzheimer's Disease: Focusing on HSP60** 51
Francesco Cappello, Antonella Marino Gammazza, Silvia Vilasi, Maria Grazia Ortore, Pier Luigi San Biagio, Claudia Campanella, Andrea Pace, Antonio Palumbo Piccionello, Giulio Tagliatela, Everly Conway De Macario, and Alberto J.L. Macario
- 5 Secreted and Circulating Cell Stress Proteins in the Periodontal Diseases**..... 77
Brian Henderson, Nikos Donos, Luigi Nibali, and Frank Kaiser

Part III Heat Shock Protein HSP70-Based Therapies

- 6 The Role of Heat Shock Protein 70 in Infection and Immunity** 95
Jose Rey-Ladino, Abiola Senok, Abdullah Sarkar,
and Ahlam Al Shedoukhy
- 7 Potential Cytoprotective Effects of Heat Shock Proteins
to Skeletal Muscle** 119
John P. Vardiman, Philip M. Gallagher, and Jacob A. Siedlik
- 8 Heat Shock Proteins in Triple-Negative Breast Cancer
(TNBC) Treatment** 129
Punit Kaur, Tarundeep Singh, Moses Galukande,
Sunil Krishnan, and Alexzander A.A. Asea
- 9 Heat Shock Proteins in Multiple Sclerosis Pathogenesis:
Friend or Foe?** 151
Rosaria Tinnirello, Giuseppina Turturici, Gabriella Sconzo,
Walter Spinello, Alexzander A.A. Asea, and Fabiana Geraci
- 10 New Indications for HSP90 and HSP70 Inhibitors as
Antiviral Drugs** 175
Matthew K. Howe and Timothy A.J. Haystead
- 11 Potential Applications of Nanoparticles
for Hyperthermia** 197
Caio César Quini and Sunil Krishnan

Part IV Heat Shock Protein HSP90-Based Therapies

- 12 Gene Therapy Against HSP90: Glucocorticoid
Receptor-Assisted Cancer Treatment** 219
Susanta Sekhar Adhikari, Sujan Kumar Mondal,
and Rajkumar Banerjee
- 13 Potential of HSP90 Inhibitors to Treat
Neurofibromatosis-Related Tumors** 257
Jeremie Vitte and Marco Giovannini
- 14 Role of Heat Shock Protein 90 in the Cause of Various
Diseases: A Potential Therapeutic Target** 273
Subhankar Paul
- 15 HSP90 Inhibitor-Based Strategies for Cancer Therapy:
Advancing Toward Clinical Impact** 289
David A. Proia and Richard C. Bates

16 Molecular Survival Strategies of Organisms: HSP and Small Molecules for Diagnostics and Drug Development	323
Andreas Kirschning, Johanna-Gabriela Walter, Frank Stahl, Emilia Schax, Thomas Scheper, Pooyan Aliuos, and Carsten Zeilinger	
17 Targeting Heat Shock Proteins in Colorectal Cancer	345
Sheah Lin Lee, Nina Claire Dempsey-Hibbert, Dale Vimalachandran, Terence David Wardle, Paul Sutton, and John H.H. Williams	
Index	381

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