

# Contents

Foreword.....	ix
Acknowledgement.....	xi
List of Contributors.....	xiii
1. Introduction: Heat Shock Proteins—From <i>Drosophila</i> Stress Proteins to Mediators of Human Disease..... <i>Stuart K. Calderwood</i>	1
Part I. Stress Response and Molecular Chaperones	5
2. Biology of the Heat Shock Response and Stress Conditioning..... <i>George A. Perdrizet, Michael J. Rewinski, Emily J. Noonan, and Lawrence E. Hightower</i>	7
3. Bacterial Stress Sensors..... <i>Wolfgang Schumann</i>	36
4. Unfolded Protein Response: Contributions to Development and Disease..... <i>Nan Liao and Linda M. Hendershot</i>	57
Part II. Molecular Mechanisms of Stress Protein Expression	89
5. Genetic Models of HSF Function..... <i>András Orosz and Ivor J. Benjamin</i>	91
6. HSF1 and HSP Gene Regulation..... <i>Richard Voellmy</i>	122

Part III. Cellular Stress Proteins	141
7. Small Heat Shock Proteins in Physiological and Stress-Related Processes.....	143
<i>Diana Orejuela, Anne Bergeron, Geneviève Morrow, and Robert M. Tanguay</i>	
8. Large Mammalian hsp70 Family Proteins, hsp110 and grp170, and Their Roles in Biology and Cancer Therapy.....	178
<i>Xiang-Yang Wang, Douglas P. Easton, and John R. Subject</i>	
Part IV. Molecular Chaperones and Protein Folding	207
9. Regulation of Hsp70 Function: Hsp40 Co-Chaperones and Nucleotide Exchange Factors.....	209
<i>Robert T. Youker and Jeffrey L. Brodsky</i>	
10. Protein Disassembly by Hsp40–Hsp70 .....	228
<i>Samuel J. Landry</i>	
11. Mammalian HSP40/DnaJ Chaperone Proteins in Cytosol.....	255
<i>Kazutoyo Terada and Masataka Mori</i>	
Part V. Role of Molecular Chaperones in Cell Regulation	279
12. FKBP Co-Chaperones in Steroid Receptor Complexes.....	281
<i>Joyce Cheung-Flynn, Sean P. Place, Marc B. Cox, Viravan Prapapanich, and David F. Smith</i>	
13. Up and Down: Regulation of the Stress Response by the Co-Chaperone Ubiquitin Ligase CHIP.....	313
<i>Shu-Bing Qian and Cam Patterson</i>	
14. Role of Cdc37 in Protein Kinase Folding.....	326
<i>Atin K. Mandal, Devi M. Nair, and Avrom J. Caplan</i>	
Part VI. Intracellular and Extracellular Stress Proteins in Human Disease	339
15. Targeting Hsp90 in Cancer and Neurodegenerative Disease.....	341
<i>Len Neckers and Percy Ivy</i>	
16. gp96 and Tumor Immunity: A Simple Matter of Cross-Presentation Antigens?.....	364
<i>Christopher V. Nicchitta</i>	

17. Immunoregulatory Activities of Extracellular Stress Proteins .....	377
<i>A. Graham Pockley and Muniitta Muthana</i>	
18. Heat Shock Proteins and Neurodegenerative Diseases .....	396
<i>Ian R. Brown</i>	
19. Heat Shock Proteins in the Progression of Cancer .....	422
<i>Stuart K. Calderwood, Abdul Khalique, and Daniel R. Ciocca</i>	
Index .....	451