

CONTENTS

Contributors

vii

1. The Journey of Lipoproteins Through the Cell: One Birthplace, Multiple Destinations	1
J. Szewczyk and J.-F. Collet	
1. Introduction	2
2. The Lipoprotein Journey Through the Cell: From the Cytoplasm to the Final Destination	3
3. Factors Controlling the Sorting of Lipoproteins	14
4. Surface Exposure of Lipoproteins	17
5. Conclusions and Perspectives	36
Acknowledgements	37
References	37
 2. The Making and Taking of Lipids: The Role of Bacterial Lipid Synthesis and the Harnessing of Host Lipids in Bacterial Pathogenesis	 51
E.M. Fozo and E.A. Rucks	
1. Bacterial Membrane Synthesis Review	53
2. Membrane Alterations and Their Influences on Virulence Outcomes: The Extracellular Bacterial Pathogens	69
3. Utilization of Host Fatty Acids by Extracellular Pathogens: Roles in Virulence and Antimicrobial Resistance	75
4. Cholesterol and Sphingomyelin in the Virulence of Extracellular Pathogens	84
5. Intracellular Organisms and the Use of Host Lipids to Promote Pathogenesis	89
6. Specific Contributions of Host-Derived Lipids to P-SPOs	97
7. The Contribution of Host-Derived Lipids to the Physiology of Intracellular Pathogens	109
8. Concluding Remarks	121
Acknowledgements	122
References	122

3. The Impact of Gene Silencing on Horizontal Gene Transfer and Bacterial Evolution	157
W.W. Navarre	
1. Horizontal Gene Transfer as a Driver of Bacterial Evolution	158
2. Xenogeneic Silencing	160
3. How Xenogeneic Silencing Facilitates Bacterial Evolution	170
4. Why So Many H-NS Like Proteins?	175
References	179
4. Polar Marine Microorganisms and Climate Change	187
C. Verde, D. Giordano, C.M. Bellas, G. di Prisco, and A.M. Anesio	
1. Polar Marine Bacteria and Climate Change	188
2. The Polar Regions and Climate Change	189
3. Temperature as Evolutionary Driver	193
4. Temperature Adaptations for Life at Low Temperatures	196
5. The Polar Microbial Communities and Genomics in the Changing Polar Ocean	200
6. Biogeochemical Cycles and the Loss of Sea Ice	203
7. The Role of Viruses	205
8. Can the Microbial Community Composition Be Used as Predictor of the Responses of Ecosystem Processes to Global Change?	207
9. Possible Avenues for Future Research and Conclusions	207
Acknowledgements	208
References	208
Author Index	217
Subject Index	251