

# Table of Contents

**Introduction ..... V**

## **PART I. Introduction**

Chapter 1. Biotechnology Impacting Cosmetic Science: Altering the Way  
Cosmetics Are Perceived?, *Kostarelos* ..... 1

Chapter 2. Advances in Phytochemistry: Rx and Non-Rx, *Leaders* ..... 7

Chapter 3. Novel Approaches for Molecular Biology and  
Skin Care Products, *Benson* ..... 13

Chapter 4. Dermagenetics, *Gruber and O'Brien* ..... 21

## **PART II. Biotechnology and the Skin**

Chapter 5. Pathways for Skin Penetration, *Dayan* ..... 29

Chapter 6. Quantifying Skin Relaxation and Well-Being,  
*Mas Chamberlin et al.* ..... 43

Chapter 7. Who is Mast T. Langerhans?, *Herman* ..... 53

Chapter 8. Neuroimmunological Activities of Keratinocytes, *Brenici et al.* ..... 57

Chapter 9. Metalloproteinase Inhibitors, *Thibodeau* ..... 69

Chapter 10. Advances in Stratum Corneum Biology and  
Understanding of Dry Skin, *Rawlings* ..... 81

Chapter 11. Advances in Dry Skin Stratum Corneum Biology  
and Moisturization, *Rawlings* ..... 93

## **PART III. Biotechnology and Aging**

Chapter 12. Extracellular Matrix and Aging: A Review of Mechanisms  
and Interventions, *Robert* ..... 107

Chapter 13. Wrinkle Free and Beyond, <i>Newman</i> .....	125
Chapter 14. Delivering on Antiaging Potential, <i>Jeffries</i> .....	129
Chapter 15. Pollution and Aging: Antioxidants for Skin, <i>Nicolaj &amp; Paillet</i> ...	135
Chapter 16. Pep Talk: Slowing Down Aging, <i>Owen</i> .....	147
Chapter 17. Peptides in the Pipeline for Antiaging, <i>Brewster</i> .....	151
Chapter 18. A New Sodium Hyaluronate For Skin Moisturization and Antiaging, <i>Guillaumie et al.</i> .....	159
Chapter 19. Antiaging Effects of a Skin Repair Active Principle, <i>Rigano et al.</i> .....	169
Chapter 20. Strategies of Antiaging Actives in Sunscreen Products, <i>Mas Chamberlin et al.</i> .....	181
Chapter 21. Actives Activate Skin Care Market, <i>Jeffries</i> .....	199

## **PART IV. Biotechnological Developments in Ingredients**

Chapter 22. Super Naturals, <i>Rosen</i> .....	205
Chapter 23. Peroxide-Inducible Protective Factors Produced by <i>Saccharomyces cerevisiae</i> , <i>Lods et al.</i> .....	217
Chapter 24. Chitosan in Cosmetics: Technical Aspects When Formulating, <i>Juneau et al.</i> .....	225
Chapter 25. Octadecenedioic Acid for a More Even Skin Tone, <i>Wiechers et al.</i> .....	239
Chapter 26. Rhizobium Gum: A Novel Cosmetic Ingredient from Soil to the Skin, <i>Bresin et al.</i> .....	257
Chapter 27. Protecting the Skin from Environmental Stresses with an Exopolysaccharide Formulation, <i>Thibodeau</i> .....	267
Chapter 28. Examining an Exfoliation-Promoting Enzyme for Cosmetic Applications, <i>Seki et al.</i> .....	285

**SECTION A. From the Sea**

Chapter 29. Manufacturing Microalgae for Skin Care, <i>Stolz and Obermayer</i> .....	301
Chapter 30. Targeting Deep-Sea Microorganisms for Discovering New Polysaccharides, <i>Thibodeau</i> .....	311

**SECTION B. Flavors, Fragrances and Pigments**

Chapter 31. Flavors of the Future: Biotechnology, “Intelligent” Flavors and Beyond, <i>Torrell</i> .....	321
Chapter 32. Synthesis and Authentication of Natural Vanillins Prepared by Fermentation, <i>Desmurs et al.</i> .....	329
Chapter 33. The Future of Fragrance: Toward a Biotechnology of Scent Creation, <i>Elias et al.</i> .....	343
Chapter 34. Pigment Ideas from the Animal and Microorganism Kingdoms, <i>Brewster</i> .....	353

**PART V. Regulations and Testing in the Biotechnology Age**

Chapter 35. “Precautionary” Regulation, Genetics and Cosmeceuticals in the 21st Century, <i>Redick</i> .....	361
Chapter 36. Using Tissue Engineered Skin to Evaluate the Irritation Potential of Skin Care Products, <i>De Wever and Charbonnier</i> .....	371
Chapter 37. ATP Bioluminescence: Detecting Microbial Contamination in Dentifrices, <i>Jimenez</i> .....	387

<b>Index</b> .....	<b>397</b>
--------------------	------------

