

Contents

Part I The Skin

1	Skin Deep: The Basics of Human Skin Structure and Drug Penetration	3
	Keng Wooi Ng and Wing Man Lau	
2	Epidermal Lipids and the Intercellular Pathway	13
	Philip W. Wertz	
3	The Importance of Stratum Corneum Lipid Organization for Proper Barrier Function	19
	Annett Schroeter, Adina Eichner, Josefin Mueller, and Reinhard H.H. Neubert	
4	Molecular Structure and Function of the Skin Barrier	39
	Lars Norlén	
5	The Increasing Importance of the Hair Follicle Route in Dermal and Transdermal Drug Delivery	43
	Alexa Patzelt and Jürgen Lademann	
6	The Correlation Between Transepidermal Water Loss and Percutaneous Absorption	55
	Jacquelyn Levin and Howard I. Maibach	
7	Influence of Excipients on Two Elements of the <i>Stratum Corneum</i> Barrier: Intercellular Lipids and Epidermal Tight Junctions	69
	Laurène Roussel, Rawad Abdayem, Elodie Gilbert, Fabrice Pirot, and Marek Haftek	

Part II Penetration Enhancement Techniques in Skin Delivery

8	Targets in Dermal and Transdermal Delivery and Classification of Penetration Enhancement Methods	93
	Jelena Predic Atkinson, Howard I. Maibach, and Nina Dragicevic	

9	Formulation Effects in Percutaneous Absorption	109
	Rina Kuswahyuning, Jeffrey E. Grice, Hamid R. Moghimi, and Michael S. Roberts	
Part III Drug Manipulation Strategies in Penetration Enhancement		
10	Selection of a Proper Prodrug for Penetration Enhancement	137
	Kenneth B. Sloan, Jennifer Synovec, and Scott C. Wasdo	
11	Transdermal Drug Delivery Systems Using Supersaturation	151
	Vishwas Rai and Lakshmi Raghavan	
12	Eutectic Systems for Penetration Enhancement	163
	Stuart A. Jones, Sarah Fiala, and Marc B. Brown	
13	Formation of Ion Pairs and Complex Coacervates	175
	Liang Fang, Honglei Xi, and Dongmei Cun	
14	Formulation of Drug-Cyclodextrin Complexes	189
	Thorsteinn Loftsson	
Part IV Influence of Vehicle Effects in Penetration Enhancement		
15	Dermal and Transdermal Formulations: How They Can Affect the Active Compound	209
	Jessica Stahl	
Part V Emulsions as Vehicles for Skin Delivery		
16	The Effects of Emulsifiers and Emulsion Formulation Types on Dermal and Transdermal Drug Delivery	223
	Anja Otto and Jeanetta du Plessis	
17	Skin Permeation: Enhancing Ability of Liquid Crystal Formulations	243
	Wesam R. Kadhum, Hiroaki Todo, and Kenji Sugibayashi	
18	Nanoemulsions in Dermal Drug Delivery	255
	Victoria Klang, Julia C. Schwarz, and Claudia Valenta	
19	Pickering Emulsions for Controlled Drug Delivery to the Skin	267
	Yves Chevalier, Marie-Alexandrine Bolzinger, and Stéphanie Briançon	

Part VI Gels as Vehicles for Skin Delivery

20	Hydrogel Vehicles for Hydrophilic Compounds	285
	Teresa Cerchiara, Federica Bigucci, and Barbara Luppi	
21	Lecithin Organogels in Enhancing Skin Delivery of Drugs	299
	I.M. Shaikh, K.R. Jadhav, and V.J. Kadam	
22	Thermosensitive Hydrogels in Dermatology: A Multidisciplinary Overview	315
	Damien Salmon, Laurène Roussel, Elodie Gilbert, Plamen Kirilov, and Fabrice Pirot	
23	Liposomal Gels in Enhancing Skin Delivery of Drugs	329
	Lorena Tavano	