

Toxicology of the Skin

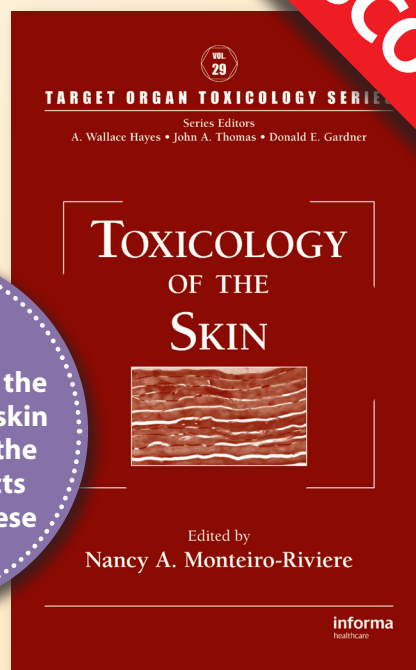
Edited by **NANCY A. MONTEIRO-RIVIERE** Center for Chemical Toxicology Research and Pharmacokinetics, North Carolina State University, Raleigh, NC, USA

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The book covers the following important topics:

- ✓ stratum corneum (SC) formation and maturation, barrier repair mechanisms, clinical manifestation of disease and topical drug delivery and bioavailability
- ✓ emerging epidermal barrier functions for permeability barrier homeostasis, epidermal transporters and skin metabolism, as well as antimicrobial and defense mechanisms
- ✓ biomechanics, including keratin remodeling, SC biomechanics and the role of flexion in skin absorption and toxicity
- ✓ chemicals associated with skin toxicity and absorption, such as specific cosmetics, irritants, chemical toxicants, drugs, drug delivery methods, and nanoparticles

This book explores how chemicals modify the properties of the skin barrier and how the skin barrier reacts and adapts to these chemicals



SELECTED CONTENTS:

Skin Morphology and Barrier Properties.

1. Structure and function of skin.
2. Barrier function of skin.
3. Skin lipids for barrier function.
4. Tight junctions: a new barrier in the skin?
5. Basic principles involved in quantifying the dermal absorption of topically applied chemicals.
6. Chemical structure-skin transport relationships.
7. Cutaneous metabolism and active transport in transdermal drug delivery.
8. Epidermal transporters and metabolism during dermal absorption: importance for toxicity.
9. Hair follicle delivery. Altered Barriers.
10. Structural and functional correlations of skin barrier in health and disease: models and evaluation.
11. Are there differences in stratum structure & function in different racial skin types?
12. Skin absorption through a comprised skin barrier.
13. The stratum corneum in aged and photo-aged skin.

14. Cosmetics and skin barrier integrity.

15. Sensing the environment.
16. Skin Sensitization.
17. Diseases associated with cutaneous barrier dysfunction; Basic science aspects, clinical perspectives.
18. Skin surfactant proteins: presence & potential defense functions. Methods of Delivery.
19. Liposomes as promising tools for the skin delivery & protection of damaged skin.
20. Applications of microneedle technology to transdermal drug delivery.
21. Active transdermal drug delivery.

Skin Toxicity.

22. Nanomaterial penetration.
23. Potential arsenic exposure through dermal penetration.
24. Dermal absorption and cutaneous toxicity of metalworking fluids.
25. Cutaneous bromine exposure: An overview and insight into post-exposure molecular responses.
26. Effects of dermal exposure to jet fuel.
27. Sulfur mustard toxicity.

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Normal price: £125 / €156 / \$250

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Essential reading for...

Drug delivery pharmacologists, toxicologists, molecular biologists, engineers; anyone interested in skin irritation and skin absorption/toxicity; nanotechnologists working on the delivery of drugs across the skin; and formulation and pharmaceutical scientists.

ABOUT THE EDITOR:

NANCY ANN MONTEIRO-RIVIERE, Ph.D. is a Professor of Investigative Dermatology and Toxicology at the Center for Chemical Toxicology Research and Pharmacokinetics, North Carolina State University (NCSU) as well as a Professor in the Joint Department of Biomedical Engineering at UNC-Chapel Hill/NCSU and Research Adjunct Professor of Dermatology, School of Medicine at UNC Chapel Hill. She received her B.S. in Biology from Stonehill College, M.S. and Ph.D. in Anatomy and Cell Biology from Purdue University and a postdoctoral fellowship in toxicology at CIIT in Research Triangle Park, NC. She was past-President of both the Dermal Toxicology and In Vitro Toxicology Specialty Sections of the National Society of Toxicology. Dr. Monteiro-Riviere is a Fellow in The Academy of Toxicological Sciences, and in the American College of Toxicology. She serves as Associate Editor for Wiley Interdisciplinary Reviews in Nanomedicine and Nanobiotechnology and serves on seven toxicology editorial boards. She also serves on several national panels relating to dermal penetration and absorption, including many in nanotoxicology, including the National Academies of Science Research Council to Review the Federal Strategy to Address Environmental, Health, and Safety Research Needs for Engineered Nanoscale Materials. She has published over 225 manuscripts in the field of skin biology and toxicology and is also Co-Editor of the book *Nanotoxicology: Characterization and Dosing and Health Effects*.

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