

1. Record Nr.	UNINA9910899895003321
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Titolo	Hair Care Products : Efficacy, Safety and Global Regulation // edited by Ashish Dwivedi, A. B. Pant, Shiv Poojan, Malini Kotak, Anurag Tripathi
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2024
ISBN	9789819767403 9819767407
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (279 pages)
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Disciplina	610.72
Soggetti	Medicine - Research Biology - Research Toxicology Microbiology Biology Biomedical Research Biological Sciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1_ Editorial: Hair Throughout History: A Timeline of Its Transformative Journey -- Chapter 2_ Anatomy and Physiology Diversity of Hair: A Multidisciplinary Approach to Understanding Structure and Function -- Chapter 3_ The Genetics and Molecular Mechanisms of Hair Color: From Melanocyte Development to Pigment Synthesis -- Chapter 4_ Raw material in the hair care industry and regulation -- Chapter 5_ Hair care products i.e., oils, dyes, lotions, serum etc -- Chapter 6_ Regulatory requirements for the efficacy/ safety assessment of cosmetics/ nano-cosmetics products: Opportunities and challenges for new approach and methodologies -- Chapter 7_ A Global Perspective On Safety And Efficacy Testing Of Hair Care Products -- Chapter 8_ Microbiome and Hair care products:

opportunities and challenges -- Chapter 9\_ Assessing Hair Care Product Safety and Compliance with Global Regulations through Preclinical and Clinical Models -- Chapter 10\_ The Potential of Artificial Intelligence in Hair Product Toxicity Prediction: A Global Perspective -- Chapter 11\_ Omics Approaches for the Assessment of Hair Care Products Safety, Efficacy and Toxicity: Current Techniques and Future Advancements.-Chapter 12\_ TNext Generation of Hair Products: Innovations for Safe and Healthy Consumer Choices -- Chapter 13\_ Global Regulatory Frameworks for Hair Care Industry: An Overview of Key Agencies and Guidelines -- Chapter 14\_ Strategic Developments for Pre-clinical Safety/ Efficacy Studies of Hair Care Products.

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## Sommario/riassunto

The book delves into various aspects of the hair care industry, providing a comprehensive understanding of hair throughout history, its anatomy and physiology, genetics and molecular mechanisms of hair color, and the raw materials used in the industry. It explores the diverse range of hair care products, including oils, dyes, lotions, and serums, and emphasizes the importance of global regulatory approaches to ensure consumer health and safety, particularly in relation to nano-formulations and synthetic hair care products. The book also addresses the safety and efficacy of herbal care products from a global regulatory perspective. Furthermore, it examines the impact of the microbiome on hair care products, highlighting the opportunities and challenges in complying with global regulations. The evaluation of hair care product safety is discussed within a global context, exploring different models and methods. The book also focuses on the journey of hair care products from laboratory testing to market, emphasizing clinical and preclinical assessments in compliance with global regulations. It highlights the role of ex-vivo hair follicle models in ensuring the safety and effectiveness of hair care products while providing a global regulatory framework. Additionally, the book explores the potential of artificial intelligence in predicting hair product toxicity, taking a global perspective. It delves into omics approaches for hair toxicity assessment, discussing current advances and future directions in this field. The next generation of hair products is also explored, with a focus on innovations that prioritize safe and healthy consumer choices. Finally, the book provides an overview of global regulatory frameworks for the hair care industry, including key agencies and guidelines. It serves as a valuable resource for professionals and researchers in the field, offering insights into the historical, scientific, and regulatory aspects of hair care products and their impact on consumer health and safety.

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