Foreword

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Published online: 10 September 2020
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The skin is colonized by a highly variable microbial community that constitutes the microbiota. The skin microbiome, which refers to the skin microbiota and its environment, is associated with cutaneous health and disease, protecting our body from external threats, and is also involved in several pathologies. Recent advances in sequencing, bioinformatics, and analytics have increased knowledge of these microbial communities and made the skin microbiome a novel and attractive field of investigation.

On November 8 and December 6, 2019, Miami and Seoul hosted meetings entitled “The Jungle on the Skin: Cutaneous Microbiome”. A group of international experts from various fields gathered to discuss and update a number of relevant topics on skin microbiome. The meeting was supported by an unrestricted educational grant from Pierre Fabre Dermo-Cosmétique/Laboratoires dermatologiques Avène, France. This journal supplement summarizes highlights from these two meetings.

The introductory review by Chris Callewaert, Katia Ravard Helffer, and Philippe Lebaron entitled “Skin Microbiome and Its Interplay with the Environment” provides a general overview of microbial communities in the environment, in particular those in natural resources (thermal spring water), large mammals (humpback whales) and humans (the skin microbiome). As addressed in this review, the composition of the human skin microbiome is impacted by the environment, especially urbanization. Skin microbiome function, structure, and composition evolves with age, as reviewed by

Paula Carolina Luna in “Skin Microbiota as Years Go By”. Improving our knowledge on the skin microbiome in populations of all ages is important, especially to better understand the pathophysiology of skin diseases, since they can be specific to certain age groups like infants and geriatrics.

The following reviews discuss the role of the microbiome in skin diseases. “The Skin Microbiome: A New Actor in Inflammatory Acne” by Brigitte Dréno et al. gives insight on the dysbiosis of the skin microbiome that results in acne development. This improved understanding of acne pathophysiology enables the development of new, individualized acne therapies. Skin microbial communities are also involved in rosacea, as reviewed by Hei Sung Kim in “Microbiota in Rosacea”, although, in this most recent topic, it is still not known whether dysbiosis either potentiates inflammation or is a secondary outcome in response to changes in the skin microenvironment. In the review entitled “Skin Microbiota and Its Interplay with Wound Healing” last authored by Irena Pastar, a dysregulation in the dialog between host cells and the microbiome is evidenced in chronic wounds. Mechanistic insights are discussed, and the essential role of commensals in providing protection from intracellular pathogens is established. Finally, Wei Li and Gil Yosipovitch reviewed “The Role of the Microbiome and Microbiome-Derived Metabolites in Atopic Dermatitis and Non-Histaminergic Itch”, highlighting that alterations in the community structure of the microbiome and in the metabolic function of the skin microbiome are key factors

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in the pathophysiology of atopic dermatitis. Furthermore, the effect of the microbiome on itch sensation is discussed.

This state-of-the-art supplement presents many recent research studies on the skin microbiome, but it is just the tip of the iceberg in this evolving area of dermatology. We did not cover all the questions on cutaneous microbiome, and more research is needed to further improve our knowledge in this topic, especially since interactions between the gut and skin microbiome seem to be involved in several diseases that were beyond the scope of these meetings.

We sincerely hope that you will enjoy reading this issue as much as we enjoyed attending the meetings in Miami and Seoul.

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