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The skin microbiome and topical probiotic treatment strategies

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The co-evolution of human skin with its microbiome over the last two million years has resulted in a highly curated set of microbial partners both on the surface and within the skin structure, in regions previously thought to be sterile (1). These commensal microbes have been shown to communicate with the host immune system to influence immune response, impacting on the initiation and progression of many skin diseases (2, 3). The reduced cost of genetic sequencing has offered a new lens through which to view skin. Skin is now seen as an ecology of human cells and commensal microbes. The skin microbiome is essential to optimal skin health and disruptions to this ecosystem can result in many different skin diseases. The human skin microbiome is very different from that of any other animal. This is largely due to the very strange nutrient set provided by the host. As an example, sapienic acid makes up 25% of the fatty acids on human skin but this compound is not found anywhere else in the animal kingdom. This has resulted in a very small subset of microbes that can take advantage of the niche provided by human skin. Probiotics are live microbes that have a beneficial effect on the host. Topically applied probiotics and probiotic extracts have been shown to have several beneficial effects on human skin. An example is the improvement of barrier function by augmenting tight junctions in the stratum granulosum (4). Current approaches to both hygiene and daily care of skin have resulted in residual chemical buildup within the skin (5). As a clearer picture of the skin microbiome emerges, these new therapeutics will form a new wave of treatments for many common skin ailments.

Biography

Trevor Steyn is the founder and CEO of Esse Skincare. In February 2015, Esse launched a live probiotic serum containing one billion cfu/ml and this product has won awards worldwide. The brand produces premium skincare products sold in 42 countries with primary markets in Scandinavia and Northern Europe. He is an organic chemist and was involved in the search for new pharmaceuticals from medicinal plants in South Africa. Since the initiation of the Human Microbiome Project, he has re-educated himself and has been active in applying skin microbiome breakthroughs to skincare products.

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