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The New Age of the Microbiome

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***D**escribed as the next frontier for beauty, the microbiome is the single most important area of development in skin health and self-care, challenging one's understanding of the role of bacteria, and inspiring scientists to unlock the potential of the human microbiome. Here, CEW Beauty News highlights the scale of the market, the pace of change, and what to expect.*

Not so long ago, microbiome was a niche term, used mainly by the derm and medical community. Today, there is practically no discussion about health and beauty that doesn't mention it. Consumers, too, are more educated about the microbiome. They are no longer using terms such as "gut flora" or "probiotics," but are researching specific bacterial strains associated with their target health concerns, according to a trend analysis tool from Lumina Intelligence. Data from August 2018 to August 2020 revealed that the term "gut flora" had dropped by 22 percent, while specific names of bacterial species had increased by 121 percent.

So why is the microbiome so crucial to well-being, and what are the possibilities for the future?

The term microbiome, derived from Greek for "small life," describes the ecosystem of bacteria, viruses, fungi, and other microbes that live in and on the body, such as the skin or the gut. There are over 1,000 types of bacteria on the human skin, and they deliver a host of skin care benefits by maintaining the balance of the epidermal ecosystem, for example, by protecting against inflammation, eczema, and skin allergies. Each person's microbiome is unique and is linked to their genetic heritage. Environmental and lifestyle factors can and do disrupt it, which is why the microbiome and the maintenance of the skin barrier have gained even more prominence since the pandemic. Although necessary, hygiene measures to prevent the spread of COVID are increasing microbial loss, and experts say it is difficult to replace this much-needed microbial diversity.

The Human Microbiome Project (HMP), launched in 2007, focuses on understanding the role of microorganisms living on the skin, and their role in health. Since then, microbiome research has accelerated, with innovation targeting the gut microbiome and skin microbiome in particular. In the United States alone, research on the human microbiome surpassed \$1.7 billion in the past decade, according to News Medical.

Size of the Market

The global human **microbiome** market (as distinct from the agriculture and food microbiome market, for example) is set to grow at a compound annual growth rate of 22.3 percent from 2022 to 2031, with a revenue of \$3.25 billion by the end of 2031. This is up from \$438 million in 2021, according to a report by Research Nester. The human microbiome market includes probiotics, prebiotics, diagnostic tests, and drugs, with the probiotic segment anticipated to garner the largest revenue of \$1.428 billion by the end of 2031. The North

American market is anticipated to garner the largest revenue of \$1.86 billion by the end of 2031 (as compared to the rest of the world). In the year 2021, it generated a revenue of \$251.6 million.

Consumer interest in the microbiome has skyrocketed too. Trend forecasting company WGSN reported that searches for “microbiome skin care” grew by over 5,000 percent worldwide from mid-2020 to 2021. Microbiome personal care is growing fast as well: it is 40 times bigger than it was five years ago (2016 to 2021), according to GNPD data.

Microbiome Certification

At a time when trust, transparency, and safety are at a premium for consumers, there is a growing focus on third-party certifications and scientific evidence that deliver “proof points” with regard to product quality and efficacy. **MyMicrobiome** was founded in 2018 by Dr. Kristin Neumann and Tanja Walbrunn with the goal of becoming the industry standard for microbiome-friendly cosmetics and personal care. While working on antibiotic-resistant bacteria, Kristin, who has a Ph.D. in Microbiology, delved deeper into the microbiome. “I was concerned about the lack of knowledge that surrounded me, and that’s why I co-founded MyMicrobiome: to create an educational platform,” said Kristin, who is MyMicrobiome’s CEO and Scientific Director. The organization is headquartered in Liechtenstein, in central Europe, with subsidiaries in Bavaria, Germany, and Norway.

MyMicrobiome’s mission is to spread the knowledge about a healthy microbiome and serve as a decision-making tool for customers and a profiling tool for brands. Products are tested on the skin’s key microbiomes to determine the formula’s effects on the microbiome. There are four key criteria in order to gain the certification, including microbial quality (verifying that the product is not contaminated), balance test (keeping pathogenic microbes in check), diversity (preserving the diversity of the skin microbiome), and vitality (building an overall picture of the performance and safety of the product for the human microbiome). “By performing multiple test types, we can build an overall picture of the whole performance and safety of the product for the human microbiome,” said Kristin. The tests are performed in MyMicrobiome’s German laboratory and take six to 12 weeks from to obtain official certification.

To date, 52 brands have received the MyMicrobiome certification (with many others in the pipeline), comprising over 270 certified products from brands such as Codex Beauty, Beekman 1802, Venn Skincare, Aquis (K18), Amore Pacific, Amyris, Nutrafol, Weleda, and True Botanicals.

Brand Innovation

Meanwhile, innovations in microbiome-friendly products are continuing apace. In June, Beekman 1802 announced the launch of My Skin Biome, a facial scanning tool for microbiome education developed in partnership with AI technology from Perfect Corp. Visitors to Beekman 1802’s site simply scan a QR code with their mobile device and take a photo to receive a custom skin health analysis within 30 seconds. My Skin Biome assesses skin attributes, and offers custom skincare routines based on skin’s redness, wrinkles, dark spots, hydration and texture, in addition to teaching users about the microbiome.

Also in June, Nutrafol, the dermatologist-recommended hair growth brand, announced the launch of Scalp Microbiome Support, a patent-pending, physician-formulated line of products designed to balance the scalp microbiome. The collection consists of Build-Up Blocker (exfoliating mask), Root Purifier (shampoo), and Stress Reliever (scalp essence) to create an optimal ecosystem for a healthy scalp barrier. In May of this year, Unilever announced that it had signed an agreement to acquire a majority stake in Nutrafol.

Other brands noted for their microbiome-focused products include TULA (founded by practicing gastroenterologist Dr. Roshini Raj, acquired by Procter & Gamble earlier this year, and one of the first brands to bring probiotics to skincare); Gallinée (whose founder, Dr. Marie Drago, has a Doctorate in Pharmacy, and with a product portfolio including oral care, ingestibles, and scalp care), which was acquired by Shiseido Europe on September 28; and Mother Dirt (whose flagship product, AO+ Restorative Mist, uses live and active AOB, namely ammonia-oxidizing bacteria, to restore the skin microbiome).

Looking to the Future

So where does the microbiome go from here? As personalization continues to grow in importance, products that can be adapted according to the microbiome, across a broad range of categories, will be a key area of innovation. Companies such as Unilever are developing even more targeted skin microbiome products, including for the oral, underarm and scalp categories.

“We are still in the beginning stages of microbiome research. The microbiome is a very complex topic and there is still a lot to learn,” said Kristin at MyMicrobiome. “The holy grail would be to change the microbiome in a way that would make us healthier, but there is a long way to go, if it is even possible.”