SCC 79TH ANNUAL SCIENTIFIC MEETING & SHOWCASE

DECEMBER 16-17, 2025 | SHERATON NY TIMES SQUARE, NEW YORK

Speaker Abstracts

Session J: Skin Wellness

Turning Back the Aging Clock: New Insights into Epigenetic Modulation in Skin Cells

Fred Zuelli, Mibelle Biochemistry, Switzerland

Unlike the chronological age, biological age provides a more accurate reflection of the body's overall health. One key measure of biological age is epigenetic age, determined by DNA methylation patterns like in the Horvath clock.

In our research, we aimed to evaluate the epigenetic aging of fibroblasts in culture using the Hayflick model to study the mitogenic aging of these cells. To gain deeper insight into the mechanisms of epigenetic aging, we analyzed the aging patterns of dermal stem cells isolated from both young and old donors. These stem cells were further examined through comprehensive transcriptomic analysis.

Analysis of epigenetic aging in fibroblast cultures using the Horvath clock revealed a strong correlation between passage number and increased DNA methylation. Similarly, DNA methylation analysis of dermal stem cells from young (<30 years) and old (>70 years) donors also demonstrated a clear correlation.

World First mRNA-Based Bio-Genetic Skincare Breakthrough

Dr. Diana Tang, Bio Genetic Technology LLC

BGT's mRNA is the world's first commercial mRNA technology platform, providing a diverse range of mRNA solutions. Using BGT's proprietary AI platform, we optimized every step – from sequence and structural design to gene coding – to develop the first mRNA product BGT™ mRNA-Collagen. This breakthrough technology delivers genetic instructions to skin cells, enabling natural collagen production, making it the first-ever mRNA-based ingredient in skincare. Three important technical/scientific advancements:

1. Direct Collagen Synthesis – Unlike traditional anti-aging actives, BGT™ mRNA-Collagen programs the skin to genetically produce collagen without stimulating cellular pathways.

2. High Efficacy – A single mRNA-Collagen molecule remarkably generates over 6,000 collagen molecules.

3. Breakthrough Stability and Safety – Stabilized at room temperature, this breakthrough technology ensures mRNA's integrity and efficacy, making it highly practical for real-world skincare applications.

Understanding Complex Regulation of Hyaluronic Acid Synthesis in Skin for Cosmetic Formulation

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Skincare and skin wellness synergistically shield the skin from exposomic stressors—UV radiation, pollution, sleep disruption, enhancing resilience and decelerating aging. While skincare products typically target the epidermis, true skin vitality relies on the dermis for hydration, nutrient exchange, and structural integrity. Hyaluronic acid (HA) fortifies both layers by strengthening the barrier, supporting regeneration, and maintaining tissue viscoelasticity. Exposomic challenges may trigger mutations in the transcription factor p53, compromising genomic integrity and accelerating skin aging. This study reveals how mutant p53 modulates HA synthesis via key enzyme regulation in keratinocytes, while HA receptor CD44 regulates p53-driven apoptosis in the dermis. Understanding this intricate regulation is essential for developing precision skincare—formulations tailored not only to skin type, but to cellular function and environmental exposure. Join us to discover how molecular insight is revolutionizing cosmetic innovation and redefining the future of skin health.

A New AI *in silico*-designed Peptide Targeting mTORC1 That Promotes Autophagy and Protects From Senescence

Blanca Martínez Teipel; LipoTrue
Soriano Jorge[1], Grau-Campistany Ariadna[1], Carulla Patricia[1], Mateu Miriam[1], Pastor Silvia[1]
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Autophagy is considered one of the "Hallmarks of Aging". It is a key cellular process for maintaining homeostasis and longevity, tightly regulated by the mTOR pathway. Here we introduce H11ChAQ, a novel AI-designed peptide that inhibits mTOR kinase site, emulating the effects of caloric restriction. Through a multi-tiered evaluation—spanning *in vitro, ex vivo,* and *in vivo studies*—H11ChAQ demonstrated potent senomorphic activity: enhancing autophagy, reducing cellular senescence markers, and improving skin health metrics including radiance, elasticity, firmness, and wrinkle reduction. It also modulated glycogen metabolism, recently pointed out as a main factor in aging. These findings highlight H11ChAQ as a next-generation skincare active, aligning with the growing demand for longevity-inspired and fasting-mimicking formulations. By targeting the root mechanisms of aging, H11ChAQ offers a scientifically grounded, innovative approach to skin rejuvenation and cellular renewal.