

3rd International Conference on
FOOD SCIENCE AND TECHNOLOGY

November 11-12, 2019 | London, UK

A new understanding of Environmental damage to the skin and prevention by topical antioxidants

Karen E Burke

Icahn school of medicine at Mount Sinai, USA

This presentation reviews recent research which has given us new insights into the molecular biology of extrinsic aging of the skin. Not only does UV (ultraviolet) irradiation directly cause photoaging of the skin, but also environmental pollutants significantly damage exposed skin by several mechanisms. Exposure to the noxious gases of air pollution with simultaneous exposure to UVA can act synergistically to accelerate photoaging and to initiate skin cancer. Also, ozone generated from pollutants reacting with UV induces oxidative stress of the skin's surface via formation of lipid peroxidation products, with cascading consequences to deeper layers. Furthermore, new studies have demonstrated that particulate matter (PM) pollutants can penetrate the skin trans epidermally and through hair follicles to induce skin aging via the aryl hydrocarbon receptor (AHR), a recently discovered ligand-activated transcription factor that regulates and protects keratinocytes, melanocytes, and fibroblasts. With this understanding that extrinsic aging of the skin is not only due to photoaging, we realize the necessity of protection beyond sunscreen. Fortunately, correctly formulated topical antioxidants can prevent damage inflicted by both UV and environmental pollution. The stringent requirements to achieve stability, penetration, and activity of these effective antioxidants will be described.