Resetting Skin Genome Back to Health Naturally with GHK

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- Loren Pickart (1) Email author (lorenpickart@skinbiology.com)
- Jessica Michelle Vasquez-Soltero (1)
- Anna Margolina (1)

1. Research & Development, Skin Biology, , Bellevue, USA

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Abstract

The copper-binding tripeptide GHK (glycyl-l-histidyl-l-lysine) is a naturally occurring plasma peptide widely used in skin care products. It is especially popular in antiaging cosmetic formulations due to its various and well-established positive biological effects on aging skin. It has been established that GHK-Cu improves wound healing and tissue regeneration and stimulates collagen and decorin production. GHK-Cu also supports angiogenesis and nerve outgrowth, improves the biological condition of aging skin and hair and possesses DNA repair, antioxidant, and anti-inflammatory effects. In addition, it increases cellular stemness and secretion of trophic factors by mesenchymal stem cells. GHK's antioxidant actions have been demonstrated in vitro and in animal studies. They include blocking the formation of reactive oxygen and carbonyl species, detoxifying toxic products of lipid peroxidation such as acrolein, protecting keratinocytes from lethal UVB radiation, and blocking hepatic damage by dichloromethane radicals. In recent studies, GHK has also been found to switch cellular gene expression from a diseased state to a healthier state for certain cancers and for chronic obstructive pulmonary disease (COPD). The human gene expression actions provide a unique view of the complex and intricate gene actions underlying visible changes in human skin. This chapter reviews biological and gene data related to the positive antiaging effects of GHK on human skin.

Keywords

Copper peptides GHK Glycyl-l-histidyl-l-lysine Aging skin Skin repair Wound healing Fibroblasts Gene profiling COPD Cancer DNA repair

Antioxidant Reactive oxygen species The connectivity map Gene pattern Ubiquitin proteasome system Fibrinogen Stem cells Antiaging cosmetics Copper

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