Compounds for Inhibiting, Arresting and Possibly Reversing Non-Enzymatic Glycation in Skin

Technology #j333-2

Non-enzymatic glycation and cross-linking (Maillard reaction) are well known processes which accelerate the aging of key biological molecules. For example, non-enzymatic glycation of macromolecules such as proteins and certain phospholipids (e.g., phosphatidylethanolamine and phosphatidylserine) appears to play an important role in the evolution of diabetic complications. Moreover, glycation is involved in aging of structural proteins such as collagen and elastin.

The first two intermediates in this process are glucosylamines (a.k.a Schiff bases) and fructosamines (a.k.a Amadori products). Thereafter The Maillard reaction proceeds through complex steps of oxidation, dehydration and aromatization resulting in the formation of irreversible Advance Glycation Edproducts (AGEs).

Recently Dartmouth researchers have discovered that certain natural amines and alpha-thiolamines, such as those found in heart and skeletal muscles, act as effective deglycating agents that break down the very first intermediate of non-enzymatic glycation process (the Schiff base) by removing the glucose moiety from the intermediate. Accordingly, formulations containing these compounds could be useful for arresting the aging of key proteins in animals and man, conferring as a result both medical and economic benefits. In cosmetic formulation these compounds have the potential of preventing, arresting or even reversing skin damage due to non-enzymatic glycation and aging. Since the compounds in question are all natural constituents of cells and are routinely consumed in foods such as meat and fish, it is extremely unlikely that their topical use would have any negative side effects.

This technology is claimed in the published United States Patent Application No. 11/756,689. Because of the great potential of these compounds and their apparent safety we are very enthusiastic about their potential in cosmetic applications and are seeking an industrial partner interested in their further development and commercialization. (Ref: J333-2)