

Hello everyone! Gee, it's been way too long since I wrote in my blog..... for the most up to date news and info., you may want to sign up to get my monthly newsletter if you already haven't. I posted the following information in my latest newsletter but wanted to put it on the blog too.

I received the following email from Dr. Pickart recently. The funny thing is that I had recently tested a stem cell product and was not happy with it AT ALL. Then just a few days later, I received this very exciting news from Dr. P - these findings were published in the 2009 American Academy of Anti-Aging Medicine:

"All the pieces are now in on how copper peptides work. After the 2009 article was published, the last link came in. The CPs activate epithelial stem cells to form skin rebuilding cells.

The techie version of what happens is below. We are working on a easier way to get this idea out.

The actions of Skin and Tissue Remodeling Copper Peptides. August 19, 2009

The human peptide GHK is generated from the extracellular matrix during tissue breakdown and activates remodeling processes that restore the normal tissue morphology. Published results on GHK actions are defining the biochemical processes of remodeling. Based on published studies, we know:

1. GHK is generated during tissue breakdown either after injury or during routine remodeling. It activates remodeling processes that restore normal tissue morphology or maintain tissue health and function. It has a very high affinity for copper 2+ and can obtain copper from its binding site on plasma albumin or from cells. This forms GHK-Cu (glycyl-L-histidyl-lysine:copper 2+). In the blood, it binds to plasma albumin, presumably forming a tridentate complex of GHK-copper 2+-albumin.

2. As GHK is generated it binds copper and lowers cellular copper which increases stem cell proliferation. The low cellular copper helps induce an inflammatory condition that kills bacteria and viruses, and helps remove damaged tissue. GHK also attracts macrophages which clean up cellular damage, capillary cells which build blood vessels, and mast cells which help close wounds and tighten skin.

3. As copper builds up the the affected region, GHK is converted to GHK-Cu which pushes stem cell into the types of differentiated cells needed by the organs. GHK-Cu also increases P63, a protein needed for epithelial stem cell function. Without P63, skin rapidly ages. It increases proliferating cell nuclear antigen (PCNA) and the expression of the expression of integrins alpha6 and beta1, but this information is not in 2009 article - see Kang YA et al, Arch Dermatol Res. 2009:301, pages 301-6).

4. GHK-Cu stops the inflammatory condition by increasing the antioxidant proteins

superoxide dismutase and decorin. It increases vascular vasodilation by binding to angiotensin II and inhibiting thromboxane formation. It suppresses damage by oxygen radicals and reactive carbonyl species, the release of oxidizing iron from ferritin, TGF-beta-1, TNF-alpha, and protein glycation. It blocks ultraviolet damage to skin keratinocytes and the oxidation of low-density lipoproteins. It improves fibroblast recovery after X-ray treatments.

5. GHK-Cu remodels skin (Out-with the old, In with the new) by increasing the synthesis of metalloproteinases and anti-proteases that remove damaged proteins and increasing the new production of collagen, elastin, and the water-holding proteoglycans and glycosaminoglycans, and subcutaneous fat cells.

6. GHK-Cu increases the proliferation of healing cells (fibroblasts, keratinocytes, chondrocytes, osteoblasts) plus important growth factors such as vascular endothelial growth factor, fibroblast growth factor-2, nerve growth factor, neurotrophins 3 and 4, and erythropoietin. It increases nerve outgrowth, angiogenesis, subcutaneous fat cells and hair follicle size.

7. GHK-Cu stimulates healing in numerous models and in humans. On humans, it tightens and thickens skin, improves elasticity and firmness, reduces fine lines, wrinkles, photodamage, and hyperpigmentation. It also improves hair transplant success, protects hepatic tissue from tetrachloromethane poisoning, blocks stomach ulcer development, heals intestinal ulcers and bone tissue.

8. Both GHK and GHK-Cu strongly increase infection resistance.

9. Blood levels of GHK drop by 60% between age 20 and age 60. This may be the cause of reduced organ maintenance and function as humans age."

So I emailed him back asking about the 2nd generation of CPs since this study was based on his first generation of CPs (GHK,) and he told me that "It actually was found for GHK-Cu, but I consider all the newer peptides to work the same.

So, people may argue, but I have always been correct on the CP actions in the past.

I basically look for three key effects for skin remodeling for the 2nd generation peptides.

1. Accelerate skin repair. This has been found in animals (mice, horses, dogs) and humans (published papers) from UCSF.

2. Anti-inflammatory actions. This has been found in humans - published paper from UCSF.

3. Stimulate hair growth in mice. This has been found. The stem cells come from the enlarged hair follicles.

In items 1-3, the 2nd generation peptides work better than GHK-Cu."

I'm going to have to agree with him! I think this news is incredibly exciting!