

AHK-Cu — Research Summary

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1. What It Is

AHK-Cu (Alanine-Histidine-Lysine Copper Tripeptide-3) is a copper-binding tripeptide structurally related to GHK-Cu. Copper is an essential cofactor for collagen cross-linking enzymes and wound-healing processes; AHK-Cu is studied primarily for hair-follicle and dermal effects.

2. Reported Effects in Research Literature

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- In-vitro/ex-vivo human tissue data: AHK-Cu stimulated elongation of human hair follicles in organ culture and increased dermal papilla cell proliferation at extremely low concentrations (10^{-12} to 10^{-9} M), with reduced apoptotic cell death via Bcl-2/Bax pathway modulation.
- In-vitro data: Reported to increase fibroblast counts and VEGF (supporting new blood vessel formation), enhance superoxide dismutase (SOD) activity, and reduce TGF-beta 1 secretion by fibroblasts, a pathway implicated in DHT-related hair thinning.
- No large-scale randomized controlled human trials for AHK-Cu specifically (as distinct from GHK-Cu) were identified in the literature reviewed for this summary — most human-relevant data is in-vitro/ex-vivo using human cells or tissue.

3. Clinical & Preclinical Study References

Pyo HK, Yoo HG, Won CH, et al. The effect of tripeptide-copper complex on human hair growth in vitro. Arch Pharm Res. 2007.

Won CH, et al. Hair growth-promoting effects of AHK-Cu (Copper Tripeptide-3) in human hair follicle organ culture and dermal papilla cells. J Dermatol Sci. 2007.

Regulatory/Safety Note: AHK-Cu is primarily developed and marketed as a cosmetic ingredient; it is not an FDA-approved drug and human RCT-level clinical evidence (as opposed to in-vitro/ex-vivo tissue studies) is limited.

This compound has not been evaluated by the FDA and is not intended to diagnose, treat, cure, or prevent any disease in humans or animals.

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