

PRESCRIPTION MONOGRAPH

Compounded Active Ingredients: GHK-Cu/Niacinamide/Estriol/Hyaluronic Acid

Form: Topical Cream

Drug Class:

- GHK-Cu: Peptide complex (endogenous tripeptide); Copper-binding growth factor analog
 - Niacinamide: Vitamin B3 amide
 - Estriol (E3): Estrogen; agonist at estrogen receptors
 - Hyaluronic Acid: Natural humectant
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Mechanism of Action^{1,2,3,4,5}: When compounded together, GHK-Cu/Niacinamide/Estriol/Hyaluronic Acid can target cellular aging, barrier dysfunction, dryness, dullness, and hormonal thinning. It is intended to:

- Bind copper(II) ions, delivering them to tissues to support wound healing, tissue remodeling, and antioxidant defense.
 - Upregulate collagen and glycosaminoglycan synthesis in skin and connective tissue.
 - Scavenge free radicals, reducing oxidative damage.
 - Increase stem cell activation and supports epithelial regeneration.
 - Reduce the harmful SASP, slowing entry of cells into senescence.
 - Regulate melanosome transfer to maintain even skin tone.
 - Activate estrogen receptors in the skin to stimulate collagen synthesis and restore dermal estrogenic tone.
 - Enhance water retention to provide an immediate plumping effect.
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Indications Commonly Prescribed For:

- Skin rejuvenation/anti-aging
 - Wound healing and scar reduction
 - Microneedling and post-laser therapy
 - Joint or soft tissue repair
 - Fibroblast activation
 - Hormonally aged skin (peri/postmenopausal)
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Before Use: Let your health care provider know if you have any medication allergies before you take this compounded preparation. Let your health care provider know if you have any liver or kidney problems. Let your healthcare provider know of all supplements you are currently taking.

Contraindications:

- Known allergy to GHK, copper compounds, or other components
 - Wilson's disease (copper metabolism disorder)
 - Active neoplastic disease (caution due to proliferative effects)
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Cautions: Let your Healthcare provider know if you experience any adverse side effects.

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How to Use: This compounded preparation is in the form of a topical cream. The cream is a special container that will administer 0.6ml dose. Clean desired area prior to use. To administer remove the protective covering on the top of the dispenser. Place the jar on a flat surface. Using clean, dry hands, gently press down on the top of the pump. This will dispense a measured amount of cream through the center opening. Confirm the cream has exited the holes at the top of the dispenser. Apply the cream onto the desired area. Continue to rub the area until the cream is evenly dispersed over the desired area. Replace the protective cover and store the device until next dose. If you miss a dose apply as soon as you remember, but not at the time for the next dose. The desired results may take up to several weeks.

Warnings and Precautions:

- Monitor for signs of copper overload with prolonged systemic use.
 - Copper peptides can oxidize in low-pH formulas; avoid mixing with strong acids or pure vitamin C serums.
 - Use SPF due to increases in UV sensitivity.
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Adverse Reactions:

Common:

- Mild skin irritation
- Transient erythema
- UV sensitivity

Rare:

- Contact dermatitis
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Interactions:

- Chelating agents (e.g., EDTA) may reduce GHK-Cu effectiveness
 - Avoid combining with high-dose zinc (competes with copper binding)
 - Use separately from: Strong acids (AHAs, BHAs), low-pH vitamin C serums, and benzoyl peroxide
 - Retinoids: Can be used together at alternating times
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Use in Specific Populations:

- Pregnancy: Avoid due to estriol
 - Geriatrics: Frequently used for anti-aging benefit
 - Post-procedure: Excellent for healing and redness reduction
 - Men: Safe and non-feminizing at topical estriol doses <0.05%.
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Storage:

- Store in original container at room temperature (up to 30°C or 86°F)
 - Store in a cool dry place away from heat, sunlight, and moisture
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Monitoring Parameters:

- Skin/hair response over 8–12 weeks
 - Copper and ceruloplasmin levels in extended systemic protocols
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Citations:

1. Dou Y, Lee A, Zhu L, Morton J, Ladiges W. The potential of GHK as an anti-aging peptide. *Aging Pathobiol Ther.* 2020;2(1):58-61. doi:10.31491/apt.2020.03.014
2. Pickart L, Vasquez-Soltero JM, Margolina A. GHK Peptide as a Natural Modulator of Multiple Cellular Pathways in Skin Regeneration. *Biomed Res Int.* 2015;2015:648108. doi:10.1155/2015/648108. Epub 2015 Jul 7. PMID: 26236730; PMCID: PMC4508379.
3. Sjöberg T, Fsaye A, Nilsson EJ, et al. Niacinamide and its impact on stratum corneum hydration and structure. *Sci Rep.* 2025;15(1):4953. Published 2025 Feb 10. doi:10.1038/s41598-025-88899-0
4. Clark JH, Markaverich BM. The agonistic and antagonistic actions of estriol. *J Steroid Biochem.* 1984;20(5):1005-1013. doi:10.1016/0022-4731(84)90011-6.
5. Bogdanowicz P, Bensadoun P, Noizet M, et al. Senomorphic activity of a combination of niacinamide and hyaluronic acid: correlation with clinical improvement of skin aging. *Sci Rep.* 2024;14(1):16321. Published 2024 Jul 15. doi:10.1038/s41598-024-66624-7