

PRESCRIPTION MONOGRAPH

Compounded Active Ingredients: GHK-Cu

Form: Injection

Drug Class:

- Peptide complex (endogenous tripeptide)
 - Copper-binding growth factor analog
-

Mechanism of Action^{1,2}: GHK-Cu is a naturally occurring copper-binding tripeptide that 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
 - Modulate gene expression involved in anti-inflammation, angiogenesis, hair growth, and cellular repair
 - Scavenge free radicals, reducing oxidative damage
 - Increase stem cell activation and supports epithelial regeneration
-

Indications Commonly Prescribed For:

- Skin rejuvenation / anti-aging
 - Wound healing and scar reduction
 - Hair regrowth support
 - Microneedling and post-laser therapy
 - Joint or soft tissue repair
 - Systemic wellness or anti-inflammatory support
 - Neuroprotection
 - Fibroblast activation
 - Metabolic modulation
-

Before Use: Let your healthcare provider know if you have had any allergic reactions to injections in the past. Let your healthcare provider know if you are pregnant or breast feeding. Let your healthcare provider know of all supplements and medications you are currently taking, especially medications containing benzyl alcohol.

Contraindications:

- Known allergy to GHK or copper compounds
 - Copper metabolism disorders (e.g., Wilson's disease hemochromatosis)
 - Active neoplastic disease (caution due to proliferative effects)
 - Active or suspected malignancy
-

Cautions: Take care when injecting the compounded preparations in only specified areas from your healthcare provider. Check the vial for any cloudiness or discoloration before use. Rotate your injection site with each injection to avoid skin problems like thinning, thickening, or lumps.

PRESCRIPTION MONOGRAPH

Warnings and Precautions:

- Monitor for signs of copper overload with prolonged systemic use.
 - Avoid use in active or suspected malignancy due to potential new blood vessel growth.
 - Benzyl alcohol is a preservative used in GHK-Cu. Metabolic acidosis can develop when large amounts of benzyl alcohol build up in your body.
-

Adverse Reactions: If you experience any side effects or adverse reactions, including those not listed, please contact your healthcare provider. Seek emergency care if symptoms are severe.

Common:

- Mild skin irritation
- Transient erythema
- Injection site reactions
- Transient headache, lightheadedness
- Nausea
- Possible metallic taste

Serious, but Rare:

- Copper toxicity
 - Angiogenesis
 - Difficulty Breathing
 - Allergic Reactions (hives, swelling)
 - Persistent inflammatory reactions
-

Interactions:

- Chelating agents (e.g., EDTA) may reduce GHK-Cu effectiveness
 - Avoid combining with high-dose zinc (competes with copper binding)
 - Copper supplements: risk of excessive total copper exposure
 - Anticoagulants/antiplatelets: higher bruising/hematoma risk with injections
-

Use in Specific Populations:

- Pregnancy: Safety not established; avoid systemic use
 - Liver/Kidney Disease: No known hepatotoxicity or nephrotoxicity. Use with caution
 - Pediatrics: Avoid use
-

Storage:

- Refrigerate at 2°C to 8°C (36°F to 46°F)
 - Can be stored at room temperature (up to 30°C or 86°F) for up to 48hrs
 - Do not freeze
-

How to Use: This medication is a subcutaneous injection and is delivered in a premixed liquid form. Wash your hands with soap and water before giving the injection. Wipe the rubber stopper of the vial with an alcohol swab. Take a syringe and pull the plunger down to the necessary prescribed amount. This is achieved when the plunger reaches the line for the amount prescribed. Push the needle through the rubber stopper of the vial. Push the plunger down to put air into the vial. Invert the vial and then slowly pull the plunger down past the prescribed dose. If there are bubbles in the syringe, tap the syringe to allow the air bubbles to rise to the top. Slowly push the plunger up until the tip reaches the line for the prescribed dose and removes the bubble of air. Pull the syringe out of the vials rubber stopper. Inject at predetermined injection site as instructed by healthcare practitioner. Discard any remainder from punctured vial after 28 days.

PRESCRIPTION MONOGRAPH

Monitoring Parameters:

- Skin/hair response over 8–12 weeks
 - Liver function tests if used systemically long-term
 - Copper and ceruloplasmin levels in extended systemic protocols
-

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. Pickart L, Margolina A. Regenerative and Protective Actions of the GHK-Cu Peptide in the Light of the New Gene Data. *Int J Mol Sci.* 2018;19(7):1987.