

COMPOUND GUIDE

GHK-Cu — Copper Tripeptide (Glycyl-L-Histidyl-L-Lysine)

Naturally occurring plasma tripeptide · SubQ or topical · Blue tint is normal

Quick Start



BLUE COLOUR — NORMAL

Reconstituted GHK-Cu solution has a faint blue tint from the copper ion. This is expected and normal. A colourless or yellowed solution may indicate degradation. Discard if the solution is cloudy, has particles, or smells off.



WHAT IT IS

GHK-Cu (Glycyl-L-Histidyl-L-Lysine copper) is a naturally occurring tripeptide found in human blood plasma, saliva, and urine. Plasma concentrations are approximately 200 ng/mL at age 20, declining to ~80 ng/mL at age 60. The copper-chelated form (GHK-Cu) is the biologically active species studied in tissue remodelling and wound-healing research.



RESEARCH ROUTES

SubQ injection: 1–2 mg/day. **Topical:** 1–3% cream or serum (cosmetic name: Copper Tripeptide-1) — the strongest human evidence for GHK-Cu is for topical application, with two published human RCTs showing collagen density and photoaging improvements. No published human RCT exists for injectable GHK-Cu.



REGULATORY STATUS

Not FDA-approved for injectable use. Topical GHK-Cu (as Copper Tripeptide-1) is a permitted cosmetic ingredient. FDA removed injectable GHK-Cu from Category 2 effective **April 15, 2026**; PCAC scheduled review by end of February 2027. For research purposes only.



Dosing Protocol

ROUTE	DOSE	FREQUENCY	DURATION	NOTES
SubQ (injectable)	1–2 mg	Once daily	8–12 weeks	No published human RCT; preclinical + community data only
Topical (cream/serum)	1–3% concentration	Once or twice daily	12+ weeks	Strongest human evidence; apply to affected area
Wash-out	—	—	4 weeks minimum	Between injectable cycles



Supplies & Reconstitution

Reconstitution Math — 100 mg Vial (3 mL BAC)

TARGET DOSE	UNITS (U-100)	DOSES / VIAL
1 mg	3.0 units	100
2 mg	6.0 units	50
3 mg	9.0 units	33.3
5 mg	15.0 units	20

Reconstitute the 100 mg vial with **3.0 mL bacteriostatic water** → 33.33 mg/mL. U-100 syringe = 100 units per mL. Swirl gently — do not shake. Refrigerate 2–8°C.

Reconstitution Steps

01

Warm the vial

Allow the lyophilised vial to reach room temperature (10–15 min from freezer).

02

Swab both stoppers

Wipe both vial tops with fresh alcohol swabs. Allow to air-dry.

03

Draw BAC water

Draw the required volume into an insulin syringe (e.g. 3.0 mL in multiple draws or use a larger syringe for the full volume).

- 04

Inject along the wall
Run BAC water slowly down the inside wall of the peptide vial. Do not jet onto the powder.
- 05

Swirl gently
Swirl slowly until dissolved. Solution will have a faint blue tint — this is normal. Do not shake.
- 06

Refrigerate
Store at 2–8°C, upright, for up to 30 days. Protect from light. Discard if colour changes to yellow or if particles appear.

Mechanism of Action

COLLAGEN REMODELLING

Activates TGF-β1 and collagen synthesis pathways in fibroblasts. Simultaneously activates collagenase (MMP-1/2) to remodel damaged collagen. Net effect studied in wound healing and skin photoaging models.

ANGIOGENESIS

Promotes VEGF expression and endothelial cell migration. Studied in cutaneous wound healing and chronic wound models. Synergistic mechanism proposed with BPC-157 in the GLOW Stack.

ANTI-INFLAMMATORY

Downregulates TNF-α and IL-6 in macrophage and fibroblast models. Studied in wound microenvironments and systemic anti-inflammatory research, predominantly in vitro and animal data.

COPPER TRANSPORT

GHK-Cu chelates copper (Cu²⁺) and delivers it intracellularly. Copper is required as a cofactor for lysyl oxidase, superoxide dismutase, and cytochrome c oxidase — enzymes involved in collagen crosslinking and mitochondrial function.

Human Evidence

Topical Human Studies (Strongest Evidence)

STUDY	DESIGN	KEY FINDING
Leyden et al. 2002	RCT; 71 women; 12 weeks; topical GHK-Cu cream	Significant improvement in photoaging markers; reduced fine lines; improved skin elasticity vs placebo
NEEL et al. 2023	Randomised; 12 weeks; topical Copper Tripeptide-1	28% increase in dermal collagen density at 3 months vs baseline; statistically significant



NO INJECTABLE HUMAN RCT
All human clinical evidence for GHK-Cu is for topical application. No published human RCT exists for injectable GHK-Cu as of mid-2026. Extrapolating topical findings to injectable use is not established and should be treated as separate research contexts.

Contraindication Note



WILSON'S DISEASE / COPPER METABOLISM DISORDERS
GHK-Cu delivers bioavailable copper. Research protocols consistently exclude subjects with Wilson's disease (impaired copper excretion), Menkes syndrome, or other known copper metabolism disorders. These conditions represent a clear contraindication.

GLOW Stack — GHK-Cu + BPC-157 + TB-500

The "GLOW Stack" combines three compounds with complementary tissue-remodelling mechanisms, studied for synergistic effects on skin, connective tissue, and wound healing:

COMPOUND	PRIMARY MECHANISM	RESEARCH CONTEXT
GHK-Cu	Collagen remodelling, copper transport, TGF-β1	Skin photoaging, wound healing
BPC-157	VEGFR2 angiogenesis, FAK cell migration	Tendon, muscle, gut repair
TB-500	G-actin sequestration, systemic cell migration	Systemic tissue repair, inflammation

Storage

STATE	TEMPERATURE	DURATION	NOTES
Lyophilised (powder)	−20°C (freezer)	Up to 24 months	Protect from light and moisture

Reconstituted (liquid)	2–8°C (refrigerator)	Up to 30 days	Faint blue colour is normal; discard if yellow or cloudy
Short-term (travel)	<25°C	Up to 72 hours	Avoid direct sunlight



DISCLAIMER

This document is an educational research reference only. It is not medical advice, not a treatment plan, and not a recommendation to use GHK-Cu outside of a qualified research context. Injectable GHK-Cu has no published human RCT evidence. Avoid if Wilson's disease or copper metabolism disorder is present. By purchasing from LA LAB you confirm you are 18+ and that products are for research purposes only.