L-Ergothioneine

Meteoric Cosmeceutiicals
Beauty Meets Brilliance in Biotech

BIOTECH EDGE

L-Ergothioneine is a rare amino acid and a highly effective natural antioxidant, produced through **controlled biofermentation of E.coli.** Its biotechnological refinement ensures high purity, structural integrity, and sustained activity, allowing it to integrate seamlessly into skin cells. By neutralizing free radicals, supporting collagen preservation, and reinforcing barrier function, this biotech-derived active delivers cellular protection and visible skin vitality, making it a valuable ingredient for modern, multifunctional skincare formulations.

PRODUCT DETAILS

INCI name:
Ergothioneine

Appearance:
Clear liquid (water solution) or white powder

Content:
≥99%

Recommended Dosage:
0.1% - 1%

APPLICATIONS :

Glow enhancing lotion

Skin uniforming mist

Spot correcting cream

KEY FEATURES :

- Biotechnologically cultivated via precision fermentation for high stability and purity
- Naturally synthesized antioxidant with strong molecular affinity for skin cells
- Integrates into skin to neutralize free radicals and protect against UV, pollution, and oxidative stress
- Supports collagen preservation and barrier integrity
- Suitable for incorporation in serums, creams, moisturizers, and even makeup/base products

WHAT IT BRINGS TO YOUR FORMULATION :

- Delivers robust antioxidant and environmental defense against ROS, blue light, pollution, and UV-induced oxidative stress
- Provides photo-aging and anti-wrinkle support by maintaining collagen and reducing MMP activity
- Gentle and compatible for sensitive or stressed skin, complementing barrier repair and post-sun care
- Enhances cellular protection and visible skin vitality, promoting resilient, luminous skin

Please turn for more

EFFICACY STUDIES :

Antioxidant, Anti-aging and Anti-inflammatory studies:

Meteoric Cosmeceutiicals
Beauty Meets Brilliance in Biotech

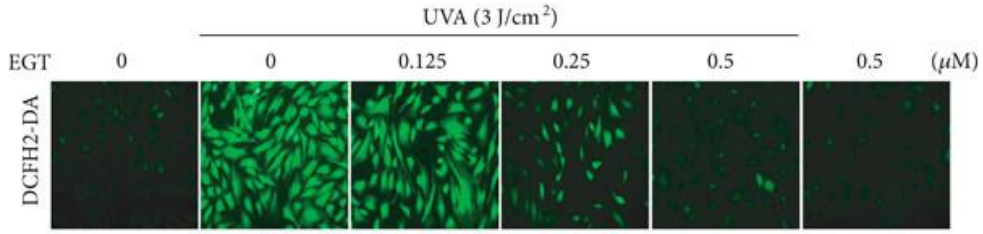

Fig 1: L- Ergothioneine (EGT) Protects HSF cells against UVA-induced ROS production (In vitro). The ROS production in cultured HSF cells was measured using confocal microscopy by supplementing fluorescent dye that responds quantitatively to ROS upon UVA exposure. It was evident that variable concentration of EGT was able to significantly suppress ROS production, and the effect corresponded to increasing concentration of EGT in the cultured media, proving EGT to be an efficient antioxidant molecule [1].

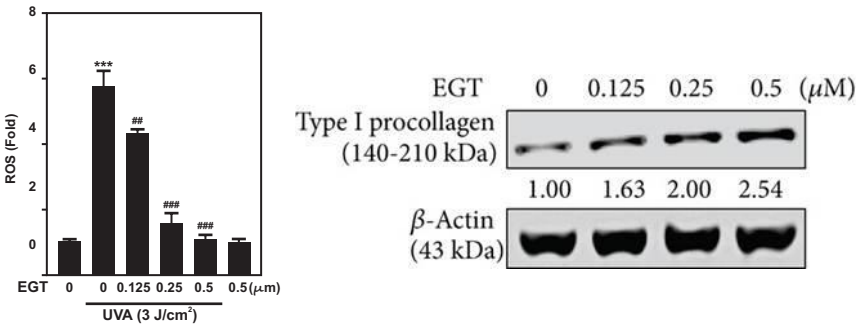

Fig 2: L- Ergothioneine (EGT) promotes type 1 collagen expression in cultured HSF cells. Cultured HSF cells were supplemented with variable concentration of EGT and the expression of type 1 procollagen was quantified using western blot using β-actin as an internal control. Type 1 procollagen expression improved as a factor of increasing EGT concentration inferring active role of EGT as an effective antiaging molecule [1].

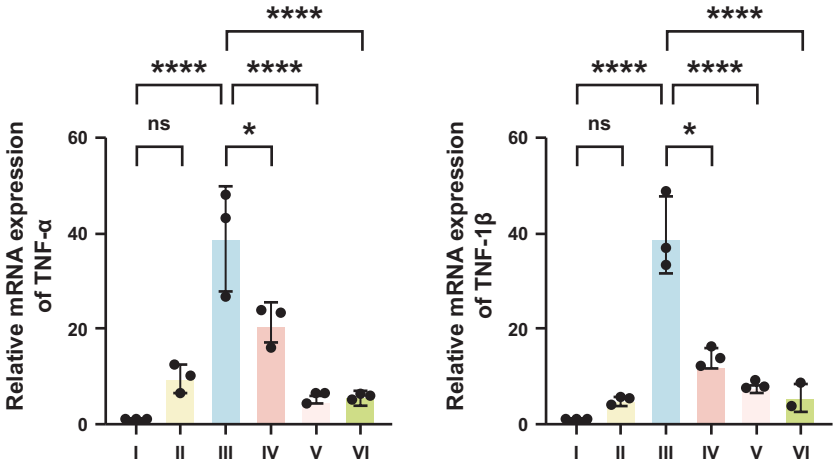

Fig 3: L- Ergothioneine (EGT) provides excellent anti-inflammatory protection to cultured HacaT cells treated with LPS (In vitro). RT-PCR results demonstrates that increasing concentration of ERG was able to give a corresponding reduction in the expression of inflammatory markers TNF-α and IL-1β, substantiating EGT as a reliable anti-inflammatory agent [2].

PROVEN BENEFITS :

- Significantly reduces ROS production in skin cells under UVA exposure (antioxidant efficacy)
- Promotes Type 1 collagen expression, supporting firmness and anti-aging effects
- Reduces inflammatory markers TNF-α and IL-1β, demonstrating anti-inflammatory protection
- Contributes to barrier reinforcement and hydration support

References:
1. Hseu, You-Cheng, et al. "The antiaging activity of Ergothioneine in UVA-irradiated human dermal fibroblasts via the inhibition of the AP-1 pathway and the activation of Nrf2-mediated antioxidant genes." Oxidative medicine and cellular longevity 2020.1 (2020): 2576823.
2. Li, Ang, et al. "Ergothioneine attenuates psoriasis symptoms through modulation of M1/M2 macrophage polarisation via the NF-κB/JAKSTAT3 pathway." Frontiers in Pharmacology 16 (2025): 1521743.

www.meteoricos.com
contact@meteoricos.com
+ 91 85111 55604
/meteoriccosmeceutiicals
/company/meteoric-cosmeceutiicals-private-limited

#WorldofBioCosmetics