

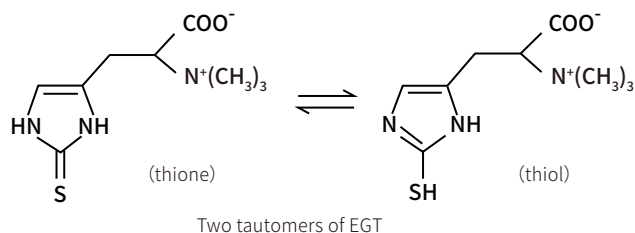
## Bioyouth™-EGT Pro Super Active Ergothioneine

- ◆ Multi-strain Fermentation
- ◆ Protect mitochondrial, Anti-oxidant, Anti-photoaging

### Introduction

Bioyouth™-EGT Pro is obtained by multi fermentation of *Herichium Erinaceum* & *Armillaria Matsutake*, spray dried together with microHA (Mw<5000Da) and trehalose. Multi-fermentation can increase the yield of L-ergothioneine (EGT), polysaccharide and amino acids. microHA can improve the activity of EGT. Trehalose can protect EGT and HA and act as a moisturizer in the formulation.

EGT is a histidine derivative containing sulfur, has two structural tautomers of thiol and thione in the dissolved state. EGT is a very stable antioxidant compared with other naturally occurring thiols, and is less likely to spontaneously oxidize at physiological pH.



### Instruction

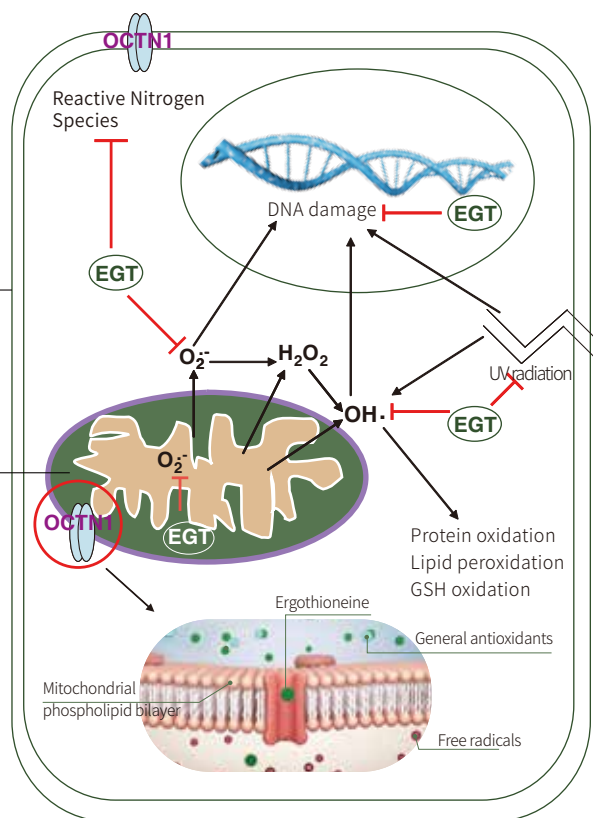
**INCI Name:** Ergothioneine, *Armillaria Matsutake* Extract, Hydrolyzed Sodium Hyaluronate, Trehalose

**Recommended Dosage:** 0.1%-0.5%

**Application:**

Anti-aging products, antioxidant products, sun care products, skin protection and skin regeneration.

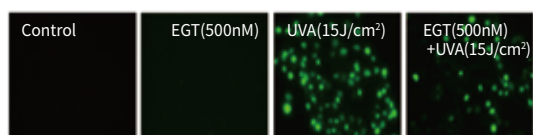
### Mechanism



Mitochondria are known as the "powerhouse" of the cell, the main sites of energy production and aerobic respiration. When mitochondria produce energy, they produce a large number of free radicals. Excessive free radicals lead to mitochondrial apoptosis, which will lead to cell death and skin aging. Studies have found that few natural antioxidants can penetrate mitochondria, while EGT can enter cells and mitochondria through the transporter OCTN-1 in keratinocytes and fibroblasts, directly scavenging ROS, and playing the role of anti-oxidation and protection of the mitochondria.

## 【Protect the DNA in Skin Cells】\*

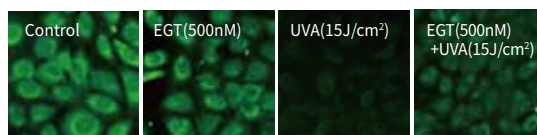
TUNEL can label DNA fragments in apoptotic cells. Weak fluorescence intensity represents less damaged DNA. Compared with the UVA group, the fluorescence intensity of EGT+UVA group was lower, indicating that EGT could protect DNA from UVA damage.



\*: You-Cheng Hseu, Heng-Wei LO, Mallikarjuna Korivi, Yu-Cheng Tsai, Meng-Ju Tang, Hsin-Ling Yang, *Dermato-protective Properties of ergothioneine through induction of Nrf2/ARE-mediated antioxidant Genes in UVA-irradiated Human keratinocytes, Free Radical Biology and Medicine*

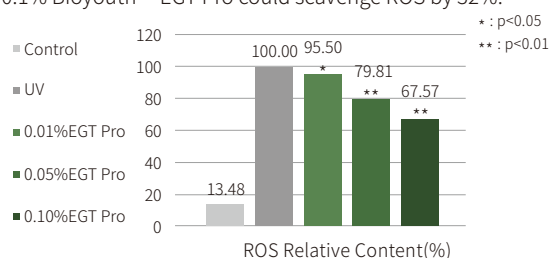
## 【Protect Mitochondria in Skin Cells】\*

Mito-Tracker Green accumulates in the mitochondria. Right green fluorescence indicates a strong mitochondrial membrane potential. Compared with the UVA group, the fluorescence intensity of EGT+UVA group was stronger, indicating that EGT could protect DNA from UVA damage.



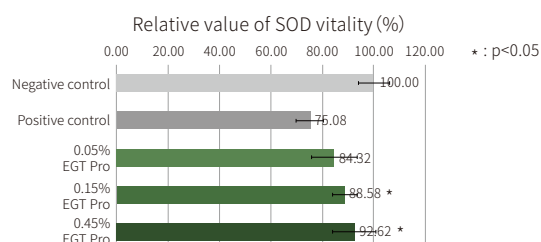
## 【Antioxidant – Scavenge ROS】

UV induced HaCaT cells to produce ROS. Test showed that 0.1% Bioyouth™-EGT Pro could scavenge ROS by 32%.



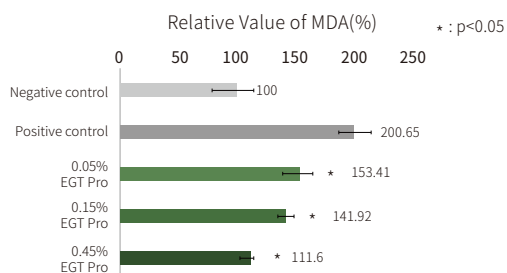
## 【Antioxidant – Improve the Activity of SOD】

Superoxide dismutase (SOD) is considered as an important antioxidant defense in nearly all living cells exposed to oxygen. Compared to positive control, 0.45% Bioyouth™-EGT Pro could increase the activity of SOD by 23%.



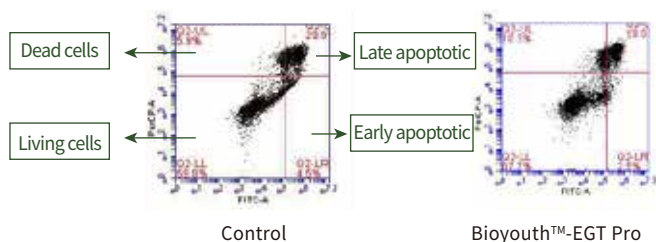
## 【Antioxidant – Inhibit Lipid Peroxidation】

Lipid peroxidation (LPO) is one of the cell damage reactions mediated by free radicals. Malondialdehyde (MDA) is a major by-product of LPO. Compared to positive control, 0.45% Bioyouth™-EGT Pro could increase the content of MDA by 44%.



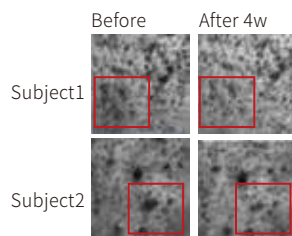
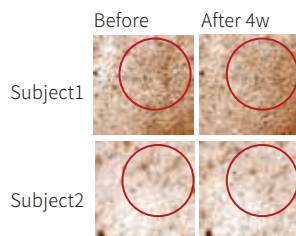
## 【Increase Cell Activity】

Cells tend to start its apoptosis because it senses cell stress or gets signals from other cells, such as irradiation, high temperature and ROS etc. UVB irradiation induced HaCaT cell apoptosis. 0.1% Bioyouth™-EGT Pro could reduce the apoptosis rate by 34%.



## 【Reduce pigmentation, Anti-aging】

After 4 weeks' application, Bioyouth™-EGT Pro can reduce the subjects' brown spots by 10%, UV spots by 7%, fishtail lines by 8%, improve skin moisture by 15%, improve skin elasticity by 20%.



Compared to control group, Bioyouth™-EGT Pro can reduce brown spots by 10% , UV spots by 7% , fishtail lines by 8%.

