



Carnosine

Anti-glycation, Antioxidant, Anti-aging, Anti-fatigue

Carnosine

CAS

305-84-0

Molecular Weight

226.2

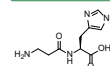
Molecular Formula

C₉H₁₄N₄O₃

Appearance

White to off-white powder

Structure



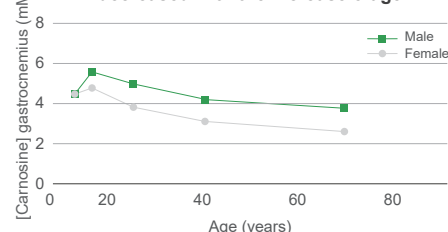
Product Information

Carnosine is a natural dipeptide composed of β -alanine and L-histidine. It is widely found in human muscles and brain tissue and is an important antioxidant and anti-glycation factor in cells.

Excessive ROS and glycation end products AGEs are the main factors leading to cell damage, accelerated aging, and chronic diseases. Carnosine can play a wide range of antioxidant effects by directly scavenging hydroxyl free radicals and hydrogen peroxide, chelating metal ions, inhibiting lipid peroxidation, etc.; it plays an anti-glycation effect by scavenging intermediates in glycosylation reactions and can protect cells. Protected from the effects of oxidative stress.

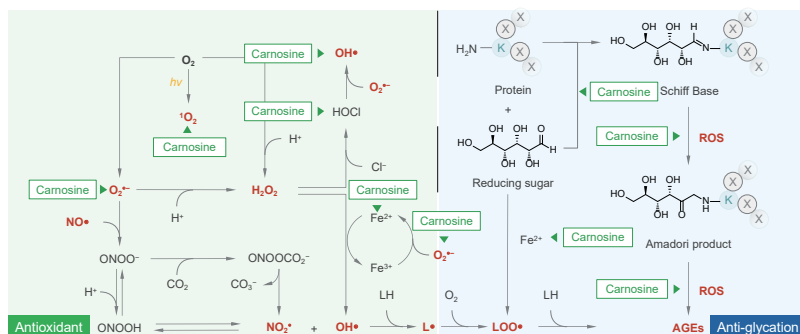
Carnosine helps reduce lactic acid accumulation, improve muscle endurance and nerve conduction efficiency by regulating intracellular acid-base balance and optimizing energy metabolism. It has a significant anti-fatigue effect and is especially suitable for rapid recovery of physical fitness after high-intensity activities.

The content of carnosine in skeletal muscle decreased with the increase of age

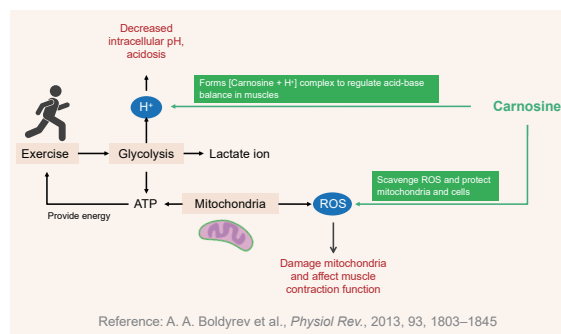


Mechanism

The molecular mechanism of carnosine as an antioxidant and anti-glycation agent

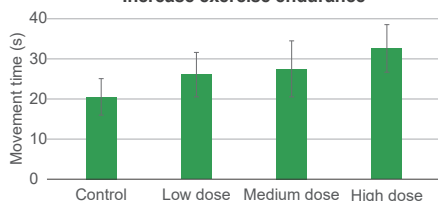


The mechanism of carnosine in relieving exercise fatigue



Efficacy

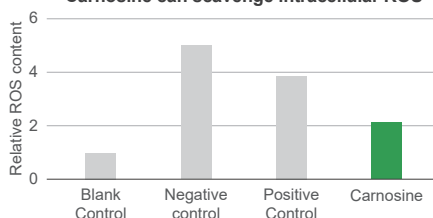
Increase exercise endurance



The daily required carnosine for the low-dose group (0.12 mg/g body weight), the middle-dose group (0.23 mg/g body weight) and the high-dose group (0.69 mg/g body weight) was made into a 0.2 mL preparation, which was administered orally every day. The control group was given 0.2 mL of distilled water every day for 20 consecutive days.

Experimental conclusion: Carnosine is positively correlated with exercise time in mice

Carnosine can scavenge intracellular ROS

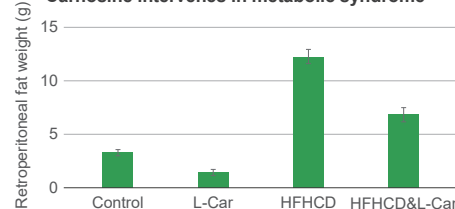


Experiment condition: Human skin fibroblasts; Negative control: UV; Positive control: UV+ vitamin E (0.064 μ M); Experimental group: UV+ carnosine (0.064 μ M)

※ Third-party experimental data

Experimental conclusion: Carnosine can effectively remove reactive oxygen species (ROS) in cells, and its effect is better than vitamin E

Carnosine intervenes in metabolic syndrome



Male Wistar rats were divided into regular diet (Control), high-fat and high-carbohydrate diet (HFHCD), regular diet + carnosine supplement (L-Car), high-fat and high-carbohydrate diet + carnosine supplement (HFHCD&L-Car) group, intervention 16 weeks, to assess retroperitoneal fat weight.

Experimental conclusion: Carnosine can significantly reduce retroperitoneal fat weight and improve metabolic syndrome caused by high-fat and high-carbohydrate diet.

Reference: Al-Sawalha, et al., *LIFE SCI*, 2019, 237, 116905.

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CONTACT US

www.szreadline.com
+86 755 2665 9310
sales@szreadline.com



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