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Lieferung & Zahlungsart

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Zuschläge

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Lutein

Cat. No.: HY-N6947

CAS No.: 127-40-2

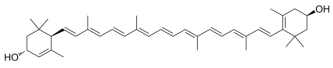
Molecular Formula: $C_{40}H_{56}O_2$

Molecular Weight: 568.87

Target: Endogenous Metabolite; Apoptosis; Reactive Oxygen Species

Pathway: Metabolic Enzyme/Protease; Apoptosis; Immunology/Inflammation; NF-κB

Storage: -20°C, protect from light, stored under nitrogen
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light, stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 25 mg/mL (43.95 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.7579 mL	8.7894 mL	17.5787 mL
	5 mM	0.3516 mL	1.7579 mL	3.5157 mL
	10 mM	0.1758 mL	0.8789 mL	1.7579 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

Lutein (Xanthophyll) is a carotenoid with reported anti-inflammatory properties. A large body of evidence shows that lutein has several beneficial effects, especially on eye health[1]. Lutein exerts its biological activities, including anti-inflammation, anti-oxidase and anti-apoptosis, through effects on reactive oxygen species (ROS)[2][3]. Lutein is able to arrive in the brain and shows antidepressant-like and neuroprotective effects. Lutein is orally active[4].

In Vitro

Lutein (100 or 200 μM) protects against A2-PE (a bis-retinoid compound that is the immediate precursor of the lipofuscin fluorophore A2E) photooxidation and reduces A2E photooxidation[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Lutein (40-160 mg/kg; in diet for 5 weeks) protects against severe traumatic brain injury through anti-inflammation and anti-oxidative effects via ICAM-1/Nrf-2 in rats[3].
Lutein (0.1-10 mg/kg; p.o.; once or daily for 7 and 21 days) prevents Corticosterone (HY-B1618)-induced depressive-like behavior in mice with the involvement of antioxidant and neuroprotective activities[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Sprague-Dawley rats, severe traumatic brain injury (STBI) model[3]
Dosage:	40, 80 and 160 mg/kg
Administration:	In diet for 5 weeks
Result:	Suppressed, interleukin (IL)-1β, IL-6 and monocyte chemoattractant protein-1 expression, reduced serum ROS levels, and reduced superoxide dismutase and glutathione peroxidase activities. Effectively downregulated the expression of NF-κB p65 and cyclooxygenase-2, intercellular adhesion molecule (ICAM)-1 protein, and upregulated nuclear factor erythroid 2 like 2 (Nrf-2) and endothelin-1 protein levels.

Animal Model:	Male Swiss mice, chronic Corticosterone (HY-B1618) model of depression[4]
Dosage:	0.1, 1 and 10 mg/kg
Administration:	Oral administration, once or daily for 7 and 21 days
Result:	Decreased immobility time at the dose 10 mg/kg. Counteracted the behavioral changes displayed by Corticosterone (HY-B1618) showing antidepressant-like effect. Presented antioxidant effect in the hippocampus, prefrontal cortex and plasma of mice, and exhibited a capability to protect hippocampal and prefrontal cortex slices against glutamatergic toxicity.

CUSTOMER VALIDATION

- Food Funct. 2024 Feb 19;15(4):2144-2153.
- Int J Mol Sci. 2022, 23(13), 7186.
- Aesthet Surg J. 2024 Aug 23:sjae185.

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REFERENCES

[1]. Kim SR, et al. Photooxidation of A2-PE, a photoreceptor outer segment fluorophore, and protection by lutein and zeaxanthin. Exp Eye Res. 2006 May;82(5):828-39.

[2]. Tan D, et al. Lutein protects against severe traumatic brain injury through anti‐inflammation and antioxidative effects via ICAM‐1/Nrf‐2. Mol Med Rep. 2017 Oct;16(4):4235-4240.

[3]. Zeni ALB, et al. Lutein prevents corticosterone-induced depressive-like behavior in mice with the involvement of antioxidant and neuroprotective activities. Pharmacol Biochem Behav. 2019 Apr;179:63-72.

[4]. Buscemi S, et al. The Effect of Lutein on Eye and Extra-Eye Health.Nutrients. 2018 Sep 18;10(9). pii: E1321.

Caution: Product has not been fully validated for medical applications. For research use only.

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