

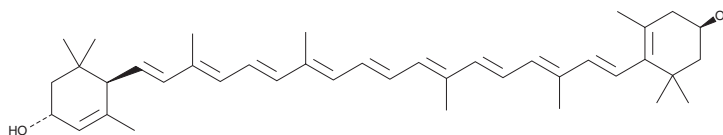
PRODUCT INFORMATION



Lutein

Item No. 10010811

CAS Registry No.: 127-40-2
Formal Name: (6'R)- β,ϵ -carotene-3R,3'R-diol
Synonyms: E 161b, Xanthophyll
MF: C₄₀H₅₆O₂
FW: 568.9
Purity: $\geq 95\%$
UV/Vis.: λ_{\max} : 268, 445, 474 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥ 2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Lutein is supplied as a crystalline solid. A stock solution may be made by dissolving the lutein in the solvent of choice, which should be purged with an inert gas. Lutein is soluble in the organic solvent chloroform at a concentration of approximately 5 mg/ml.

Description

Lutein is a dietary carotenoid that has been found in eggs and yellow-colored fruits and vegetables and has diverse biological activities.¹⁻⁴ It reduces hyperglycemia-induced mitochondrial DNA damage and production of reactive oxygen species (ROS) and promotes mitochondrial biogenesis in ARPE-19 cells when used at a concentration of 10 μM .¹ Lutein (20 mg/kg) increases nitric oxide (NO) production and decreases serum levels of endothelin-1 (Item No. 24127) in a rat model of hyperhomocysteinemia.² Dietary administration of lutein (0.2%) decreases monocyte migration and lesion size in an *ApoE*^{-/-} and *Ldlr*^{-/-} mouse models of atherosclerosis. Lutein reduces infarct size and cardiac malondialdehyde (MDA), lactate dehydrogenase (LDH), and troponin T levels, and increases cardiac levels of catalase (CAT), superoxide dismutase (SOD), heme oxygenase-1 (HO-1), and Nrf2 in a rat model of heart failure induced by isoproterenol (Item No. 15592).³ It forms a retinal pigment in human eyes, and high dietary intake of lutein is positively correlated with reduced risk of age-related macular degeneration and cataracts in humans.⁴

References

1. Nanjiah, H. and Vallikannan, B. Lutein upregulates the PGC-1 α , NRF1, and TFAM expression by AMPK activation and downregulates ROS to maintain mtDNA integrity and mitochondrial biogenesis in hyperglycemic ARPE-19 cells and rat retina. *Biotechnol. Appl. Biochem.* **66(6)**, 999-1009 (2019).
2. Hajizadeh-Sharafabad, F., Ghoreishi, Z., Maleki, V., et al. Mechanistic insights into the effect of lutein on atherosclerosis, vascular dysfunction, and related risk factors: A systematic review of *in vivo*, *ex vivo* and *in vitro* studies. *Pharmacol. Res.* **149**, 104477 (2019).
3. Ouyang, B., Li, Z., Ji, X., et al. The protective role of lutein on isoproterenol-induced cardiac failure rat model through improving cardiac morphology, antioxidant status via positively regulating Nrf2/HO-1 signalling pathway. *Pharm. Biol.* **57(1)**, 529-535 (2019).
4. Bungau, S., Abdel-Daim, M., Tit, D.M., et al. Health benefits of polyphenols and carotenoids in age-related eye diseases. *Oxid. Med. Cell. Longev.* 9783429 (2019).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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