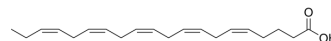


Eicosapentaenoic Acid

Cat. No.:	HY-B0660
CAS No.:	10417-94-4
Molecular Formula:	C ₂₀ H ₃₀ O ₂
Molecular Weight:	302.45
Target:	Endogenous Metabolite; Histone Demethylase
Pathway:	Metabolic Enzyme/Protease; Epigenetics
Storage:	Pure form -20°C 3 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

Ethanol : ≥ 100 mg/mL (330.63 mM)
DMSO : ≥ 30 mg/mL (99.19 mM)
* "≥" means soluble, but saturation unknown.

	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	3.3063 mL	16.5317 mL	33.0633 mL
	5 mM	0.6613 mL	3.3063 mL	6.6127 mL
	10 mM	0.3306 mL	1.6532 mL	3.3063 mL

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

In Vivo

- Add each solvent one by one: 10% EtOH >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (8.27 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: 2.08 mg/mL (6.88 mM); Suspended solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: 2.08 mg/mL (6.88 mM); Suspended solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.08 mg/mL (6.88 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Eicosapentaenoic Acid (EPA) is an orally active Omega-3 long-chain polyunsaturated fatty acid (ω-3 LC-PUFA). Eicosapentaenoic Acid exhibits a DNA demethylating action that promotes the re-expression of the tumor suppressor gene CCAAT/enhancer-binding protein δ (C/EBPδ). Eicosapentaenoic Acid activates RAS/ERK/C/EBPβ pathway through H-Ras intron 1 CpG island demethylation in U937 leukemia cells. Eicosapentaenoic Acid can promote relaxation of vascular

	smooth muscle cells and vasodilation ^{[1][2][3]} .
IC₅₀ & Target	Human Endogenous Metabolite
In Vitro	C/EBPβ phosphorylated form is evident in Eicosapentaenoic Acid (EPA; 100 μM; 24 h) treated cells, whereas it was barely detectable in control, and OA or LA treated U937 ^[1] . ?Eicosapentaenoic Acid (100 μM; 1, 3, 24 h) causes a significant increase of H-Ras and N-Ras mRNA levels conditioning for 1 and 3 hours. K-Ras mRNA levels were not affected by Eicosapentaenoic Acid ^[1] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Gut Microbes. 2022, 14(1): 2139978.
- Proc Natl Acad Sci U S A. 2021 Oct 26;118(43):e2104689118.
- Cancer Immunol Res. 2022 Dec 2;10(12):1542-1558.
- Haematologica. 2021 Feb 4.
- Pharmacol Res. 2024 May 17:107214.

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REFERENCES

- [1]. Martins, J.G., EPA but not DHA appears to be responsible for the efficacy of omega-3 long chain polyunsaturated fatty acid supplementation in depression: evidence from a meta-analysis of randomized controlled trials. *J Am Coll Nutr*, 2009. 28(5): p. 525-42.
- [2]. Shun-he Wang, et al. Endogenous omega-3 long-chain fatty acid biosynthesis from alpha-linolenic acid is affected by substrate levels, gene expression, and product inhibition. *RSC Adv.*, 2017, 7, 40946-40951.
- [3]. Miaozen Pan, et al. Dietary ω-3 polyunsaturated fatty acids are protective for myopia. *Proc Natl Acad Sci U S A*. 2021 Oct 26;118(43):e2104689118.

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

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