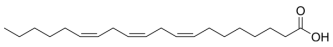
Dihomo-γ-linolenic acid

Cat. No.:	HY-A0143
CAS No.:	1783-84-2
Molecular Formula:	$C_{20}H_{34}O_2$
Molecular Weight:	306.48
Target:	Endogenous Metabolite
Pathway:	Metabolic Enzyme/Protease
Storage:	Solution, -20°C, 2 years



SOLVENT & SOLUBILITY

In Vitro	DMSO : 100 mg/mL (326.29 mM; Need ultrasonic)
In Vivo	1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (8.16 mM); Clear solution 2. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (8.16 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	Dihomo-γ-linolenic acid (DGLA) is a 20-carbon ω-6 fatty acid, with anti-inflammatory and anti-proliferative activities. Dihomo-γ-linolenic acid attenuates atherosclerosis in the apolipoprotein E deficient mouse model system[1][2][3].
IC_{50} & Target	Human Endogenous Metabolite
In Vitro	Dihomo-γ-linolenic acid attenuates pro-inflammatory gene expression in human and mouse macrophages[2]. Dihomo-γ-linolenic acid (50 μM; 24 hours) attenuates IFN-γ induced phosphorylation of STAT1 on serine 727[2]. Dihomo-γ-linolenic acid attenuates IL-1β and TNF-α induced MCP-1 and ICAM-1 expression in human macrophages[2]. Dihomo-γ-linolenic acid attenuates chemokine-driven monocytic migration and macrophage foam cell formation[2]. Dihomo-γ-linolenic acid attenuates the expression of SR-A and CD36 in human macrophages[2]. Dihomo-γ-linolenic acid modulates mitochondrial respiration[2]. Dihomo-γ-linolenic acid modulates the properties of endothelial cells and VSMC[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[2]

Cell Line:	THP-1 macrophages
Concentration:	50 μM (pre-treated)
Incubation Time:	24 hours
Result:	Attenuated IFN-γ induced phosphorylation of STAT1 on serine 727.

In Vivo	Dihomo-γ-linolenic acid (8 mg/mouse; i.g; twice a week; for 35 days) inhibits growth of xenograft tumors in mice bearing human pancreatic cancer cells (BxPC-3) transfected with delta-5-desaturase shRNA[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Female nude mice (48 four-week old)[3]
Dosage:	8 mg/mouse
Administration:	Oral gavage, twice a week, for 35 days
Result:	Suppressed metastasis potential in D5D-KD tumors.

CUSTOMER VALIDATION

- Cell Rep. 2022 Sep 20;40(12):111381.
- Eur J Pharmacol. 2023 Feb 23;175618.

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REFERENCES

[1]. Wang X, et al. Multiple roles of dihomo-γ-linolenic acid against proliferation diseases. Lipids Health Dis. 2012 Feb 14;11:25.

[2]. Gallagher H, et al. Dihomo-γ-linolenic acid inhibits several key cellular processes associated with atherosclerosis. Biochim Biophys Acta Mol Basis Dis. 2019 Sep 1;1865(9):2538-2550.

[3]. Yang X, et al. Dihomo-γ-linolenic acid inhibits growth of xenograft tumors in mice bearing human pancreatic cancer cells (BxPC-3) transfected with delta-5-desaturase shRNA. Redox Biol. 2019 Jan;20:236-246.

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