(−)-C75

Cat. No.: HY-12364B

CAS No.: 1234694-22-4

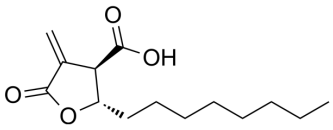
Molecular Formula: $C_{14}H_{22}O_4$

Molecular Weight: 254.32

Target: Fatty Acid Synthase (FASN)

Pathway: Metabolic Enzyme/Protease

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	(−)-C75 is a isoform of C75 (HY-12364), which is a synthetic fatty-acid synthase (FASN) inhibitor; inhibits prostate cancer cells PC3 with an IC_{50} of 35 μM[1][2][3]. C75 is a potent CPT1A activator[5].
In Vitro	C75 inhibits PC3 cell growht with an IC_{50} of 35 μM at 24 h. C75 (10-50 μM) also reduces the growth of LNCaP spheroids in a concentration-dependent manner with an IC_{50} of 50 μM[1]. (-)-C75 inhibits FAS activity and has a cytotoxic effect on tumor cell lines, without affecting food consumption. (+)-C75 inhibits CPT1 and its administration produces anorexia, suggesting that central inhibition of CPT1 is essential for the anorectic effect of C75. The differential activity of C75 enantiomers may lead to the development of potential new specific drugs for cancer and obesity[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	C75 blocks fasting-induced c-Fos expression in the arcuate nucleus (Arc), lateral hypothalamic area (LHA), and paraventricular nucleus (PVN) 10–24 h after i.p. injection. Intraperitoneal administration of C75 at 30 mg/kg body weight inhibits food intake of mice by ≥95% within 2 h after i.p. injection[3]. C75-treated DIO mice has a 50% greater weight loss, and a 32.9% increased production of energy because of fatty acid oxidation. C75 treatment of rodent adipocytes and hepatocytes and human breast cancer cells increases fatty acid oxidation and ATP levels by increasing CPT-1 activity, even in the presence of elevated concentrations of malonyl-CoA[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Yan Xue, et al. Inhibition of Carnitine Palmitoyltransferase 1A Aggravates Fatty Liver Graft Injury via Promoting Mitochondrial Permeability Transition. Transplantation. 2021 Mar 1;105(3):550-560.

[2]. Rae C, et al. Inhibition of Fatty Acid Synthase Sensitizes Prostate Cancer Cells to Radiotherapy.

[3]. Makowski K, et al. Differential pharmacologic properties of the two C75 enantiomers: (+)-C75 is a strong anorectic drug; (-)-C75 has antitumor activity. Chirality. 2013 May;25(5):281-7.

[4]. Gao S, et al. Effect of the anorectic fatty acid synthase inhibitor C75 on neuronal activity in the hypothalamus and brainstem. Proc Natl Acad Sci U S A. 2003 May 13;100(10):5628-33.

[5]. Thupari JN, et al. C75 increases peripheral energy utilization and fatty acid oxidation in diet-induced obesity. Proc Natl Acad Sci U S A. 2002 Jul 9;99(14):9498-502.

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

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