Octanoic acid

Cat. No.: HY-41417

CAS No.: 124-07-2

Molecular Formula: $C_8H_{16}O_2$

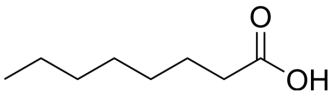
Molecular Weight: 144.21

Target: Endogenous Metabolite

Pathway: Metabolic Enzyme/Protease

Storage:

Pure form	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (693.43 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	6.9343 mL	34.6717 mL	69.3433 mL
	5 mM	1.3869 mL	6.9343 mL	13.8687 mL
	10 mM	0.6934 mL	3.4672 mL	6.9343 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (14.42 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (14.42 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (14.42 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Octanoic acid (Caprylic acid) is an oily liquid with a slightly unpleasant rancid taste and used commercially in the production of esters used in perfumery and also in the manufacture of dyes. Octanoic acid is also a tremor-suppressing agent[1][2].

IC_{50} & Target

Human Endogenous Metabolite

In Vitro

Octanoic acid (0-0.5 mM, 0.5 h) potentiates glucose-stimulated insulin secretion (GSIS) in MIN6 cells, via Olfr15 though the PLC-IP3 pathway[4].

Octanoic acid (0-10 mM, 48 h) induces neurite outgrowth in PC12 cells, and activates p38 MAPK and ERK pathways[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[5]

Cell Line:	PC12 cells
Concentration:	3 mM
Incubation Time:	0-24 h
Result:	Increased p38 MAPK, ERK, and JNK level.

In Vivo

Octanoic acid (1500 mg/kg, i.p.) inhibits harmaline tremor in mouse model of essential tremor[1].
Octanoic acid (150 mg/kg, oral gavage) shows protective effects in the mouse model of PD induced by MPTP (HY-15608)[2].
Octanoic acid (1.3 mg, p.o.) promotes branched-chain amino acid (BCAA) catabolism in rats by activating BCKDC via decreasing the bound form of BCKDH kinase (BDK)[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Mol Cell. 2023 Nov 20:S1097-2765(23)00914-0.

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REFERENCES

[1]. Nahab FB, et al. Octanoic acid suppresses harmaline-induced tremor in mouse model of essential tremor. Neurotherapeutics. 2012 Jul;9(3):635-8.

[2]. Joniec-Maciejak I, et al. Octanoic acid prevents reduction of striatal dopamine in the MPTP mouse model of Parkinson's disease. Pharmacol Rep. 2018 Oct;70(5):988-992.

[3]. Kadota Y, et al. Octanoic acid promotes branched-chain amino acid catabolisms via the inhibition of hepatic branched-chain alpha-keto acid dehydrogenase kinase in rats. Metabolism. 2015 Sep;64(9):1157-64.

[4]. Leem J, et al. Octanoic acid potentiates glucose-stimulated insulin secretion and expression of glucokinase through the olfactory receptor in pancreatic β-cells. Biochem Biophys Res Commun. 2018 Sep 3;503(1):278-284.

[5]. Kamata Y, et al. Induction of neurite outgrowth in PC12 cells by the medium-chain fatty acid octanoic acid. Neuroscience. 2007 May 25;146(3):1073-81.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA