Homocarnosine TFA

Cat. No.: HY-114883A

CAS No.: 2991254-59-0

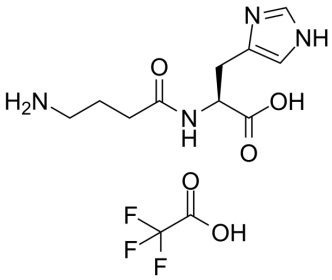
Molecular Formula: $C_{12}H_{17}F_3N_4O_5$

Molecular Weight: 354.28

Target: GABA Receptor; Endogenous Metabolite

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling; Metabolic Enzyme/Protease

Storage: -20°C, protect from light, stored under nitrogen
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light, stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 125 mg/mL (352.83 mM; Need ultrasonic)
DMSO : 100 mg/mL (282.26 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.8226 mL	14.1131 mL	28.2263 mL
	5 mM	0.5645 mL	2.8226 mL	5.6453 mL
	10 mM	0.2823 mL	1.4113 mL	2.8226 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 25 mg/mL (70.57 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (7.06 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.06 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.06 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Homocarnosine TFA is a dipeptide of γ-aminobutyric acid (GABA) and histidine unique to brain. Homocarnosine TFA is an inhibitory neuromodulator synthesized in the neuron from GABA and exhibiting anticonvulsant effects[1]. Homocarnosine TFA has antioxidant and anti-inflammatory actions, prevention of DNA damage, and inhibition of advanced glycation end-product formation[2].

IC_{50} & Target	Human Endogenous Metabolite
In Vitro	Homocarnosine, a dipeptide of γ-aminobutyric acid (GABA) and histidine, is an inhibitory neuromodulator synthesized in subclasses of GABAergic neurons[1]. ?Homocarnosine is a potent alternative imidazole peptide for skeletal muscle based on its structural similarity to Carnosine. Homocarnosine is composed of γ-aminobutyric acid (GABA) and histidine and has a similar structure to Carnosine, with the only difference being an extra carbon atom in GABA compared to that in β-alanine of carnosine. Homocarnosine possesses greater tolerance to degradation by serum carnosinase relative to Carnosine. Homocarnosine is known to be exclusively present in brain and cerebrospinal fluid and acts as a neuroprotective agent in a broad range of disease conditions. Homocarnosine exerts antioxidant activity and prevent DNA oxidative damage to a similar extent as Carnosine[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Petroff OA, et al. Vigabatrin increases human brain homocarnosine and improves seizure control. Ann Neurol. 1998;44(6):948-952.

[2]. Kumrungsee T, et al. Dietary GABA induces endogenous synthesis of a novel imidazole peptide homocarnosine in mouse skeletal muscles. Amino Acids. 2020;52(5):743-753.

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