L-Phenylalanine-^{15}N

Cat. No.: HY-N0215S5

CAS No.: 29700-34-3

Molecular Formula: $C_9H_{11}{}^{15}NO_2$

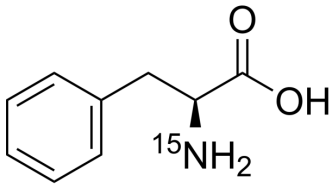
Molecular Weight: 166.18

Target: Calcium Channel; Endogenous Metabolite; iGluR; Isotope-Labeled Compounds

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

Storage:

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



SOLVENT & SOLUBILITY

In Vitro

H_2O : 10 mg/mL (60.18 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	6.0176 mL	30.0879 mL	60.1757 mL
	5 mM	1.2035 mL	6.0176 mL	12.0351 mL
	10 mM	0.6018 mL	3.0088 mL	6.0176 mL

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

BIOLOGICAL ACTIVITY

Description

L-Phenylalanine-^{15}N is the ^{15}N-labeled L-Phenylalanine. L-Phenylalanine ((S)-2-Amino-3-phenylpropionic acid) is an essential amino acid isolated from Escherichia coli. L-Phenylalanine is a α2δ subunit of voltage-dependent Ca+ channels antagonist with a Ki of 980 nM. L-phenylalanine is a competitive antagonist for the glycine- and glutamate-binding sites of N-methyl-D-aspartate receptors (NMDARs) (KB of 573 μM) and non-NMDARs, respectively. L-Phenylalanine is widely used in the production of food flavors and pharmaceuticals[1][2][3][4].

In Vitro

Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. Ann Pharmacother. 2019;53(2):211-216.

[2]. Wu WB, et al. Enhancement of l-phenylalanine production in Escherichia coli by heterologous expression of Vitreoscilla hemoglobin. Biotechnol Appl Biochem. 2018 May;65(3):476-483.

[3]. Mortell KH, et al. Structure-activity relationships of alpha-amino acid ligands for the alpha2delta subunit of voltage-gated calcium channels. Bioorg Med Chem Lett. 2006 Mar 1;16(5):1138-41.

[4]. Glushakov AV, et al. Specific inhibition of N-methyl-D-aspartate receptor function in rat hippocampal neurons by L-phenylalanine at concentrations observed during phenylketonuria. Mol Psychiatry. 2002;7(4):359-67.

[5]. Glushakov AV, et al. L-phenylalanine selectively depresses currents at glutamatergic excitatory synapses. J Neurosci Res. 2003 Apr 1;72(1):116-24.

[6]. Glushakov AV, et al. Long-term changes in glutamatergic synaptic transmission in phenylketonuria. Brain. 2005 Feb;128(Pt 2):300-7.

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