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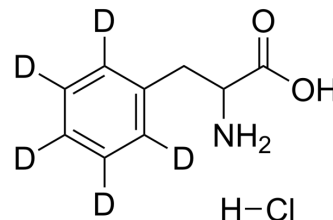
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DL-Phenylalanine-d₅ hydrochloride

Cat. No.:	HY-N0215S6
Molecular Formula:	C ₉ H ₇ D ₅ ClNO ₂
Molecular Weight:	206.68
Target:	Calcium Channel; Endogenous Metabolite; iGluR; Isotope-Labeled Compounds
Pathway:	Membrane Transporter/Ion Channel; Neuronal Signaling; Metabolic Enzyme/Protease; Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	DL-Phenylalanine-d ₅ (hydrochloride) is the deuterium labeled DL-Phenylalanine hydrochloride. L-Phenylalanine hydrochloride is an essential amino acid isolated from Escherichia coli. L-Phenylalanine hydrochloride is a $\alpha_2\delta$ subunit of voltage-dependent Ca ²⁺ channels antagonist with a K _i of 980 nM. L-phenylalanine hydrochloride is a competitive antagonist for the glycine- and glutamate-binding sites of N-methyl-D-aspartate receptors (NMDARs) (K _B of 573 μ M) and non-NMDARs, respectively. L-Phenylalanine hydrochloride 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.

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

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