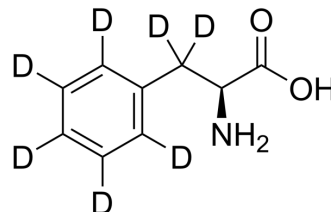


## L-Phenylalanine-d<sub>7</sub>

<b>Cat. No.:</b>	HY-N0215S
<b>CAS No.:</b>	69113-60-6
<b>Molecular Formula:</b>	C <sub>9</sub> H <sub>4</sub> D <sub>7</sub> NO <sub>2</sub>
<b>Molecular Weight:</b>	172.23
<b>Target:</b>	Calcium Channel; iGluR; Endogenous Metabolite; Isotope-Labeled Compounds
<b>Pathway:</b>	Membrane Transporter/Ion Channel; Neuronal Signaling; Metabolic Enzyme/Protease; Others
<b>Storage:</b>	Please store the product under the recommended conditions in the Certificate of Analysis.



### BIOLOGICAL ACTIVITY

<b>Description</b>	L-Phenylalanine-d <sub>7</sub> is the deuterium labeled L-Phenylalanine. L-Phenylalanine ((S)-2-Amino-3-phenylpropionic acid) is an essential amino acid isolated from Escherichia coli. L-Phenylalanine is a $\alpha_2\delta$ subunit of voltage-dependent Ca <sup>+</sup> channels antagonist with a K <sub>i</sub> of 980 nM. L-phenylalanine is a competitive antagonist for the glycine- and glutamate-binding sites of N-methyl-D-aspartate receptors (NMDARs) (K <sub>B</sub> of 573 $\mu$ M) and non-NMDARs, respectively. L-Phenylalanine is widely used in the production of food flavors and pharmaceuticals[1][2][3][4].
<b>IC<sub>50</sub> &amp; Target</b>	NMDA Receptor
<b>In Vitro</b>	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 <sup>[1]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

### REFERENCES

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- [2]. Glushakov AV, et al. L-phenylalanine selectively depresses currents at glutamatergic excitatory synapses. *J Neurosci Res*. 2003 Apr 1;72(1):116-24.
- [3]. 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.
- [4]. 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.
- [5]. 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.
- [6]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. *Ann Pharmacother*. 2019;53(2):211-216.

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

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