

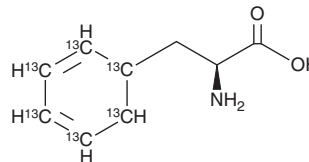
# PRODUCT INFORMATION



## L-Phenylalanine-<sup>13</sup>C<sub>6</sub>

Item No. 35195

**CAS Registry No.:** 180268-82-0  
**Formal Name:** L-phenylalanine-1,2,3,4,5,6-<sup>13</sup>C<sub>6</sub>  
**Synonym:** (-)-Phenylalanine-<sup>13</sup>C<sub>6</sub>  
**MF:** C<sub>3</sub>[<sup>13</sup>C]<sub>6</sub>H<sub>11</sub>NO<sub>2</sub>  
**FW:** 171.2  
**Chemical Purity:** ≥90% (Phenylalanine)  
**Deuterium Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>6</sub>); ≤1% d<sub>0</sub>  
**Supplied as:** A solid  
**Storage:** -20°C  
**Stability:** ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

L-Phenylalanine-<sup>13</sup>C<sub>6</sub> is intended for use as an internal standard for the quantification of phenylalanine by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

L-Phenylalanine-<sup>13</sup>C<sub>6</sub> is supplied as a solid. A stock solution may be made by dissolving the L-phenylalanine-<sup>13</sup>C<sub>6</sub> in water. We do not recommend storing the aqueous solution for more than one day.

### Description

L-Phenylalanine is an essential amino acid.<sup>1-3</sup> Blood and brain levels of L-phenylalanine are increased and associated with progressive cognitive impairments, seizures, motor deficits, and autism in patients with phenylketonuria, an inborn error of metabolism characterized by mutations in the gene encoding phenylalanine hydroxylase (PAH). L-Phenylalanine inhibits NMDA-induced currents in primary rat hippocampal neurons (IC<sub>50</sub> = 1.71 mM).<sup>1</sup> It also assembles into fibrils *in vitro* that are cytotoxic to PC12 and CHO cells when used at concentrations ranging from 1.16 to 15 mM.<sup>3</sup>

### References

1. Glushakov, A.V., Dennis, D.M., Morey, T.E., *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* **7**(4), 359-367 (2002).
2. Blau, N., van Spronsen, F.J., and Levy, H.L. Phenylketonuria. *Lancet* **376**(9750), 1417-1427 (2010).
3. Adler-Abramovich, L., Vaks, L., Carny, O., *et al.* Phenylalanine assembly into toxic fibrils suggests amyloid etiology in phenylketonuria. *Nat. Chem. Biol.* **8**(8), 701-706 (2012).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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