# Small Molecules

**L-DOPA**

Dopamine precursor

Catalog #100-0890

5 g

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## Product Description

L-DOPA exhibits analgesic properties and is a precursor of dopamine (Mena et al.; Park et al.; Rekdal et al.). It has also been the gold standard in Parkinson's disease treatments for over 50 years. It selectively crosses the blood-brain barrier, whereas dopamine cannot (LeWitt). L-DOPA lowers the number of tyrosine hydroxylase-positive neurons in fetal rat midbrain (Mena et al.).

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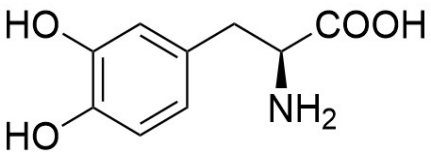
| Alternative Names: | 3,4-Dihydroxyphenylalanine; Levodopa |
| CAS Number: | 59-92-7 |
| Chemical Formula: | $C_9H_{11}NO_4$ |
| Molecular Weight: | 197.2 g/mol |
| Purity: | ≥ 95% |
| Chemical Name: | 3-hydroxy-L-tyrosine |
| Structure: | |




## Properties

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| Physical Appearance: | A crystalline solid |
| Storage: | Product stable at room temperature (15 - 25°C) as supplied. Protect product from prolonged exposure to light. For long-term storage, store with a desiccant. Stable as supplied for 12 months from date of receipt. |
| Solubility: | · Water ≤ 50 mM<br>· 0.5 M HCl ≤ 50 mM<br>For example, to prepare a 10 mM stock solution in water, resuspend 1 g in 507 mL of water.<br>Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in water at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.<br>For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. |

## Published Applications

DISEASE MODELING
· Prevents peripheral synthesis of dopamine from levodopa when co-administered with carbidopa and levodopa in rats (Park et al.).

## References

LeWitt (2015) Levodopa therapy for Parkinson's Disease: Pharmacokinetics and Pharmacodynamics Mov Disord 30(1): 64–72.

Maini Rekdal V et al. (2019) Discovery and inhibition of an interspecies gut bacterial pathway for Levodopa metabolism. Science 364(6445): eaau6323.

Mena MA et al. (1993) Levodopa toxicity in foetal rat midbrain neurons in culture: modulation by ascorbic acid. Neuroreport 4(4): 438–40.

Park HJ et al. (2013) Anti-allodynic effects of levodopa in neuropathic rats. Yonsei Med J 54(2): 330–5.

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).