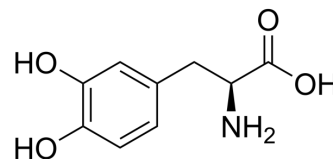


## L-DOPA

<b>Cat. No.:</b>	HY-N0304
<b>CAS No.:</b>	59-92-7
<b>Molecular Formula:</b>	C <sub>9</sub> H <sub>11</sub> NO <sub>4</sub>
<b>Molecular Weight:</b>	197.19
<b>Target:</b>	Endogenous Metabolite; Dopamine Receptor
<b>Pathway:</b>	Metabolic Enzyme/Protease; GPCR/G Protein; Neuronal Signaling
<b>Storage:</b>	4°C, stored under nitrogen * The compound is unstable in solutions, freshly prepared is recommended.



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	0.1 M HCL : 20 mg/mL (101.43 mM; ultrasonic and warming and adjust pH to 2 with HCl and heat to 60°C) H <sub>2</sub> O : 1 mg/mL (5.07 mM; Need ultrasonic)																					
	<table border="1"> <thead> <tr> <th rowspan="2">Solvent</th> <th rowspan="2">Mass</th> <th colspan="3">Concentration</th> </tr> <tr> <th>1 mg</th> <th>5 mg</th> <th>10 mg</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Preparing Stock Solutions</td> <td>1 mM</td> <td>5.0713 mL</td> <td>25.3563 mL</td> <td>50.7125 mL</td> </tr> <tr> <td>5 mM</td> <td>1.0143 mL</td> <td>5.0713 mL</td> <td>10.1425 mL</td> </tr> <tr> <td>10 mM</td> <td>0.5071 mL</td> <td>2.5356 mL</td> <td>5.0713 mL</td> </tr> </tbody> </table>	Solvent	Mass	Concentration			1 mg	5 mg	10 mg	Preparing Stock Solutions	1 mM	5.0713 mL	25.3563 mL	50.7125 mL	5 mM	1.0143 mL	5.0713 mL	10.1425 mL	10 mM	0.5071 mL	2.5356 mL	5.0713 mL
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	Please refer to the solubility information to select the appropriate solvent.																					
<b>In Vivo</b>	1. Add each solvent one by one: PBS Solubility: 3.33 mg/mL (16.89 mM); Clear solution; Need ultrasonic and warming and heat to 60°C																					

### BIOLOGICAL ACTIVITY

<b>Description</b>	L-DOPA (Levodopa) is an orally active metabolic precursor of neurotransmitters dopamine. L-DOPA can cross the blood-brain barrier and is converted into dopamine in the brain. L-DOPA has anti-allodynic effects and the potential for Parkinson's disease <sup>[1][2][3]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	Human Endogenous Metabolite
<b>In Vivo</b>	L-DOPA can be used in animal modeling to construct a rat model of dyskinesia.  L-DOPA (20 mg/kg; oral) reduces Rotenone-induced motor dysfunction <sup>[3]</sup> . L-DOPA (10, 30, 50, 70, and 100 mg/kg; oral) reverses tactile, cold and heat allodynia in neuropathic rat without any side effect in sprague-Dawley rats <sup>[4]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	7-week-old C57BL/6J mice <sup>[3]</sup>
Dosage:	20 mg/kg
Administration:	Orally
Result:	Reduced Rotenone-induced motor dysfunction.

Animal Model:	Sprague-Dawley rats (male 100-150 g) <sup>[4]</sup>
Dosage:	10, 30, 50, 70, and 100 mg/kg
Administration:	Orally
Result:	Reverses tactile, cold and heat allodynia in neuropathic rat without any side effect.

## CUSTOMER VALIDATION

- Int J Biol Macromol. 2020 Jun 15;153:88-99.
- Antioxidants (Basel). 2022, 11(7), 1317.
- Nutrients. 2022, 14(21), 4678
- Int J Mol Sci. 2022, 23(20), 12420.
- CNS Neurosci Ther. 2023 Apr 26.

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## REFERENCES

- [1]. Hyland K, et al. Aromatic L-amino acid decarboxylase deficiency: diagnostic methodology. Clin Chem. 1992 Dec;38(12):2405-10.
- [2]. Merims D, et al. Dopamine dysregulation syndrome, addiction and behavioral changes in Parkinson's disease. Parkinsonism Relat Disord. 2008;14(4):273-80. Epub 2007 Nov 7.
- [3]. Perez-Pardo P, et al. Additive Effects of Levodopa and a Neurorestorative Diet in a Mouse Model of Parkinson's Disease. Front Aging Neurosci. 2018 Aug 3;10:237.
- [4]. Park HJ, et al. Anti-allodynic effects of levodopa in neuropathic rats. Yonsei Med J. 2013 Mar 1;54(2):330-5.

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

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