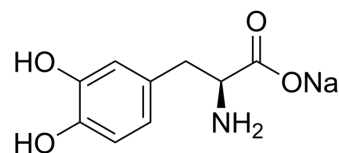


## L-DOPA sodium

<b>Cat. No.:</b>	HY-N0304A
<b>CAS No.:</b>	63302-01-2
<b>Molecular Formula:</b>	C <sub>9</sub> H <sub>10</sub> NNaO <sub>4</sub>
<b>Molecular Weight:</b>	219.17
<b>Target:</b>	Dopamine Receptor; Endogenous Metabolite
<b>Pathway:</b>	GPCR/G Protein; Neuronal Signaling; Metabolic Enzyme/Protease
<b>Storage:</b>	Please store the product under the recommended conditions in the Certificate of Analysis.



### BIOLOGICAL ACTIVITY

<b>Description</b>	L-DOPA (Levodopa) sodium is an orally active metabolic precursor of neurotransmitters dopamine. L-DOPA sodium can cross the blood-brain barrier and is converted into dopamine in the brain. L-DOPA sodium has anti-allodynic effects, and can be used for Parkinson's disease research <sup>[1][2][3]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	Human Endogenous Metabolite
<b>In Vivo</b>	<p>L-DOPA sodium (20 mg/kg; orally) reduces Rotenone-induced motor dysfunction<sup>[3]</sup>.</p> <p>L-DOPA sodium (0-100 mg/kg; orally) reverses tactile, cold and heat allodynia in neuropathic rat without any side effect in sprague-Dawley rats<sup>[4]</sup>. In adult common marmosets (<i>Callithrix jacchus</i>, 2-3 years old, 270-350 g), L-DOPA (20/5 mg/kg, p.o.) shows the T<sub>max</sub> was 30 min in plasma and 60-90 min in extracellular fluid (ECF) of striatum. Mean C<sub>max</sub> was 20.3 μM in plasma and 442.9 nM in ECF of striatum, which is about 2.2% of that in plasma<sup>[6]</sup>.</p> <p>Induction of dyskinesia model<sup>[5]</sup></p> <p>Background</p> <p>L-DOPA-induced dyskinesia results from a pulsatile stimulation of brain dopamine (DA) receptors, triggering a complex cascade of molecular and synaptic alterations within the basal ganglia<sup>[5]</sup>.</p> <hr/> <p>Specific Modeling Methods</p> <div style="background-color: #fff9c4; padding: 10px; border: 1px solid #ccc;"> <p>Mice: C57Bl/6 mice?•?male?• 8 weeks (period: 21 days)</p> <p>Administration: 20 mg/kg?•?ip?•?once daily for 21 days</p> </div> <div style="background-color: #fff9c4; padding: 10px; border: 1px solid #ccc; margin-top: 10px;"> <p><b>Note</b></p> <p>(1) sustained unilateral 6-OHDA injections in the striatum before starting treatment.</p> <p>(2) Injection volume is 10mL/kg body weight.</p> </div> <p>Modeling Record</p>

Behavioral changes: Shows developed abnormal involuntary movements (AIMs) affecting the head, trunk and forelimb on the side contralateral to the lesion.

Correlated Product(s): Oxidopamine hydrochloride (HY-B1081)  
Oxidopamine hydrobromide (HY-B1081A)

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	C57BL/6J mice (7-week-old) <sup>[3]</sup>
Dosage:	20 mg/kg
Administration:	Orally
Result:	Reduced Rotenone-induced motor dysfunction.
Animal Model:	Sprague-Dawley rats <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.
- Biomed Pharmacother. 2024 Apr 27;175:116664.
- Free Radic Biol Med. 2024 May 6;S0891-5849(24)00437-4.
- Antioxidants (Basel). 2022, 11(7), 1317.
- Nutrients. 2022, 14(21), 4678

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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.
- [5]. M Lundblad, et al. Pharmacological validation of a mouse model of l-DOPA-induced dyskinesia. Exp Neurol. 2005 Jul;194(1):66-75.
- [6]. Jie Zhang, et al. Pharmacokinetics of L-dopa in plasma and extracellular fluid of striatum in common marmosets. Brain Res. 2003 Dec 12;993(1-2):54-8.

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

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