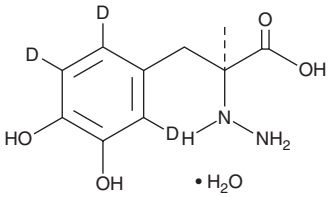
PRODUCT INFORMATION

Carbidopa-d_3 (hydrate)

Item No. 34884

CAS Registry No.:	1276197-58-0
Formal Name:	(αS)-α-hydrazinyl-3,4-dihydroxy-α-methyl-benzenepropanoic-2,5,6-d_3 acid, monohydrate
MF:	$C_{10}H_{11}D_3N_2O_4 \bullet H_2O$
FW:	247.3
Chemical Purity:	≥98% (Carbidopa)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_3); ≤1% d_0
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

Carbidopa-d_3 (hydrate) is intended for use as an internal standard for the quantification of carbidopa (Item No. 23783) 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).

Carbidopa-d_3 (hydrate) is supplied as a solid. A stock solution may be made by dissolving the carbidopa-d_3 (hydrate) in the solvent of choice, which should be purged with an inert gas. Carbidopa-d_3 (hydrate) is slightly soluble in methanol and DMSO.

Description

Carbidopa is a peripherally restricted inhibitor of dopamine decarboxylase, the enzyme that converts L-DOPA (Item No. 13248) to dopamine.[1] Administration of carbidopa (100 mg/kg) prior to administration of L-DOPA in dogs increases the plasma concentration of L-DOPA by 186% and prolongs the half-life in plasma by 48% and skeletal muscle extracellular fluid by 66%.[2] Carbidopa also binds to and potentiates the activity of the aryl hydrocarbon receptor (AhR).[3] It inhibits the proliferation of pancreatic cancer cells *in vitro* and tumor growth *in vivo*. Formulations containing carbidopa are used in combination with L-DOPA in the treatment of Parkinson's disease to increase the amount of dopamine in the brain and reduce peripheral side effects associated with L-DOPA administration.

References

1. Clark, W.G., Oldendorf, W.H., and Dewhurst, W.G. Blood-brain barrier to carbidopa (MK-486) and Ro 4-4602, peripheral dopa decarboxylase inhibitors. *J. Pharm. Pharmacol.* **25(5)**, 416-418 (1973).
2. Deleu, D., Sarre, S., Ebinger, G., *et al.* The effect of carbidopa on the pharmacokinetics and metabolism of intravenously administered levodopa in blood plasma and skeletal muscle. *Naunyn Schmiedebergs Arch. Pharmacol.* **348(6)**, 576-581 (1993).
3. Ogura, J., Miyauchi, S., Shimono, K., *et al.* Carbidopa is an activator of aryl hydrocarbon receptor with potential for cancer therapy. *Biochem J.* **474(20)**, 3391-3402 (2017).

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