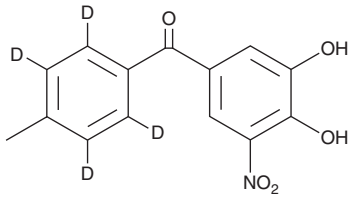
PRODUCT INFORMATION

Tolcapone-d_4

Item No. 28697

CAS Registry No.: 1246816-93-2
Formal Name: (3,4-dihydroxy-5-nitrophenyl)(4-methylphenyl-2,3,5,6-d_4)methanone
MF: $C_{14}H_7D_4NO_5$
FW: 277.3
Chemical Purity: ≥95% (Tolcapone)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_4); ≤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

Tolcapone-d_4 is intended for use as an internal standard for the quantification of tolcapone (Item No. 20768) 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).

Tolcapone-d_4 is supplied as a solid. A stock solution may be made by dissolving the tolcapone-d_4 in the solvent of choice, which should be purged with an inert gas. Tolcapone-d_4 is slightly soluble in methanol and DMSO.

Description

Tolcapone is a reversible inhibitor of catechol-O-methyltransferase (COMT; K_i = 0.27 nM for human recombinant COMT), an enzyme that degrades catecholamines, including dopamine (Item No. 21992) and L-DOPA (Item No. 13248).[1,2] Tolcapone crosses the blood brain barrier and can inhibit both peripheral and central COMT activity.[3,4] By inhibiting COMT, tolcapone increases L-DOPA efficacy and reduces L-DOPA-induced motor complications in animal models of Parkinson's disease.[3]

References

1. Lotta, T., Vidgren, J., Tilgmann, C., *et al.* Kinetics of human soluble and membrane-bound catechol O-methyltransferase: A revised mechanism and description of the thermolabile variant of the enzyme. *Biochemistry* **34(13)**, 4202-4210 (1995).
2. Männistö, P.T. and Kaakkola, S. Catechol-O-methyltransferase (COMT): Biochemistry, molecular biology, pharmacology, and clinical efficacy of the new selective COMT inhibitors. *Pharmacol. Rev.* **51(4)**, 593-628 (1999).
3. Espinoza, S., Managó, F., Leo, D., *et al.* Role of catechol-O-methyltransferase (COMT)-dependent processes in Parkinson's disease and L-DOPA treatment. *CNS Neurol. Disord. Drug Targets* **11(3)**, 251-263 (2012).
4. Männistö, P.T., Tuomainen, P., and Tuominen, R.K. Different *in vivo* properties of three new inhibitors of catechol O-methyltransferase in the rat. *Br. J. Pharmacol.* **105(3)**, 569-574 (1992).

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