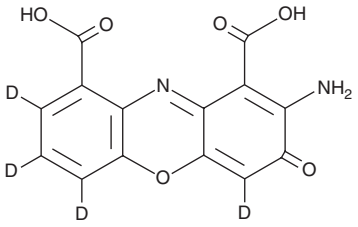
PRODUCT INFORMATION

Cinnabarinic Acid-d_4

Item No. 37209

Formal Name:	2-amino-3-oxo-3H-phenoxazine-4,6,7,8-d_4-1,9-dicarboxylic acid
MF:	$C_{14}H_4D_4N_2O_6$
FW:	304.3
Chemical Purity:	≥95% (Cinnabarinic acid)
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

Cinnabarinic acid-d_4 is intended for use as an internal standard for the quantification of cinnabarinic acid (Item No. 11988) 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).

Cinnabarinic acid-d_4 is supplied as a solid. A stock solution may be made by dissolving the cinnabarinic acid-d_4 in the solvent of choice, which should be purged with an inert gas. Cinnabarinic acid-d_4 is soluble in DMSO.

Description

Cinnabarinic acid is an agonist of metabotropic glutamate receptor 4 (mGluR4) and active metabolite of 3-hydroxyanthranilic acid.[1,2] It is formed *via* two-step oxidation of 3-hydroxyanthranilic acid. Cinnabarinic acid (100 µM) selectively induces inositol phosphate production in HEK293 cells expressing mGluR4 over HEK293 cells expressing mGluR1, mGluR2, mGluR5, mGluR6, mGluR7, or mGluR8.[1] It inhibits D-amino acid oxidase (DAAO) in a cell-free assay (IC_{50} = 1.37 µM).[3] Cinnabarinic acid (30 µM) increases levels of reactive oxygen species (ROS) and induces apoptosis in primary mouse thymocytes.[4]

References

1. Fazio, F., Lionetto, L., Molinaro, G., *et al.* Cinnabarinic acid, an endogenous metabolite of the kynurenine pathway, activates type 4 metabotropic glutamate receptors. *Mol. Pharmacol.* **81(5)**, 643-656 (2012).
2. Subba Rao, P.V. and Vaidyanathan, C.S. Enzymic conversion of 3-hydroxyanthranilic acid into cinnabarinic acid. Partial purification and properties of rat-liver cinnabarinate synthase. *Biochem. J.* **99(2)**, 317-322 (1966).
3. Lefin, R., Petzer, A., Cloete, S.J., *et al.* Phenothiazine, anthraquinone and related tricyclic derivatives as inhibitors of D-amino acid oxidase. *Results Chem.* **4**, 100278 (2022).
4. Hiramatsu, R., Hara, T., Akimoto, H., *et al.* Cinnabarinic acid generated from 3-hydroxyanthranilic acid strongly induces apoptosis in thymocytes through the generation of reactive oxygen species and the induction of caspase. *J. Cell. Biochem.* **103(1)**, 42-53 (2008).

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