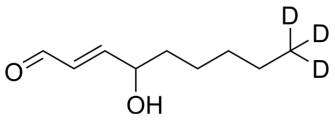
4-Hydroxynonenal-d_3

Cat. No.:	HY-113466S
CAS No.:	148706-06-3
Molecular Formula:	$C_9H_{13}D_3O_2$
Molecular Weight:	159.24
Target:	Aldehyde Dehydrogenase (ALDH); Endogenous Metabolite; Isotope-Labeled Compounds
Pathway:	Metabolic Enzyme/Protease; Others
Storage:	Solution, -20°C, protect from light, 2 years



BIOLOGICAL ACTIVITY

Description	4-Hydroxynonenal-d_3 is the deuterium labeled 4-Hydroxynonenal. 4-Hydroxynonenal (4-HNE) is an α,β unsaturated hydroxyalkenal and an oxidative/nitrosative stress biomarker. 4-Hydroxynonenal is a substrate and an inhibitor of acetaldehyde dehydrogenase 2 (ALDH2). 4-Hydroxynonenal can modulate a number of signaling processes mainly through forming covalent adducts with nucleophilic functional groups in proteins, nucleic acids, and membrane lipids. 4-Hydroxynonenal plays an important role in cancer through mitochondria[1][2][3].
IC_{50} & Target	ALDH2
In Vitro	Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. Ann Pharmacother. 2019;53(2):211-216.

[2]. Zhong H, et al. Role of lipid peroxidation derived 4-hydroxynonenal (4-HNE) in cancer: focusing on mitochondria. Redox Biol. 2015;4:193-9.

[3]. Csala M, et al. On the role of 4-hydroxynonenal in health and disease. Biochim Biophys Acta. 2015 May;1852(5):826-38.

[4]. Bhowmick S, et al. Traumatic brain injury-induced downregulation of Nrf2 activates inflammatory response and apoptotic cell death. J Mol Med (Berl). 2019 Nov 22.

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