Valproic acid-d4 sodium

Cat. No.: HY-10585S3

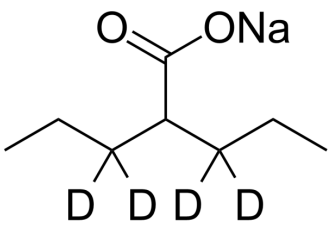
Molecular Formula: $C_8H_{11}D_4NaO_2$

Molecular Weight: 170.22

Target: HDAC; Autophagy; Mitophagy; HIV; Notch; Endogenous Metabolite

Pathway: Cell Cycle/DNA Damage; Epigenetics; Autophagy; Anti-infection; Neuronal Signaling; Stem Cell/Wnt; Metabolic Enzyme/Protease

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Valproic acid-d4 (VPA-d4) sodium is the deuterium labeled Valproic acid. Valproic acid (VPA; 2-Propylpentanoic Acid) is an HDAC inhibitor, with IC_{50} in the range of 0.5 and 2 mM, also inhibits HDAC1 (IC_{50}, 400 μM), and induces proteasomal degradation of HDAC2. Valproic acid activates Notch1 signaling and inhibits proliferation in small cell lung cancer (SCLC) cells. Valproic acid sodium salt is used in the treatment of epilepsy, bipolar disorder and prevention of migraine headaches.
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]. Han BR, et al. Valproic acid inhibits the growth of HeLa cervical cancer cells via caspase-dependent apoptosis. Oncol Rep. 2013 Dec;30(6):2999-3005.

[3]. Zhang ZH, et al. Valproic acid inhibits tumor angiogenesis in mice transplanted with Kasumi 1 leukemia cells. Mol Med Rep. 2013 Nov 28.

[4]. Cohen OS, et al. Acute prenatal exposure to a moderate dose of valproic acid increases social behavior and alters gene expression in rats. Int J Dev Neurosci. 2013 Dec;31(8):740-50.

[5]. Avery LB, et al. Valproic Acid Is a Novel Activator of AMP-Activated Protein Kinase and Decreases Liver Mass, Hepatic Fat Accumulation, and Serum Glucose in Obese Mice. Mol Pharmacol. 2014 Jan;85(1):1-10.

[6]. Valproic acid, et al. Histone deacetylase is a direct target of valproic acid, a potent anticonvulsant, mood stabilizer, and teratogen. J Biol Chem. 2001 Sep 28;276(39):36734-41.

[7]. Platta CS, et al. Valproic acid induces Notch1 signaling in small cell lung cancer cells. J Surg Res. 2008 Jul;148(1):31-7.

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

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