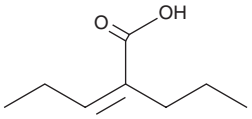
PRODUCT INFORMATION

(E,Z)-2-propyl-2-Pentenoic Acid

Item No. 19591

CAS Registry No.: 60218-41-9
Formal Name: 2-propyl-2-pentenoic acid
Synonyms: 2-propyl-2-Pentenoate, 2-Propylpenten-2-oic Acid, 2-ene-VPA
MF: $C_8H_{14}O_2$
FW: 142.2
Purity: ≥98%
UV/Vis.: λ_{max}: 216 nm
Supplied as: A crystalline 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

(E,Z)-2-propyl-2-Pentenoic acid is supplied as a crystalline solid. A stock solution may be made by dissolving the (E,Z)-2-propyl-2-pentenoic acid in the solvent of choice. (E,Z)-2-propyl-2-Pentenoic acid is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of (E,Z)-2-propyl-2-pentenoic acid in these solvents is approximately 30, 20, and 15 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of (E,Z)-2-propyl-2-pentenoic acid can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of (E,Z)-2-propyl-2-pentenoic acid in PBS, pH 7.2, is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

(E,Z)-2-propyl-2-Pentenoic acid is an active metabolite of the anticonvulsant valproic acid (Item Nos. 35739 | 13033).[1] It is an inhibitor of histone deacetylases (HDACs; IC_{50} = 2.8 mM). (E,Z)-2-propyl-2-Pentenoic acid is also an inhibitor of GABA aminotransferase (GABA-T) and Gsst (K_is = 0.5 and 4 mM, respectively, for the rat enzymes).[2] It enhances acquisition of the conditioned avoidance response in mice when administered at a dose of 6 mg/kg.[3]

Reference

1. Eyal, S., Yagen, B., Shimshoni, J., *et al.* Histone deacetylases inhibition and tumor cells cytotoxicity by CNS-active VPA constitutional isomers and derivatives. *Biochem. Pharmacol.* **69(10)**, 1501-1508 (2005).
2. Maitre, M., Ossola, L., and Mandel, P. In vitro studies into the effect of inhibition of rat brain succinic semialdehyde dehydrogenase on GABA synthesis and degradation. *FEBS Lett.* **72(1)**, 53-57 (1976).
3. Misslin, R., Hinschberger, A., Maitre, M., *et al.* Effects of 2-propyl 2-pentenoic acid on the acquisition of conditioned behavior with negative reinforcement in mice. *Psychopharmacology (Berl)* **50(1)**, 53-54 (1976).

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