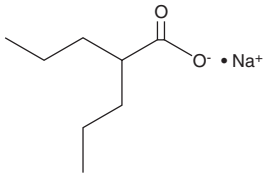
PRODUCT INFORMATION

Valproic Acid (sodium salt)

Item No. 13033

CAS Registry No.: 1069-66-5
Formal Name: 2-propyl-pentanoic acid, monosodium salt
Synonyms: 2-Propylvaleric Acid, Valproate, VPA
MF: $C_8H_{15}O_2 \bullet Na$
FW: 166.2
Purity: ≥95%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Valproic acid (sodium salt) is supplied as a crystalline solid. A stock solution may be made by dissolving the valproic acid (sodium salt) in the solvent of choice. Valproic acid (sodium salt) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of valproic acid (sodium salt) in ethanol is approximately 30 mg/ml and approximately 5 mg/ml in DMSO and DMF.

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 valproic acid (sodium salt) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of valproic acid (sodium salt) in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Valproic acid is an analog of the natural fatty acid valeric acid that inhibits class I histone deacetylases (HDACs) with an IC_{50} value of approximately 2 mM.[1] It decreases the number of axon branches in sensory neurons isolated from newborn rat dorsal root ganglia, an effect that is reversed by inositol-1,4,5-trisphosphate (1,4,5-IP3).[2] *In vivo*, valproic acid inhibits amyloid-β deposition and neuritic plaque formation and decreases escape latency in Morris water maze, indicating improved memory performance, in the APP23 transgenic mouse model of Alzheimer's disease.[3] Valproic acid has anticonvulsant activity in the pentylenetetrazol seizure threshold test in mice (ED_{50} = 0.71 mmol/kg) but induces neurotoxicity when administered at doses greater than or equal to 1.2 mmol/kg.[4] Formulations containing valproic acid have been used in the treatment of bipolar disorder and various seizure disorders.

References

1. Göttlicher, M., Minucci, S., Zhu, P., *et al. EMBO J.* **20(24)**, 6969-6978 (2001).
2. Williams, R.S.B., Cheng, L., Mudge, A.W., *et al. Nature* **417**, 292-295 (2002).
3. Qing, H., He, G., Ly, P.T.T., *et al. J. Exp. Med.* **205(12)**, 2781-2789 (2008).
4. Elmazar, M.M., Hauck, R.S., and Nau, H. *J. Pharm. Sci.* **82(12)**, 1255-1258 (1993).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM