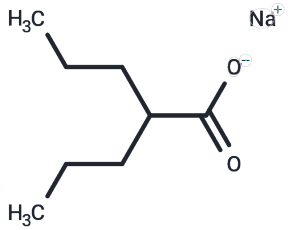
# Data Sheet (Cat.No.T1602)

TargetMol

## Valproic acid sodium salt

### Chemical Properties



CAS No. : 1069-66-5

Formula: C8H15NaO2

Molecular Weight: 166.2

Storage: Keep away from moisture
Pure form: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

### Biological Description

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| Description | Valproic acid sodium salt (Sodium Valproate) is the sodium salt form of valproic acid with anti-epileptic activity. Valproic acid sodium salt is converted into its active form, valproate ion, in blood. Although the mechanism of action remains to be elucidated, Valproic acid sodium salt increases concentrations of gamma-aminobutyric acid (GABA) in the brain, probably due to inhibition of the enzymes responsible for the catabolism of GABA. This potentiates the synaptic actions of GABA. Valproic acid sodium salt may also affect potassium channels, thereby creating a direct membrane-stabilizing effect. |
| Targets(IC50) | Apoptosis,Mitophagy,Gamma-secretase,HIV Protease,GABA Receptor,Endogenous Metabolite,HDAC,Autophagy |
| In vitro | In the MT-450 rat mammary carcinoma model, Valproic acid exhibits a delayed effect on the growth of primary tumors. |
| In vivo | In cultured cells, Valproic acid induces histone deacetylation similarly to the histone deacetylase inhibitor Trichostatin A, and like Trichostatin A, activates the transcription of various exogenous and endogenous promoters. However, in the embryos of vertebrates, both Valproic acid and Trichostatin A exhibit teratogenic effects without activating transcription. Valproic acid directly inhibits histone deacetylases through distinct pathways, with an IC50 of 0.4 mM for HDAC1. It inhibits cell proliferation or survival in F9 and P19 teratocarcinoma cells, as indicated by a decrease in [3H] thymidine incorporation, and promotes peroxisome proliferation in the liver of rodents. At a concentration of 1 mM, Valproic acid inhibits the release of Gal4 fused with N-COR, TR, or PPARδ in cells expressing the DNA binding domain of the glucocorticoid receptor and the ligand-binding domain of PPARδ, along with a GR-controlled reporter gene fusion. Valproic acid reduces the accumulation of acetylated histones and inhibits HDAC activity. Furthermore, Valproic acid induces specific types of differentiation, characterized by decreased proliferation, morphological changes, accumulation of the transcription factor AP-2, and expression of marker genes, where AP-2 serves as a potential marker for neuronal or neuroepithelial-like differentiation in F9 teratocarcinoma cells. |
| Kinase Assay | The activity of caspase-3, -8 and -9 is assessed using the caspase-3, -8 and -9 colorimetric assay kits, respectively. In brief, 1×106?cells in a 60-mm culture dish are incubated with 10 mM Valproic acid for 24 h. The cells are then washed in PBS and |

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| Kinase Assay | suspended in 5 volumes of lysis buffer provided with the kit. Protein concentrations are determined using the Bradford method. Supernatants containing 50 μg total protein are used to determine caspase-3, -8 and -9 activities. The supernatants are added to each well in 96-well microtiter plates with DEVD-pNA, IETD-pNA or LEHD-pNA as caspase-3, -8 and -9 substrates and the plates are incubated at 37°C for 1 h. The optical density of each well is measured at 405 nm using a microplate reader. The activity of caspase-3, -8 and -9 is expressed in arbitrary absorbance units. |
| Cell Research | Valproic acid is dissolved in DMSO. In brief, 5×105?cells are seeded in 96-well microtiter plates for MTT assays. After exposure to the designated doses of Valproic acid for the indicated times, MTT solution [20 mL: 2 mg/mL in phosphate-buffered saline (PBS)] is added to each well of the 96-well plates. The plates are additionally incubated for 3 h at 37°C. Medium is withdrawn from the plates by pipetting and 200 mL DMSO is added to each well to solubilize the formazan crystals. The optical density is measured at 570 nm using a microplate reader. |

## Solubility Information

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| Solubility | DMSO: 25 mg/mL (150.42 mM),Sonication is recommended.<br>H2O: 16.6 mg/mL (99.88 mM),Sonication is recommended.<br>(< 1 mg/ml refers to the product slightly soluble or insoluble) |

Preparing Stock Solutions

| | 1mg | 5mg | 10mg |
|---|---|---|---|
| 1 mM | 6.0168 mL | 30.0842 mL | 60.1685 mL |
| 5 mM | 1.2034 mL | 6.0168 mL | 12.0337 mL |
| 10 mM | 0.6017 mL | 3.0084 mL | 6.0168 mL |
| 50 mM | 0.1203 mL | 0.6017 mL | 1.2034 mL |

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Phiel CJ, et al. J Biol Chem, 2001, 276(39), 36734-36741.
Bakar N A, Ibrahim W N W, Zulkiflli A R, et al.Embryonic mercury exposure in zebrafish: Alteration of metabolites and gene expression, related to visual and behavioral impairments.Ecotoxicology and Environmental Safety.2023, 256: 114862.
Göttlicher M, et al. EMBO J, 2001, 20(24), 6969-6978.