

Small Molecules

Valproic Acid

Epigenetic modifier; Inhibits histone deacetylase (HDAC)1

Catalog # 72292

500 mg



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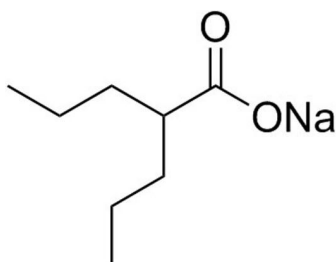
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Product Description

Valproic Acid (VPA) is a short-chain fatty acid that acts as an epigenetic modifier by inhibiting histone deacetylases (HDACs) with IC_{50} values ranging from about 0.4 - 3 mM. VPA can also increase γ -aminobutyric acid (GABA) levels via inhibition of succinic semialdehyde dehydrogenase and other enzymes involved in GABA metabolism. Additional effects include depletion of cellular inositol by inhibiting myo-inositol-1-phosphate synthase (Gottlicher et al.; Khan et al.; Phiel et al.; Rosenberg). This product is supplied as a sodium salt of the molecule.

Molecular Name:	Valproic Acid (Sodium Salt)
Alternative Names:	2-Propylvaleric acid; Sodium valproate; VPA
CAS Number:	1069-66-5
Chemical Formula:	$C_8H_{15}O_2 \cdot Na$
Molecular Weight:	166.2 g/mol
Purity:	$\geq 95\%$
Chemical Name:	2-propyl-pentanoic acid, monosodium salt
Structure:	



Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. For product expiry date, please contact techsupport@stemcell.com.
Solubility:	<ul style="list-style-type: none">· PBS (pH 7.2) ≤ 60 mM· DMSO ≤ 30 mM· Absolute ethanol ≤ 180 mM For example, to prepare a 10 mM stock solution in PBS, resuspend 100 mg in 60.2 mL of PBS (pH 7.2).

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C . Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

MAINTENANCE AND SELF-RENEWAL

- Mediates ex vivo expansion of cord blood CD34+ hematopoietic stem and progenitor cells (Chaurasia et al.).
- Promotes the proliferation and self-renewal of human and mouse hematopoietic progenitor cells (Bug et al., De Felice et al.).

REPROGRAMMING

- Enables chemical reprogramming (without genetic factors) of mouse embryonic fibroblasts to induced pluripotent stem (iPS) cells, in combination with CHIR99021, Forskolin, Tranylcypromine, 3-Deazaneplanocin A, and RepSox (Hou et al.).
- Increases the reprogramming efficiency of mouse embryonic fibroblasts to iPS cells (Huangfu et al. 2008a).
- Promotes reprogramming of human fibroblasts to iPS cells using only 2 factors, OCT4 and SOX2 (Huangfu et al. 2008b).
- Direct lineage reprogramming of fibroblasts to mature neurons, in combination with CHIR99021, RepSox, Forskolin, SP600125, Gö6983 and Y-27632 (Hu et al.).

DIFFERENTIATION

- Promotes differentiation of neurons and suppresses differentiation of astrocytes and oligodendrocytes from rat neural progenitor cells (Hsieh et al., Jung et al.).
- Promotes osteogenic differentiation of human mesenchymal stem cells (Cho et al.).

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