



# SZABO SCANDIC

Part of Europa Biosite

## Produktinformation



Forschungsprodukte & Biochemikalien



Zellkultur & Verbrauchsmaterial



Diagnostik & molekulare Diagnostik



Laborgeräte & Service

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### Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

### SZABO-SCANDIC HandelsgmbH

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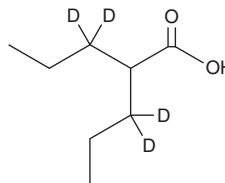
# PRODUCT INFORMATION



## Valproic Acid-d<sub>4</sub>

Item No. 39966

**CAS Registry No.:** 87745-17-3  
**Formal Name:** 2-(propyl-1,1-d<sub>2</sub>)-pentanoic-3,3-d<sub>2</sub> acid  
**Synonyms:** 2-Propylvaleric Acid-d<sub>4</sub>, Valproate-d<sub>4</sub>, VPA-d<sub>4</sub>  
**MF:** C<sub>8</sub>H<sub>12</sub>D<sub>4</sub>O<sub>2</sub>  
**FW:** 148.2  
**Chemical Purity:** ≥98% (Valproic Acid)  
**Deuterium Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>4</sub>); ≤1% d<sub>0</sub>  
**Supplied as:** A solution in methyl acetate  
**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-d<sub>4</sub> is intended for use as an internal standard for the quantification of valproic acid (Item Nos. 35739 | 13033) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

Valproic acid-d<sub>4</sub> is supplied as a solution in methyl acetate. To change the solvent, simply evaporate the methyl acetate under a gentle stream of nitrogen and immediately add the solvent of choice. Valproic acid-d<sub>4</sub> is soluble in methanol.

### Description

Valproic acid is an analog of the natural fatty acid valeric acid that inhibits class I histone deacetylases (HDACs) with IC<sub>50</sub> values of approximately 2 mM.<sup>1</sup> 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-IP<sub>3</sub>).<sup>2</sup> *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.<sup>3</sup> Valproic acid has anticonvulsant activity in the pentylenetetrazole seizure threshold test in mice (ED<sub>50</sub> = 0.71 mmol/kg) but induces neurotoxicity when administered at doses greater than or equal to 1.2 mmol/kg.<sup>4</sup> Formulations containing valproic acid have been used in the treatment of bipolar disorder and various seizure disorders.

### References

- Göttlicher, M., Minucci, S., Zhu, P., *et al.* Valproic acid defines a novel class of HDAC inhibitors inducing differentiation of transformed cells. *EMBO J.* **20(24)**, 6969-6978 (2001).
- Williams, R.S.B., Cheng, L., Mudge, A.W., *et al.* A common mechanism of action for three mood-stabilizing drugs. *Nature* **417(6886)**, 292-295 (2002).
- Qing, H., He, G., Ly, P.T., *et al.* Valproic acid inhibits Aβ production, neuritic plaque formation, and behavioral deficits in Alzheimer's disease mouse models. *J. Exp. Med.* **205(12)**, 2781-2789 (2008).
- Elmazar, M.M., Hauck, R.S., and Nau, H. Anticonvulsant and neurotoxic activities of twelve analogues of valproic acid. *J. Pharm. Sci.* **82(12)**, 1255-1258 (1993).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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