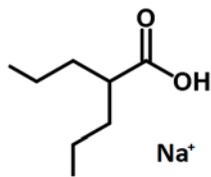




Product Specification Sheet

Product Name	Stemolecule™ Valproic Acid
Description	Stemolecule Valproic Acid (VPA) is a cell-permeable, small molecule that has been shown to affect several pathways. VPA is a histone deacetylase (HDAC) inhibitor which improves reprogramming efficiency by at least 100 fold ¹ . VPA also has been found to affect both the Extracellular Signal-Regulated Kinase (ERK), Protein Kinase C (PKC), and the Wnt/ β -Catenin pathways. VPA has been reported to regulate the differentiation and proliferation of various cells, including mesenchymal and hematopoietic stem cells, neuroblastoma cells, primary neurons and neural progenitor cells (NPCs) ² . In the case of hepatic differentiation of mouse embryonic stem cells, Valproic Acid in combination with cytokines differentiate cells into a uniform and homogeneous cell population of hepatic progenitor cells followed by maturation into functional hepatocytes ³ .
Catalog Number	04-0007
Size	5 g
Alternate Name	sodium 2-propylpentanoate
Chemical Formula	$C_8H_{15}NaO_2$
Structure	
Molecular Weight	166.2
CAS Number	1069-66-5
Purity	Greater than 98% by gas chromatography
Formulation	White crystalline solid
Solubility	For a 10 mM concentrated stock solution of Valproic Acid, add 3.01 ml of DMSO to 5 mg of the compound. If precipitate is observed, warm the solution to 37°C for 2 to 5 minutes. For cell culture, the media should be prewarmed prior to adding the reconstituted compound. Note: for most cells, the maximum tolerance to DMSO is less than 0.5%. This molecule is soluble in DMSO at 100 mM and water at 300 mM.
Storage and Stability	Store powder at 4°C protected from light. Following reconstitution, store aliquots at -20°C. Stock solutions are stable for 6 months when stored as directed.
Quality Control	The purity of VPA was determined by gas chromatography. The accurate mass was determined by mass spectrometry. Cellular toxicity of VPA was tested on mouse embryonic stem cells.

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Product Specification Sheet

References

1. Huangfu, D., Maehr, R., Guo, W., Eijkelenboom, A., Snitow, M., Chen, A., and Melton, D. (2009) Induction of pluripotent stem cells by defined factors is greatly improved by small-molecule compounds. *Nat Biotech* 26: 795-797.
2. Jung, G., Yoon, J., Moon, B., Yang, D., Kim, H., Lee, S., Bryja, V., Arenas, E., and Choi, K. (2008) Valproic acid induces differentiation and inhibition of proliferation in neural progenitor cells via the beta-catenin-Ras-ERK-p21^{Cip/WAF1} pathway. *BMC Cell Biology* 9: 6611-6612.
3. Dong, X., Zhang, G., Zhou, Q., Pan, R., Chen, Y., Xizng, L., and Shao, J. (2009) Direct hepatic differentiation of mouse embryonic stem cells induced by valproic acid and cytokines. *World J of Gastroenterology* 15: 5165-5175.

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