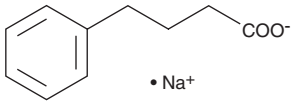
PRODUCT INFORMATION

Sodium 4-Phenylbutyrate

Item No. 11323

CAS Registry No.: 1716-12-7
Formal Name: benzenebutanoic acid, monosodium salt
Synonyms: Benzenebutanoic Acid, NSC 657802, TriButyrate
MF: $C_{10}H_{11}O_2 \bullet Na$
FW: 186.2
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

Sodium 4-phenylbutyrate is supplied as a crystalline solid. A stock solution may be made by dissolving the sodium 4-phenylbutyrate in the solvent of choice. Sodium 4-phenylbutyrate is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of sodium 4-phenylbutyrate in these solvents is approximately 10, 1.6, and 0.33 mg/ml, respectively.

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 sodium 4-phenylbutyrate can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of sodium 4-phenylbutyrate in PBS, pH 7.2, is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Sodium 4-phenylbutyrate is a chemical chaperone that has been shown to rescue the trafficking of misfolded proteins.[1,2] It also weakly blocks histone deacetylase activity (IC_{50} = 0.4 mM), which results in cell cycle arrest, differentiation, and/or apoptosis of various tumors.[3,4] Formulations containing sodium 4-phenylbutyrate have been used for the treatment of urea cycle disorders.[5]

References

1. Stewart, G.A., Ridscale, R., Martin, E.P., *et al.* 4-Phenylbutyric acid treatment rescues trafficking and processing of a mutant surfactant protein-C. *Am. J. Respir. Cell Mol. Biol.* **47(3)**, 324-331 (2012).
2. Bradbury, N.A. Focus on "sodium 4-phenylbutyrate downregulates Hsc70: Implications for intracellular trafficking of DF508-CFTR". *Am. J. Physiol. Cell Physiol.* **278(2)**, 257-258 (2000).
3. Lu, Q., Wang, D.-S., Chen, C.-S., *et al.* Structure-based optimization of phenylbutyrate-derived histone deacetylase inhibitors. *J. Med. Chem.* **48**, 5530-5535 (2005).
4. Ammerpohl, O., Trauzold, A., Schniewind, B., *et al.* Complementary effects of HDAC inhibitor 4-PB on gap junction communication and cellular export mechanisms support restoration of chemosensitivity of PDAC cells. *Br. J. Cancer* **96(1)**, 73-81 (2007).
5. Griffiths, E.A. and Gore, S.D. DNA methyltransferase and histone deacetylase inhibitors in the treatment of myelodysplastic syndromes. *Semin. Hematol.* **45(1)**, 23-30 (2008).

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