

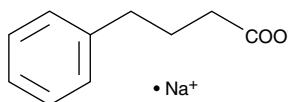
Product Information



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: $C_{10}H_{11}O_2 \cdot Na$
FW: 186.2
Purity: $\geq 98\%$
Stability: ≥ 2 years at $-20^\circ C$
Supplied as: A crystalline solid



Laboratory Procedures

For long term storage, we suggest that sodium 4-phenylbutyrate be stored as supplied at $-20^\circ C$. It should be stable for at least two years.

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.

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} Sodium 4-phenylbutyrate has been tested in clinical trials for the treatment of recurrent malignant gliomas and myelodysplastic syndrome and has long been used for treating 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 $\Delta F508$ -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).

Related Products

For a list of related products please visit: www.caymanchem.com/catalog/11323

WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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