Small Molecules

Sodium Butyrate

Epigenetic modifier; Inhibits histone deacetylase

Catalog # 72242

500 mg

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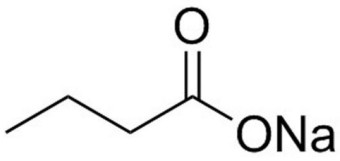
Product Description

Sodium Butyrate is the sodium salt of butyric acid, a short chain fatty acid that inhibits histone deacetylases (HDACs), leading to hyperacetylation of histones. This causes changes in chromatin structure and gene expression, resulting in many biological effects (Boffa et al.; Kruh). This strongly odorous compound is found in the digestive tract, as it is produced by the intestinal microbiota (Wong et al.). Sodium Butyrate, along with other short chain fatty acids, is absorbed from the gut and is reported to regulate the immune system (Cait et al.).

Molecular Name:	Sodium Butyrate
Alternative Names:	Butanoic acid; Butyric acid, sodium salt
CAS Number:	156-54-7
Chemical Formula:	$C_4H_7O_2 \cdot Na$
Molecular Weight:	110.1 g/mol
Purity:	≥ 95%
Chemical Name:	Not applicable
Structure:	

Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at room temperature (15 - 25°C) as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.
Solubility:	· PBS (pH 7.2) ≤ 90 mM · Absolute ethanol ≤ 45 mM For example, to prepare a 10 mM stock solution in PBS, resuspend 100 mg in 90.8 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 absolute ethanol 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 ethanol concentration above 0.1% due to potential cell toxicity.

Published Applications

MAINTENANCE AND SELF-RENEWAL
· Supports self-renewal of mouse and human ES cells, in the absence of exogenously added growth factors (Ware et al.).
REPROGRAMMING
· Promotes reprogramming of human somatic cells to induced pluripotent stem (iPS) cells using only a single factor, OCT4 (Zhu et al.).
DIFFERENTIATION
· Promotes differentiation to hepatocytes from mouse and human embryonic stem (ES) cells (Hay et al.; Zhou et al.).
· Promotes differentiation to definitive endoderm and islet-like cells from human ES cells (Jiang et al.).
· Enhances osteogenic and suppresses adipogenic differentiation from human mesenchymal cells (Chen et al.; Lee et al.).

References

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Zhou M et al. (2010) Differentiation of mouse embryonic stem cells into hepatocytes induced by a combination of cytokines and sodium butyrate. J Cell Biochem 109(3): 606–14.
Zhu S et al. (2010) Reprogramming of human primary somatic cells by OCT4 and chemical compounds. Cell Stem Cell 7(6): 651–5.

Related Small Molecules

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).