

Product Data Sheet

Product Name: Spermine

Cat. No.: GC14953

Chemical Properties

Cas. No. 71-44-3

Chemical Name N1,N4-bis(3-aminopropyl)-1,4-butanediamine

SMILES NCCCNCCCCNCCCN

Formula C₁₀H₂₆N₄

M.Wt 202.3

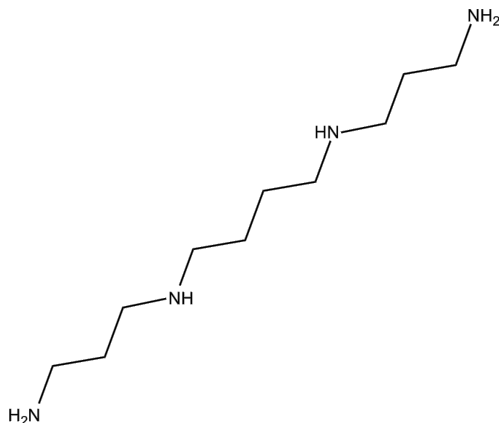
Solubility ≤50mg/ml in Water

Storage 4°C, away from moisture and light

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Background

Spermine is an endogenous polyamine involved in cellular metabolism found in all eukaryotic cells. Spermine is required for eukaryotic cell growth and protein synthesis. Spermine functions as physiological blockers of inward rectifier K⁺ channels [1].

Inward rectifier K⁺ channels mediate the K⁺ conductance at resting potential in many types of cell. Inward rectifier K⁺ channels play an important role in controlling excitability [1].

Caution: Product has not been fully validated for medical applications. For research use only.

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Spermine blocked cloned inward rectifier K⁺ channels IRK1 with the IC₅₀ of 31 nM clamped at 50 mV membrane potential [1]. Physiological concentrations of free spermine (10 μM) mediated strong rectification of IRK1 inward rectifier K⁺ channels even in the absence of free Mg²⁺ and in IRK1 mutant channels that have no endogenous rectification [1].

High dose level of spermine induced a great number of changes, such as emaciation, aggressiveness, convulsions and paralysis of the hind legs in Wistar rats. Spermine considerably decreased growth, food intake and water intake [3].

References:

- [1] Fakler B, Brndle U, Glowatzki E, et al. Strong voltage-dependent inward rectification of inward rectifier K⁺ channels is caused by intracellular spermine[J]. Cell, 1995, 80(1): 149-154.
- [2] Til H P, Falke H E, Prinsen M K, et al. Acute and subacute toxicity of tyramine, spermidine, spermine, putrescine and cadaverine in rats[J]. Food and Chemical Toxicology, 1997, 35(3): 337-348.

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