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TOCRIS

Print Date: Mar 19th 2025

Certificate of Analysis

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Product Name: **Spermine tetrahydrochloride** **Catalog No.: 0958** **Batch No.: 5**

CAS Number: 306-67-2 EC Number: 206-189-8

IUPAC Name: *N*,*N*'-*Bis*(3-aminopropyl)-1,4-butanediamine tetrahydrochloride

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{10}H_{26}N_4.4HCl$.

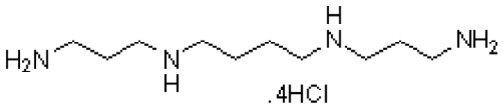
Batch Molecular Weight: 348.19

Physical Appearance: White solid

Solubility: water to 100 mM

Storage: Desiccate at +4°C

Batch Molecular Structure:



2. ANALYTICAL DATA

^{1}H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen	Chlorine
Theoretical	34.5	8.69	16.09	40.73
Found	34.88	8.74	15.92	39.22

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IUPAC Name: *N*,*N*'-*Bis*(3-aminopropyl)-1,4-butanediamine tetrahydrochloride

Description:

Spermine tetrahydrochloride is a polyamine which produces a variety of modulatory effects on the NMDA receptor channel, acting through a specific site on the complex which can cause both agonist and antagonist effects.

Physical and Chemical Properties:

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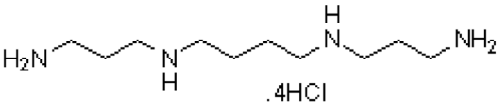

Storage: Desiccate at +4°C

Solubility & Usage Info:

water to 100 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. *Unless contradicted by product-specific protocols or instructions, our standard recommendations apply:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Doyle and Shaw (1998) Investigation of the actions and antagonist activity of some polyamine analogues *in vivo*. Br.J.Pharmacol. ***124*** 386. PMID: 9641557.

Johnson (1996) Modulation of channel function by polyamines. TiPS ***17*** 22. PMID: 8789355.

Benveniste and Mayer (1993) Multiple effects of spermine on N-MthD.-aspartic acid receptor responses of rat cultured hippocampal neurones. J.Physiol. ***464*** 131. PMID: 8229795.

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