

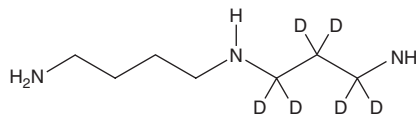
# PRODUCT INFORMATION



## Spermidine-d<sub>6</sub>

Item No. 34697

CAS Registry No.: 2514812-10-1  
Formal Name: N<sup>1</sup>-(3-aminopropyl-1,1,2,2,3,3-d<sub>6</sub>)  
butane-1,4-diamine  
MF: C<sub>7</sub>H<sub>13</sub>D<sub>6</sub>N<sub>3</sub>  
FW: 151.3  
Chemical Purity: ≥98% (Spermidine)  
Deuterium  
Incorporation: ≥99% deuterated forms (d<sub>1</sub>-d<sub>6</sub>); ≤1% d<sub>0</sub>  
Supplied as: A solution in water  
Storage: -20°C  
Stability: ≥2 years



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

### Laboratory Procedures

Spermidine-d<sub>6</sub> is intended for use as an internal standard for the quantification of spermidine (Item No. 14918) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

### Description

Spermidine is an endogenous polyamine.<sup>1</sup> It is formed from putrescine by spermidine synthase. Spermidine (25 μM) inhibits the activity of the human inward-rectifying potassium channel K<sub>ir</sub>2.3 in a patch-clamp assay.<sup>2</sup> It induces autophagy in HeLa cells when used at a concentration of 100 μM and increases the lifespan of *D. melanogaster*, yeast, and *C. elegans*.<sup>5</sup> Spermidine (30 mM in the drinking water) reduces demyelination of the optic nerve and disease severity in a mouse model of experimental autoimmune encephalomyelitis (EAE).<sup>3</sup> It reduces increases in blood pressure, left ventricular posterior wall thickness, and heart weight in salt-sensitive Dahl rats fed a high-salt diet, a model of hypertension-induced congestive heart failure.<sup>4</sup> Formulations containing spermidine have been used as dietary supplements.

### References

1. Madeo, F., Eisenberg, T., Pietrocola, F., *et al.* Spermidine in health and disease. *Science* **359**(6374), eaan2788 (2018).
2. Lopatin, A.N., Makhina, E.N., and Nichols, C.G. Potassium channel block by cytoplasmic polyamines as the mechanism of intrinsic rectification. *Nature* **372**(6504), 366-369 (1994).
3. Guo, X., Harada, C., Namekata, K., *et al.* Spermidine alleviates severity of murine experimental autoimmune encephalomyelitis. *Invest. Ophthalmol. Vis. Sci.* **52**(5), 2696-2703 (2011).
4. Eisenberg, T., Abdellatif, M., Schroeder, S., *et al.* Cardioprotection and lifespan extension by the natural polyamine spermidine. *Nat. Med.* **22**(12), 1428-1438 (2016).
5. Eisenberg, T., Knauer, H., Schauer, A., *et al.* Induction of autophagy by spermidine promotes longevity. *Nat. Cell Biol.* **11**(11), 1305-1314 (2009).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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