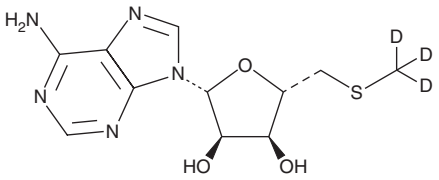
PRODUCT INFORMATION

5'-Deoxy-5'-methylthioadenosine-d_3

Item No. 27836

CAS Registry No.: 174838-38-1
Formal Name: 7-[5-S-(methyl-d_3)-5-thio-β-D-ribofuranosyl]-7H-purin-6-amine
Synonyms: 5'-S-Methylthioadenosine-d_3, MTA-d_3, Vitamin L_2-d_3
MF: $C_{11}H_{12}D_3N_5O_3S$
FW: 300.3
Chemical Purity: ≥98% (5'-Deoxy-5'-methylthioadenosine)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_3); ≤1% d_0
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

5'-Deoxy-5'-methylthioadenosine-d_3 (MTA-d_3) is intended for use as an internal standard for the quantification of MTA (Item No. 15593) 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).

MTA-d_3 is supplied as a solid. A stock solution may be made by dissolving the MTA-d_3 in the solvent of choice, which should be purged with an inert gas. MTA-d_3 is soluble in the organic solvent dimethyl formamide. MTA-d_3 is slightly soluble in methanol and DMSO.

Description

MTA is an intermediate in the generation of adenine and methionine that is produced by the decarboxylation of S-adenosylmethionine.[1] This nucleoside is a potent agonist of adenosine receptors (K_is = 0.15, 1.13, 13.9, and 0.68 µM for A_1, A_{2A}, A_{2B}, and A_3, respectively).[2] At higher concentrations, MTA inhibits several enzymes, including protein carboxylmethyltransferase (K_i = 41 µM), S-adenosylhomocysteine hydrolase, SET methyltransferases, and spermidine and spermine synthases.[1,3-5]

References

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2. Kehraus, S., Gorzalka, S., Hallmen, C., *et al.* Novel amino acid derived natural products from the ascidian Atriolum robustum: Identification and pharmacological characterization of a unique adenosine derivative. *J. Med. Chem.* **47(9)**, 2243-2255 (2004).
3. Oliva, A., Galletti, P., Zappia, V., *et al.* Studies on substrate specificity of S-adenosylmethionine: Protein-carboxyl methyltransferase from calf brain. *Eur. J. Biochem.* **104(2)**, 595-602 (1980).
4. Cole, P.A. Chemical probes for histone-modifying enzymes. *Nat. Chem. Biol.* **4(10)**, 590-597 (2008).
5. Lee, S.H. and Cho, Y.D. Induction of apoptosis in leukemia U937 cells by 5'-deoxy-5'-methylthioadenosine, a potent inhibitor of protein carboxylmethyltransferase. *Exp. Cell Res.* **240(2)**, 282-292 (1998).

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