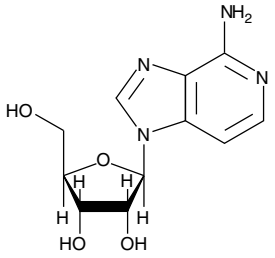
Product Information

3-Deazaadenosine

Item No. 9000785

CAS Registry No.:	6736-58-9
Formal Name:	1-β-D-ribofuranosyl-1H-imidazo[4,5-c] pyridin-4-amine
Synonyms:	c^3Ado, deaza-Ado, DZA
MF:	$C_{11}H_{14}N_4O_4$
FW:	266.3
Purity:	≥98%
Stability:	≥2 years at -20°C
Supplied as:	A crystalline solid
UV/Vis.:	λ_{max}: 267 nm



Laboratory Procedures

For long term storage, we suggest that 3-deazaadenosine (DZA) be stored as supplied at -20°C. It should be stable for at least two years.

3-DZA is supplied as a crystalline solid. A stock solution may be made by dissolving the 3-DZA in the solvent of choice. 3-DZA is soluble in organic solvents such as DMSO and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of 3-DZA in DMSO is approximately 20 mg/ml and approximately 5 mg/ml in DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of 3-DZA can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 3-DZA in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

S-Adenosylhomocysteine (SAH) hydrolase catalyzes the reversible hydrolysis of SAH to adenosine and homocysteine. The inhibition of SAH hydrolase causes the intracellular accumulation of SAH, elevating the ratio of SAH to S-adenosylmethionine (SAM) and inhibiting SAM-dependent methyltransferases. 3-DZA is an inhibitor of SAH hydrolase (K_i = 3.9 µM).[1,2] It has anti-inflammatory properties, inhibiting leukocyte adhesion and chemotaxis, lymphocyte-mediated cytolysis, phagocytosis, degranulation, and NF-κB signaling.[3,4] 3-DZA also has anti-viral and anti-bacterial activities.[1,5,6]

References

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2. Gordon, R.K., Ginalski, K., Rudnicki, W.R., *et al.* Anti-HIV-1 activity of 3-deaza-adenosine analogs: Inhibition of S-adenosylhomocysteine hydrolase and nucleotide congeners. *Eur. J. Biochem.* **270**, 3507-17 (2003).
3. Jurgensen, C.H., Huber, B.E., Zimmerman, T.P., *et al.* 3'Deazaadenosine inhibits leukocyte adhesion and ICAM1 biosynthesis in tumor necrosis factor-stimulated human endothelial cells. *J. Immunol.* **144(2)**, 653-61 (1990).
4. Jeong, S.-Y., Ahn, S.-G., Lee, J.-H., *et al.* 3-Deazaadenosine, a S-adenosylhomocysteine hydrolase inhibitor, has dual effects on NF-κB regulation. *J. Biol. Chem.* **274(27)**, 18981-8 (1999).
5. Long, M.C., Allan, P.W., Luo, M.-Z., *et al.* Evaluation of 3-deaza-adenosine analogues as ligands for adenosine kinase and inhibitors of Mycobacterium tuberculosis growth. *J. Antimicrob. Chemother.* **59**, 118-21 (2007).
6. Huggins, J., Zhang, Z.X., and Bray, M. Antiretroviral drug therapy of filovirus infections: S-adenosylhomocysteine hydrolase inhibitors inhibit ebola virus *in vitro* and in a lethal mouse model. *J. Infect. Dis.* **179(1)**, S240-S247 (1999).

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