3050 Spruce Street, Saint Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Adenosine

Product Number **A4036**
Storage Temperature 2–8 °C

CAS Number: 58-61-7
Synonyms: Adenine-9-β-D-ribofuranoside, Adenine riboside, 9-β-D-Ribofuranosyladenine

Product Description

Molecular Formula: $C_{10}H_{13}N_5O_4$
Molecular Weight: 267.2
Specific Rotation:[1] –61.7º (0.7 g/100 ml, in water)
pK_a values:[2] 3.5, 12.5
Extinction Coefficient:[3] E^{mM} = 15.4
(259 nm, 0.01 M PO_4, pH 7)
Melting Point:[1] 234–235 °C

This product is cell culture tested and is appropriate for use in cell culture applications.

The nucleoside adenosine consists of the purine adenine and the sugar ribose. Adenosine is the product of the degradation of adenosine monophosphate (AMP). Ribonucleic acid (RNA) contains adenosine as one of its constituent nucleosides, with the nucleosides joined by 3′-5′-phosphodiester linkages.[4]

Adenosine stimulates adenosine (A_1) receptors and diminishes conduction through the atrioventricular mode to act as an antiarrhytmic.[5] The role of adenosine and other nucleosides in the regulation of cardiac blood flow has been reviewed.[6] A review of adenosine levels and their relation to neuronal activity in the context of prolonged wakefulness has been published.[7]

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

This product is soluble in 1 M NH_4OH (50 mg/ml), with heat as needed, yielding a clear, colorless solution.

Adenosine readily hydrolyzes in dilute mineral acids to adenine and D-ribose. Nitrous acid causes deamination.[2]

References

1. The Merck Index, 12th ed., Entry# 152.
2. Data for Biochemical Research, 3rd ed., Dawson, R. M. C., et al., Oxford University Press (New York, NY: 1986), pp. 76-77.
3. Specifications and Criteria for Biochemical Compounds, 3rd ed., National Academy Press (1972), p. 157.
4. Biochemistry, 3rd ed., Stryer, L., W. H. Freeman (New York, NY: 1988), p. 86.
5. Martindale The Extra Pharmacopoeia, 31st ed., Reynolds, J. E. F., ed., Royal Pharmaceutical Society (London, England: 1996), pp. 813-814.
6. Oxhorn, B. C., et al., Role of nucleotides and nucleosides in the regulation of cardiac blood flow. AACN Clin. Issues, **11(2)**, 241-251 (2000).
7. Porkka-Heiskanen, T., et al., Adenosine and sleep. Sleep Med. Rev., **6(4)**, 321-332 (2002).

BG,GCY,NSB,MAM 03/17-1