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ProductInformation

Adenosine 5'-triphosphate disodium salt
100 mM solution, Molecular Biology Reagent

Product Number **A 6559**
Storage Temperature –20 °C

CAS# 987-65-5
Synonym: ATP

Product Description

Molecular Formula: $C_{10}H_{14}N_5Na_2O_{13}P_3$
Molecular Weight: 551.1 (anhydrous)
pK_a: 4.0 (amino group); 6.5 (secondary phosphate)
λ_{max}: 259 nm
Extinction Coefficient: E^{mM} = 15.4 (259 nm in 100 mM phosphate buffer, pH 7.0).

Adenosine 5'-triphosphate (ATP) and its phosphate bonds are the basic components of energy exchange in many biological systems. The purification and crystallization of ATP from equine muscle led to the entry of the Sigma Chemical Company into the research biochemical field. Sigma became the first to offer stable, crystalline ATP with a purity approaching 100%. The initial products were isolated from muscle tissue and precipitated with ethanol.[1] Currently, this product is isolated from a microbial source and is produced via a fermentation process. No chemical phosphorylation is involved.

This Molecular Biology Reagent is a 100 mM aqueous solution of ATP with the pH adjusted to approximately 7.0 with Tris base. No DNase or RNase has been detected in the solution. This reagent is for use in molecular biology applications such as kinase reactions or DNA dependent RNA polymerase transcription.

ATP has intrinsic metal binding affinity. The binding constant for various metals are (given as per mole):[2]
Mg^{2+} (9,554), Na^{+} (13), Ca^{2+} (3,722),
K^{+} (8), Sr^{2+} (1,381), Li^{+} (25).

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Storage/Stability

The product is shipped on dry ice and storage at –20 °C is recommended.

References

1. Berger, L., Biochim. Biophys. Acta, **20**, 23 (1956).
2. Wilson, J.E., et al., Chelation of divalent cations by ATP, studied by titration calorimetry. Anal. Biochem., **193**, 16 (1991).
3. Data for Biochemical Research, 3rd ed., Dawson, R.M.C., et al., Oxford University Press (New York, NY: 1986) p. 78.

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