Adenylate Kinase 1/AK1 Protein, Rat (His)

Cat. No.:	HY-P74427
Synonyms:	Adenylate kinase isoenzyme 1; ATP-AMP transphosphorylase 1; AK1
Species:	Rat
Source:	E. coli
Accession:	P39069 (M1-K194)
Gene ID:	24183
Molecular Weight:	Approximately 23.8 kDa

PROPERTIES

Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of PBS, 10% Glycerol. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	Adenylate Kinase 1 (AK1) is a versatile enzyme that catalyzes the reversible transfer of the terminal phosphate group between ATP and AMP, a critical step in cellular energy homeostasis. Additionally, AK1 exhibits nucleoside diphosphate kinase activity, facilitating the production of various nucleoside triphosphates (ATP, CTP, GTP, UTP, dATP, dCTP, dGTP, and dTTP) from their corresponding diphosphate substrates, using either ATP or GTP as a phosphate donor. This enzymatic flexibility highlights its essential role in nucleotide biosynthesis. Furthermore, AK1 demonstrates a lower-rate catalysis of the synthesis of thiamine triphosphate (ThTP) from thiamine diphosphate (ThDP) and ADP, indicating its involvement in thiamine metabolism. The multifaceted functions of AK1 underscore its importance in maintaining cellular energy levels and participating in diverse nucleotide and cofactor biosynthetic pathways.

Caution: Product has not been fully validated for medical applications. For research use only.

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