

## Adenylate Kinase 1/AK1 Protein, Human (His)

Cat. No.:	HY-P74428
Synonyms:	Adenylate kinase isoenzyme 1; ATP-AMP transphosphorylase 1; AK1
Species:	Human
Source:	E. coli
Accession:	AAH01116 (M1-K194)
Gene ID:	203
Molecular Weight:	Approximately 23 kDa

### PROPERTIES

AA Sequence	<pre> M E E K L K K T N I   I F V V G G P G S G   K G T Q C E K I V Q   K Y G Y T H L S T G D L L R S E V S S G   S A R G K K L S E I   M E K G Q L V P L E   T V L D M L R D A M V A K V N T S K G F   L I D G Y P R E V Q   Q G E E F E R R I G   Q P T L L L Y V D A G P E T M T Q R L L   K R G E T S G R V D   D N E E T I K K R L   E T Y Y K A T E P V I A F Y E K R G I V   R K V N A E G S V D   S V F S Q V C T H L   D A L K           </pre>
Biological Activity	Specific activity is 120.42 pmol/min/μg. One unit will convert 1 pmoles of AMP and ATP to 2 pmoles of ADP per minute at 37°C.
Appearance	Solution.
Formulation	Supplied as a 0.2 μm filtered solution of PBS, 10% glycerol, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconstitution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice.

### DESCRIPTION

Background	Adenylate Kinase 1/AK1 is an adenylate kinase enzyme involved in energy metabolism and homeostasis of cellular adenine nucleotide ratios in different intracellular compartments. AK1 is highly expressed in skeletal muscle, brain and erythrocytes. It facilitates cellular energy dynamics by catalyzing the reversible transfer of the terminal phosphate group between ATP and AMP. In addition to its primary role, AK1 displays nucleoside diphosphate kinase activity, enabling the production of ATP, CTP, GTP, UTP, dATP, dCTP, dGTP, and dTTP from their corresponding diphosphate substrates, utilizing either ATP or
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GTP as the phosphate donor. Furthermore, AK1 exhibits a low-rate catalysis for the synthesis of thiamine triphosphate (ThTP) from thiamine diphosphate (ThDP) and ADP. The multifunctional enzymatic activities of AK1 underscore its significance in maintaining adenylate nucleotide balance and its potential role in broader cellular processes, extending beyond traditional nucleotide metabolism<sup>[1][2]</sup>.

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

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