Human AK4 / Adenylate Kinase 4 / AK3L1 Protein

Catalog Number: 12406-HNCB

Sino Biological Inc.
Biological Solution Specialist

General Information

Gene Name Synonym:

AK4, AK3, AK3L1, AK3L2

Protein Construction:

A DNA sequence encoding the human AK4 (P27144-1) (Ala 2-Tyr 223) was expressed and purified with two additional amino acids (Gly & Pro) at the N-terminus.

Source: Human

Expression Host: Baculovirus-Insect Cells

QC Testing

Purity: > 95 % as determined by SDS-PAGE

Endotoxin:

< 1.0 EU per μg of the protein as determined by the LAL method

Stability:

Samples are stable for up to twelve months from date of receipt at -70 ℃

Predicted N terminal: Gly

Molecular Mass:

The secreted recombinant human AK4 consists of 224 amino acids and predicts a molecular mass of 25.3 KDa. The apparent molecular mass of the protein is approximately 27 KDa in SDS-PAGE under reducing conditions due to glycosylation.

Formulation:

Lyophilized from sterile 20mM Tris, 500mM NaCl, pH 8.0.

Normally 5 % - 8 % trehalose and mannitol are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

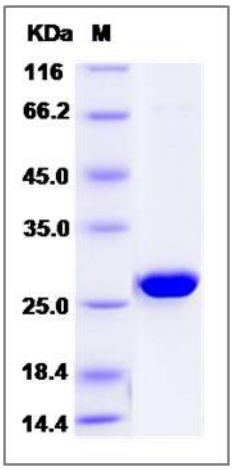
Usage Guide

Storage:

Store it under sterile conditions at -20℃ to -80℃ upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

SDS-PAGE:



Reconstitution:

Detailed reconstitution instructions are sent along with the products.

Protein Description

Adenylate kinase isoenzyme 4, mitochondrial, also known as ATP-AMP transphosphorylase, Adenylate kinase 3-like, AK4 and AK3L1, is a member the?adenylate kinase family. AK4 / AK3L1 is localized to the mitochondrial matrix. Adenylate kinases regulate the adenine and guanine nucleotide compositions within a cell by catalyzing the reversible transfer of phosphate group among these nucleotides. Five isozymes of adenylate kinase have been identified in vertebrates. Expression of these isozymes is tissue-specific and developmentally regulated. AK4 / AK3L1 catalyzes the reversible transfer of the terminal phosphate group between ATP and AMP. It may also be active with GTP. Adenylate kinase 4 (AK4 / AK3L1) is a unique member with no enzymatic activity in the adenylate kinase (AK) family although it shares high sequence homology with other AKs. It remains unclear what physiological function AK4 might play or why it is enzymatically inactive. AK4 / AK3L1 retains the capability of binding nucleotides. It has a glutamine residue instead of a key arginine residue in the active site well conserved in other AKs. The enzymatically inactive AK4 is a stress responsive protein critical to cell survival and proliferation. AK4 / AK3L1 is likely that the interaction with the mitochondrial inner membrane protein ANT is important for AK4 to exert the protective benefits to cells under stress. AK4 / AK3L1 also acts on the specific mechanism of energy metabolism rather than control of the homeostasis of the ADP pool ubiquitously.

References

1. Xu G. et al., 1992, Genomics. 13: 537-542.
2. Yoneda T. et al., 1998, Brain Res Mol Brain Res. 62?(2):187-95.
3. Liu,R. et al., 2009, Int J Biochem Cell Biol. 41?(6):1371-80.
4. Miyoshi,K. et al., 2009, Acta Histochem Cytochem. 42?(2):55-64.