Human AK4 / Adenylate Kinase 4 / AK3L1 Protein (His & GST Tag)

Catalog Number: **12406-H20B**

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General Information

Gene Name Synonym:

AK3; AK3L1; AK3L2; AK4; Ak-3; Ak-4; Ak3; Ak3l1; AK4; D4Ertd274e

Protein Construction:

A DNA sequence encoding the human AK4 (P27144-1) (Ala 2-Tyr 223) was fused with the N-terminal polyhistidine-tagged GST tag at the N-terminus.

Source: Human

Expression Host: Baculovirus-Insect Cells

QC Testing

Purity: > 94 % as determined by SDS-PAGE

Bio Activity:

Kinase activity untested

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: Met

Molecular Mass:

The recombinant human AK4/GST chimera consists of 460 amino acids and has a calculated molecular mass of 53 kDa. It migrates as an approximately 46 kDa band in SDS-PAGE under reducing conditions.

Formulation:

Supplied as sterile 20mM Tris, 500mM NaCl, pH 8.0

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 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:

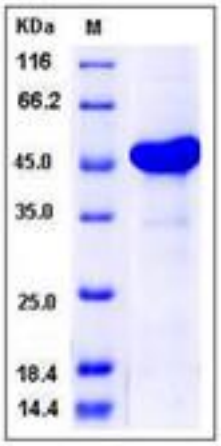
Store it under sterile conditions at -20℃ to -80℃ upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:



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), Characterization of human adenylate kinase 3 (AK3) cDNA and mapping of the AK3 pseudogene to an intron of the NF1 gene. Genomics 13:537-542.
2.Gregory S.G., *et al.*, (2006), The DNA sequence and biological annotation of human chromosome 1.Nature 441:315-321.
3.Ota T., *et al.*,(2004), Complete sequencing and characterization of 21,243 full-length human cDNAs.Nat. Genet. 36:40-45.