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AK3 Antibody (C-term H38)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP8132b

Product Information

Application	WB, IHC-P, E
Primary Accession	P27144
Other Accession	Q9WUS0, Q9WUR9
Reactivity	Human, Mouse
Predicted	Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB3888
Calculated MW	25268
Antigen Region	195-223

Additional Information

Gene ID	205
Other Names	Adenylate kinase 4, mitochondrial {ECO:0000255|HAMAP-Rule:MF_03170}, AK 4 {ECO:0000255|HAMAP-Rule:MF_03170}, 27410 {ECO:0000255|HAMAP-Rule:MF_03170}, 2746 {ECO:0000255|HAMAP-Rule:MF_03170}, Adenylate kinase 3-like {ECO:0000255|HAMAP-Rule:MF_03170}, GTP:AMP phosphotransferase AK4 {ECO:0000255|HAMAP-Rule:MF_03170}, AK4 {ECO:0000255|HAMAP-Rule:MF_03170}
Target/Specificity	This AK3 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 195-223 amino acids from the C-terminal region of human AK3.
Dilution	WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	AK3 Antibody (C-term H38) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	AK4 (HGNC:363)
Function	Broad-specificity mitochondrial nucleoside phosphate kinase involved in cellular nucleotide homeostasis by catalyzing nucleoside- phosphate interconversions (PubMed:19073142, PubMed:19766732, PubMed:23416111, PubMed:24767988). Similar to other adenylate kinases, preferentially catalyzes the phosphorylation of the nucleoside monophosphate AMP with ATP as phosphate donor to produce ADP (PubMed:19766732). Phosphorylates only AMP when using GTP as phosphate donor (PubMed:19766732). In vitro, can also catalyze the phosphorylation of CMP, dAMP and dCMP and use GTP as an alternate phosphate donor (PubMed:19766732, PubMed:23416111). Moreover, exhibits a diphosphate kinase activity, producing ATP, CTP, GTP, UTP, TTP, dATP, dCTP and dGTP from the corresponding diphosphate substrates with either ATP or GTP as phosphate donors (PubMed:23416111). Plays a role in controlling cellular ATP levels by regulating phosphorylation and activation of the energy sensor protein kinase AMPK (PubMed:24767988, PubMed:26980435). Plays a protective role in the cellular response to oxidative stress (PubMed:19130895, PubMed:23474458, PubMed:26980435).
Cellular Location	Mitochondrion matrix {ECO:0000255|HAMAP- Rule:MF_03170, ECO:0000269|PubMed:11485571, ECO:0000269|PubMed:19766732, ECO:0000269|PubMed:26980435}
Tissue Location	Highly expressed in kidney, moderately expressed in heart and liver and weakly expressed in brain

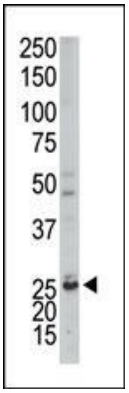
Background

AK3 is a member of the adenylate kinase family of enzymes. The encoded protein 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.

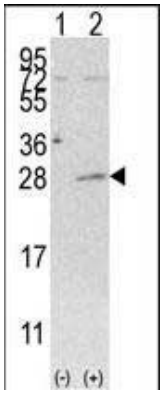
References

Van Rompay, A.R., et al., Eur. J. Biochem. 261(2):509-517 (1999).
Yoneda, T., et al., Brain Res. Mol. Brain Res. 62(2):187-195 (1998).
Xu, G., et al., Genomics 13(3):537-542 (1992).
Robson, E.B., et al., Cytogenet. Cell Genet. 32 (1-4), 144-152 (1982).

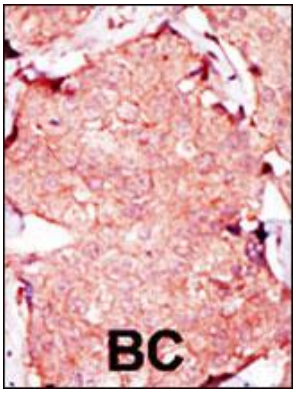
Images



The anti-AK3 Pab (Cat. #AP8132b) is used in Western blot to detect AK3 in mouse kidney tissue lysate.



Western blot analysis of AK3 (arrow) using rabbit polyclonal AK3 Antibody (C-term H38) (Cat. #AP8132b). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the AK3 gene (Lane 2) (Origene Technologies).



Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by AEC staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.