

AK1 (S-16): sc-22567

BACKGROUND

Adenylate kinases 1-5 (designated AK1-5) are a set of enzymes that regulate the phosphorylation state of intracellular adenine nucleotides, which are the principle high-energy phosphoryl-carrying molecules in living cells. AKs influence metabolic signals, which include gene expression, ion channel activity and protein kinase-mediated signaling, by catalyzing phosphoryl transfer between adenine nucleotides (AMP, ADP, ATP). Inherited mutations leading to AK deficiencies in erythrocytes have been implicated in hemolytic anemia. Human AK1 is found in the cytosol of skeletal muscle, brain and erythrocytes and is clustered within myofibrils or bound to membranes. AK1-mediated phosphotransfer is essential for maintaining sufficient cellular energy, which enables proper skeletal muscle performance and metabolic activity.

REFERENCES

1. Wegmann, G., et al. 1992. *In situ* compartmentation of creatine kinase in intact sarcomeric muscle: the acto-myosin overlap zone as a molecular sieve. *J. Muscle Res. Cell Motil.* 13: 420-435.
2. Dzeja, P.P., et al. 1998. Adenylate kinase: kinetic behavior in intact cells indicates it is integral to multiple cellular processes. *Mol. Cell. Biochem.* 184: 169-182.
3. Online Mendelian Inheritance in Man, OMIM™. 1999. Johns Hopkins University, Baltimore, MD. MIM Number: 103000. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Janssen, E., et al. 2000. Adenylate kinase 1 gene deletion disrupts muscle energetic economy despite metabolic rearrangement. *EMBO J.* 19: 6371-6381.
5. Carrasco, A.J., et al. 2001. Adenylate kinase phosphotransfer communicates cellular energetic signals to ATP-sensitive potassium channels. *Proc. Natl. Acad. Sci. USA* 98: 7623-768.
6. LocusLink Report (LocusID: 203). <http://www.ncbi.nlm.nih.gov/LocusLink/>

CHROMOSOMAL LOCATION

Genetic locus: AK1 (human) mapping to 9q34.11; Ak1 (mouse) mapping to 2 B.

SOURCE

AK1 (S-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of AK1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-22567 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

AK1 (S-16) is recommended for detection of AK1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

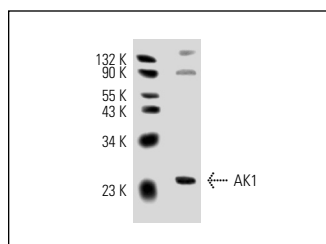
AK1 (S-16) is also recommended for detection of AK1 in additional species, including equine and avian.

Suitable for use as control antibody for AK1 siRNA (h): sc-38904, AK1 siRNA (m): sc-38905, AK1 shRNA Plasmid (h): sc-38904-SH, AK1 shRNA Plasmid (m): sc-38905-SH, AK1 shRNA (h) Lentiviral Particles: sc-38904-V and AK1 shRNA (m) Lentiviral Particles: sc-38905-V.

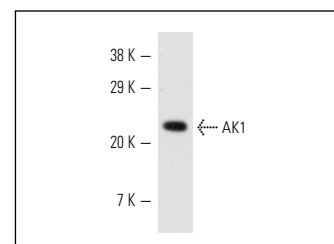
Molecular Weight of AK1: 22 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, C6 whole cell lysate: sc-364373 or rat skeletal muscle extract: sc-364810.

DATA



AK1 (S-16): sc-22567. Western blot analysis of AK1 expression in rat skeletal muscle tissue extract.



AK1 (S-16): sc-22567. Western blot analysis of AK1 expression in rat skeletal muscle tissue extract.

SELECT PRODUCT CITATIONS

1. D'Amours, O., et al. 2010. Proteomic comparison of detergent-extracted sperm proteins from bulls with different fertility indexes. *Reproduction* 139: 545-556.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.



Try **AK1 (E-8): sc-365316** or **AK1 (G-5): sc-165981**, our highly recommended monoclonal alternatives to AK1 (S-16).