SANTA CRUZ BIOTECHNOLOGY, INC.

AK1 (C-12): sc-17619

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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., Zanolla, E., Eppenberger, H.M. and Wallimann, T. 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., Zeleznikar, R.J. and Goldberg, N.D. 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., Dzeja, P.P., Oerlemans, F., Simonetti, A.W., Heerschap, A., de Haan, A., Rush, P.S., Terjung, R.R., Wieringa, B. and Terzic, A. 2000. Adenylate kinase 1 gene deletion disrupts muscle energetic economy despite metabolic rearrangement. EMBO J. 19: 6371-6381.
5. Carrasco, A.J., Dzeja, P.P., Alekseev, A.E., Pucar, D., Zingman, L.V., Abraham, M.R., Hodgson, D., Bienengraeber, M., Puceat, M., Janssen, E., Wieringa, B. and Terzic, A. 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.

SOURCE

AK1 (C-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus 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-17619 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

AK1 (C-12) is recommended for detection of AK1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

AK1 (C-12) is also recommended for detection of AK1 in additional species, including equine, canine, bovine and porcine.

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

Molecular Weight of AK1: 22 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Kasimanickam, V., Kasimanickam, R., Arangasamy, A., Saberivand, A., Stevenson, J.S. and Kastelic, J.P. 2012. Association between mRNA abundance of functional sperm function proteins and fertility of Holstein bulls. Theriogenology 78: 2007-2019.

STORAGE

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

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.