SANTA CRUZ BIOTECHNOLOGY, INC.

ADK (F-5): sc-365470

BACKGROUND

Adenosine kinase (ATP:adenosine 5'-phosphotransferase), or ADK, is an abundant enzyme in mammalian tissues that catalyzes the transfer of the γ-phosphate from ATP to adenosine, thereby serving as a regulator of concentrations of both extracellular adenosine and intracellular adenine nucleotides. Adenosine, an extracellular signaling molecule, has widespread effects on the cardiovascular, nervous, respiratory, and immune systems with increased concentration at sites of tissue injury and inflammation. Adenosine is an efficient inhibitor of neuronal activity with the ability to suppress seizure activity in various animal models of epilepsy. The human ADK gene maps to chromosome 10q22.2 and encodes two ADK transcripts that encode a 345 amino acid form and a 362 amino acid form of the enzyme. These two alternately spliced forms differ only at the 5' end, where the first four encoded residues of the short form are replaced by 21 residues in the long form. When expressed, both isoforms of the enzyme phosphorylate adenosine with identical kinetics and both require Mg^{2+} for activity. ADK is fully active under dilute conditions, but tends to form soluble aggregates at higher concentrations, which results in inactivation of the enzyme.

CHROMOSOMAL LOCATION

Genetic locus: ADK (human) mapping to 10q22.2; Adk (mouse) mapping to 14 A3.

SOURCE

ADK (F-5) is a mouse monoclonal antibody raised against amino acids 63-362 mapping at the C-terminus of ADK of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

ADK (F-5) is recommended for detection of ADK long and short isoforms of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

Suitable for use as control antibody for ADK siRNA (h): sc-38902, ADK siRNA (m): sc-38903, ADK shRNA Plasmid (h): sc-38902-SH, ADK shRNA Plasmid (m): sc-38903-SH, ADK shRNA (h) Lentiviral Particles: sc-38902-V and ADK shRNA (m) Lentiviral Particles: sc-38903-V.

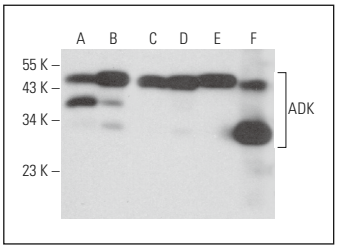
Molecular Weight of ADK isoforms: 48/38 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A-431 whole cell lysate: sc-2201 or HEK293 whole cell lysate: sc-45136.

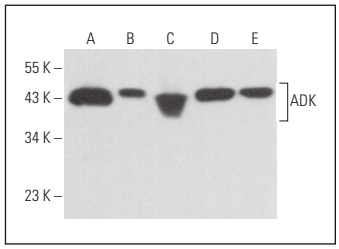
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



ADK (F-5): sc-365470. Western blot analysis of ADK expression in Hep G2 (**A**), HeLa (**B**), A-431 (**C**), HEK293 (**D**) and U-251-MG (**E**) whole cell lysates and rat kidney tissue extract (**F**).



ADK (F-5): sc-365470. Western blot analysis of ADK expression in SK-BR-3 (**A**), c4 (**B**), 3T3-L1 (**C**), KNRK (**D**) and A-10 (**E**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Mori, K., et al. 2013. Adenosine kinase is a key determinant for the anti-HCV activity of ribavirin. Hepatology 58: 1236-1244.
2. Nayar, U., et al. 2017. Identification of a nucleoside analog active against adenosine kinase-expressing plasma cell malignancies. J. Clin. Invest. 127: 2066-2080.
3. Chen, C., et al. 2019. 5'-Iodotubercidin represses insulinoma associated-1 expression, decreases cAMP levels, and suppresses human neuroblastoma cell growth. J. Biol. Chem. 294: 5456-5465.
4. Pietrobono, D., et al. 2024. Extracellular adenosine oppositely regulates the purinome machinery in glioblastoma and mesenchymal stem cells. IUBMB Life 76: 1234-1251.
5. Fan, S., et al. 2024. Novel homozygous ADK out-of-frame deletion causes adenosine kinase deficiency with rare phenotypes of sepsis, metabolites disruption and neutrophil dysfunction. Gene 914: 148313.

RESEARCH USE

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

PROTOCOLS

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