

AK4 (A-9): sc-271161

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. Rat AK4 mRNA is expressed as a 223 amino acid protein in the central nervous system from the middle stage of embryogenesis to adulthood.

CHROMOSOMAL LOCATION

Genetic locus: AK4 (human) mapping to 1p31.3; Ak4 (mouse) mapping to 4 C6.

SOURCE

AK4 (A-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 58-83 near the N-terminus of AK4 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

AK4 (A-9) is available conjugated to agarose (sc-271161 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271161 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271161 PE), fluorescein (sc-271161 FITC), Alexa Fluor[®] 488 (sc-271161 AF488), Alexa Fluor[®] 546 (sc-271161 AF546), Alexa Fluor[®] 594 (sc-271161 AF594) or Alexa Fluor[®] 647 (sc-271161 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-271161 AF680) or Alexa Fluor[®] 790 (sc-271161 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-271161 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

Alexa Fluor[®] is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

AK4 (A-9) is recommended for detection of AK4 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), immunohistochemistry (including paraffin-embedded sections) (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 AK4 siRNA (h): sc-38908, AK4 siRNA (m): sc-38909, AK4 shRNA Plasmid (h): sc-38908-SH, AK4 shRNA Plasmid (m): sc-38909-SH, AK4 shRNA (h) Lentiviral Particles: sc-38908-V and AK4 shRNA (m) Lentiviral Particles: sc-38909-V.

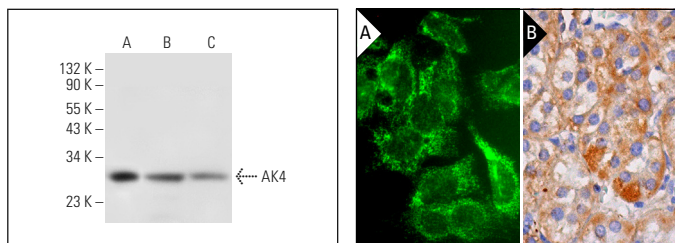
Molecular Weight of AK4: 25 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A-431 whole cell lysate: sc-2201 or MCF7 whole cell lysate: sc-2206.

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



AK4 (A-9): sc-271161. Western blot analysis of AK4 expression in HeLa (A), A-431 (B) and MCF7 (C) whole cell lysates.

AK4 (A-9): sc-271161. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing cytoplasmic staining of glandular cells (B).

SELECT PRODUCT CITATIONS

1. Acevedo, C., et al. 2019. Possible ATP trafficking by ATP-shuttles in the olfactory cilia and glucose transfer across the olfactory mucosa. *FEBS Lett.* 593: 601-610.
2. Fecher, C., et al. 2019. Cell-type-specific profiling of brain mitochondria reveals functional and molecular diversity. *Nat. Neurosci.* 22: 1731-1742.
3. Liu, X., et al. 2020. Adenylate kinase 4 modulates the resistance of breast cancer cells to tamoxifen through an m⁶A-based epitranscriptomic mechanism. *Mol. Ther.* 28: 2593-2604.
4. Liu, X., et al. 2021. ATF3 modulates the resistance of breast cancer cells to tamoxifen through an N⁶-methyladenosine-based epitranscriptomic mechanism. *Chem. Res. Toxicol.* 34: 1814-1821.
5. Li, L., et al. 2022. AK4P1 is a cancer-promoting pseudogene in pancreatic adenocarcinoma cells whose transcripts can be transmitted by exosomes. *Oncol. Lett.* 23: 163.

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.