

# ARK5 (B-4): sc-271828

## BACKGROUND

5'-AMP-activated protein kinase, known as AMPK, is a heterotrimeric complex that protects cells from stresses that cause ATP depletion by switching off ATP-consuming biosynthetic pathways. Activated AMPK phosphorylates and regulates hydroxymethylglutaryl-CoA reductase and acetyl-CoA carboxylase, which are key regulatory enzymes of sterol synthesis and fatty acid synthesis, respectively. The AMPK-related kinase 5 (ARK5) is a tumor progression-associated factor that is directly phosphorylated by Akt at Ser 600, which is in its regulatory domain. NDR2, a serine/threonine protein kinase, phosphorylates and activates ARK5 during Insulin-like growth factor (IGF)-I signaling in order to promote cell survival. This activation may be involved in the invasion of colorectal cancer cell lines. Furthermore, ARK5 is a transcriptional target of the Large-MAF family and may have a role in mediating the aggressiveness of c-Maf- and MafB-expressing myelomas.

## REFERENCES

1. Suzuki, A., et al. 2003. ARK5 suppresses the cell death induced by nutrient starvation and death receptors via inhibition of caspase 8 activation, but not by chemotherapeutic agents or UV irradiation. *Oncogene* 22: 6177-6182.
2. Suzuki, A., et al. 2004. ARK5 is a tumor invasion-associated factor downstream of Akt signaling. *Mol. Cell. Biol.* 24: 3526-3535.
3. Suzuki, A., et al. 2004. Regulation of caspase-6 and FLIP by the AMPK family member ARK5. *Oncogene* 23: 7067-7075.
4. Fisher, J.S., et al. 2005. Muscle contractions, AICAR, and Insulin cause phosphorylation of an AMPK-related kinase. *Am. J. Physiol. Endocrinol. Metab.* 289: E986-E992.

## CHROMOSOMAL LOCATION

Genetic locus: NUAK1 (human) mapping to 12q23.3; Nuak1 (mouse) mapping to 10 C1.

## SOURCE

ARK5 (B-4) is a mouse monoclonal antibody raised against amino acids 526-661 mapping at the C-terminus of ARK5 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ARK5 (B-4) is available conjugated to agarose (sc-271828 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271828 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271828 PE), fluorescein (sc-271828 FITC), Alexa Fluor<sup>®</sup> 488 (sc-271828 AF488), Alexa Fluor<sup>®</sup> 546 (sc-271828 AF546), Alexa Fluor<sup>®</sup> 594 (sc-271828 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-271828 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-271828 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-271828 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## STORAGE

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

## APPLICATIONS

ARK5 (B-4) is recommended for detection of ARK5 of human origin, Nuak1 of mouse origin and the corresponding rat homolog 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 ARK5 siRNA (h): sc-60203, ARK5 shRNA Plasmid (h): sc-60203-SH and ARK5 shRNA (h) Lentiviral Particles: sc-60203-V.

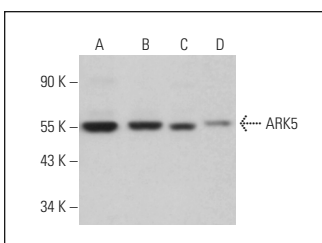
Molecular Weight of ARK5: 74 kDa.

Positive Controls: 3T3-L1 cell lysate: sc-2243, Saos-2 whole cell lysate: sc-2235 or A549 whole cell lysate: sc-2413.

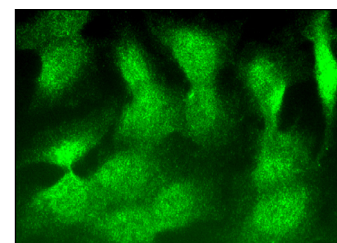
## RECOMMENDED SUPPORT REAGENTS

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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## DATA



ARK5 (B-4): sc-271828. Western blot analysis of ARK5 expression in A549 (A), Saos-2 (B), 3T3-L1 (C) and C6 (D) whole cell lysates.



ARK5 (B-4): sc-271828. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear and cytoplasmic localization.

## SELECT PRODUCT CITATIONS

1. You, Y., et al. 2022. Enhanced expression of ARK5 in hepatic stellate cell and hepatocyte synergistically promote liver fibrosis. *Int. J. Mol. Sci.* 23: 13084.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

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