

ARH3 (A-7): sc-374162

BACKGROUND

ARH3 (ADP-ribosylhydrolase 3), also known as ADPRHL2 (ADP-ribosylhydrolase like 2), is a 363 amino acid protein that localizes to mitochondria, as well as to both the cytoplasm and the nucleus, and belongs to the ADP-ribosylglycohydrolase family. Expressed ubiquitously, ARH3 uses magnesium as a cofactor to catalyze the hydrolysis of poly(ADP-ribose) that is synthesized after DNA damage. Via its catalytic activity, ARH3 generates ADP-ribose from poly(ADP-ribose) and is thought to play an important role in the maintenance of normal neuronal cell function. The gene encoding ARH3 maps to human chromosome 1, which spans 260 million base pairs, contains over 3,000 genes and comprises nearly 8% of the human genome. Chromosome 1 houses a large number of disease-associated genes, including those that are involved in familial adenomatous polyposis, Stickler syndrome, Parkinson's disease, Gaucher disease, schizophrenia and Usher syndrome. Aberrations in chromosome 1 are found in a variety of cancers, including head and neck cancer, malignant melanoma and multiple myeloma.

REFERENCES

1. Glowacki, G., et al. 2002. The family of toxin-related ecto-ADP-ribosyl-transferases in humans and the mouse. *Protein Sci.* 11: 1657-1670.
2. Kernstock, S., et al. 2006. Cloning, expression, purification, crystallization and preliminary X-ray diffraction analysis of human ARH3, the first eukaryotic protein-ADP-ribosylhydrolase. *Acta Crystallogr. Sect. F, Struct. Biol. Cryst. Commun.* 62: 224-227.
3. Oka, S., et al. 2006. Identification and characterization of a mammalian 39 kDa poly(ADP-ribose) glycohydrolase. *J. Biol. Chem.* 281: 705-713.
4. Mueller-Dieckmann, C., et al. 2006. The structure of human ADP-ribosylhydrolase 3 (ARH3) provides insights into the reversibility of protein ADP-ribosylation. *Proc. Natl. Acad. Sci. USA* 103: 15026-15031.

CHROMOSOMAL LOCATION

Genetic locus: ADPRHL2 (human) mapping to 1p34.3; Adprhl2 (mouse) mapping to 4 D2.2.

SOURCE

ARH3 (A-7) is a mouse monoclonal antibody raised against amino acids 18-332 mapping within an internal region of ARH3 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ARH3 (A-7) is available conjugated to agarose (sc-374162 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374162 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374162 PE), fluorescein (sc-374162 FITC), Alexa Fluor® 488 (sc-374162 AF488), Alexa Fluor® 546 (sc-374162 AF546), Alexa Fluor® 594 (sc-374162 AF594) or Alexa Fluor® 647 (sc-374162 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-374162 AF680) or Alexa Fluor® 790 (sc-374162 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

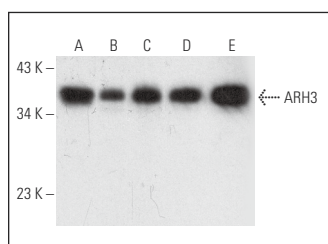
ARH3 (A-7) is recommended for detection of ARH3 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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 ARH3 siRNA (h): sc-78611, ARH3 siRNA (m): sc-141198, ARH3 shRNA Plasmid (h): sc-78611-SH, ARH3 shRNA Plasmid (m): sc-141198-SH, ARH3 shRNA (h) Lentiviral Particles: sc-78611-V and ARH3 shRNA (m) Lentiviral Particles: sc-141198-V.

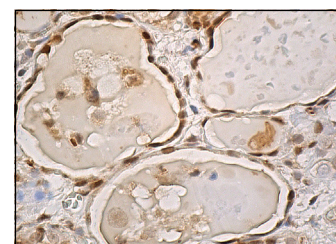
Molecular Weight of ARH3: 39 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, HeLa whole cell lysate: sc-2200 or NTERA-2 cl.D1 whole cell lysate: sc-364181.

DATA



ARH3 (A-7): sc-374162. Western blot analysis of ARH3 expression in Hep G2 (A), HeLa (B), NTERA-2 cl.D1 (C), PC-3 (D) and RT-4 (E) whole cell lysates.



ARH3 (A-7): sc-374162. Immunoperoxidase staining of formalin fixed, paraffin-embedded human thyroid gland tissue showing nuclear and cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Drown, B.S., et al. 2018. Monitoring poly(ADP-ribosyl)glycohydrolase activity with a continuous fluorescent substrate. *Cell Chem. Biol.* 25: 1562-1570.e19.
2. Beijer, D., et al. 2021. Biallelic ADPRHL2 mutations in complex neuropathy affect ADP ribosylation and DNA damage response. *Life Sci. Alliance* 4: e202101057.
3. Weixler, L., et al. 2022. ADP-ribosylation of RNA in mammalian cells is mediated by TRPT1 and multiple PARPs. *Nucleic Acids Res.* 50: 9426-9441.

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.

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