SANTA CRUZ BIOTECHNOLOGY, INC.

AP4A Hydrolase (F-5): sc-271410

SANTA CRUZ BIOTECHNOLOGY
The Power to Question

BACKGROUND

Asymmetric diadenosine 5',5'''-P^1,P^4-tetraphosphate (AP4A) hydrolase is a Nudix enzyme that maintains homeostasis by using water to cleave the metabolite AP4A symmetrically back into its original ATP and AMP molecules. AP4A resides in pancreatic β cells where it targets ATP-sensitive K^+ channels and depolarizes the cell membrane causing the excretion of Insulin. AP4A may be involved in the development of diabetes mellitus by raising blood glucose and lowering plasma Insulin. AP4A Hydrolase is also active towards other adenosine and diadenosine polyphosphates with four or more phosphate groups, but not towards diadenosine triphosphate. AP4A Hydrolase is involved in heat shock and metabolic stress by regulating intracellular dinucleoside polyphosphate concentrations.

REFERENCES

1. Abdelghany, H.M., et al. 2001. Cloning, characterisation and crystallisation of a diadenosine 5',5'''-P^1,P^4-tetraphosphate pyrophosphohydrolase from *Caenorhabditis elegans*. Biochim. Biophys. Acta 1550: 27-36.
2. Fletcher, J.I., et al. 2002. The structure of AP4A Hydrolase complexed with ATP-MgF_x reveals the basis of substrate binding. Structure 10: 205-213.
3. Bailey, S., et al. 2002. The crystal structure of diadenosine tetraphosphate hydrolase from *Caenorhabditis elegans* in free and binary complex forms. Structure 10: 589-600.
4. Stavrou, B.M. 2003. Diadenosine polyphosphates: postulated mechanisms mediating the cardiac effects. Curr. Med. Chem. Cardiovasc. Hematol. Agents 1: 151-169.

CHROMOSOMAL LOCATION

Genetic locus: NUDT2 (human) mapping to 9p13.3; Nudt2 (mouse) mapping to 4 A5.

SOURCE

AP4A Hydrolase (F-5) is a mouse monoclonal antibody raised against amino acids 1-147 representing full length AP4A Hydrolase 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.

AP4A Hydrolase (F-5) is available conjugated to agarose (sc-271410 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271410 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271410 PE), fluorescein (sc-271410 FITC), Alexa Fluor® 488 (sc-271410 AF488), Alexa Fluor® 546 (sc-271410 AF546), Alexa Fluor® 594 (sc-271410 AF594) or Alexa Fluor® 647 (sc-271410 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271410 AF680) or Alexa Fluor® 790 (sc-271410 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

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

APPLICATIONS

AP4A Hydrolase (F-5) is recommended for detection of AP4A Hydrolase 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 AP4A Hydrolase siRNA (h): sc-60188, AP4A Hydrolase siRNA (m): sc-60189, AP4A Hydrolase shRNA Plasmid (h): sc-60188-SH, AP4A Hydrolase shRNA Plasmid (m): sc-60189-SH, AP4A Hydrolase shRNA (h) Lentiviral Particles: sc-60188-V and AP4A Hydrolase shRNA (m) Lentiviral Particles: sc-60189-V.

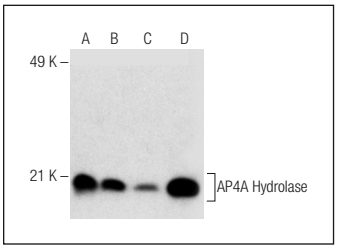
Molecular Weight of AP4A Hydrolase: 17 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, JAR cell lysate: sc-2276 or Hep G2 cell lysate: sc-2227.

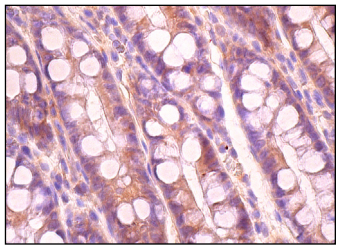
RECOMMENDED SUPPORT REAGENTS

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



AP4A Hydrolase (F-5): sc-271410. Western blot analysis of AP4A Hydrolase expression in JAR (**A**), JEG-3 (**B**), Hep G2 (**C**) and Jurkat (**D**) whole cell lysates.



AP4A Hydrolase (F-5): sc-271410. Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Laudenbach, B.T., et al. 2021. NUDT2 initiates viral RNA degradation by removal of 5'-phosphates. Nat. Commun. 12: 6918.

STORAGE

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