SANTA CRUZ BIOTECHNOLOGY, INC.

ADAR1 (15.8.6): sc-73408

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

RNA-specific adenosine deaminase (ADAR1, DSH, IFI4, p136, DRADA, DSRAD, K88dsRBP) mediates RNA editing by destabilizing double stranded RNA through deamination of adenosine to inosine in structured or double-stranded RNAs. ADAR1 is expressed from an interferon-response promoter and has a Z-DNA/Z-RNA binding domain at its N-terminus. ADAR1 co-localizes with SUMO-1 in a subnucleolar region that is distinct from the fibrillar center, the dense fibrillar component and the granular component. Localization of nuclear ADAR1 is under the influence of a nucleolar localization signal (NoLS) in the middle of ADAR1 and the exporting activity of the nuclear exporter signal (NES) near the N-terminus. ADAR1 upregulates nuclear factor 90 (NF90)-mediated gene expression by interacting with NF110, NF90 and NF45. ADAR1 binds short interfering RNA (siRNA), and gene silencing by siRNA is significantly more effective in mouse fibroblasts homozygous for an ADAR1 null mutation than in wildtype cells. ADAR1 may limit the efficacy of siRNA in mammalian cells.

REFERENCES

1. Wang, Q., 2000. Requirement of the RNA editing deaminase ADAR1 gene for embryonic erythropoiesis. Science 290: 1765-1768.
2. Raitskin, O., 2001. RNA editing activity is associated with splicing factors in lnRNP particles: the nuclear pre-mRNA processing machinery. Proc. Natl. Acad. Sci. USA 98: 6571-6576.

CHROMOSOMAL LOCATION

Genetic locus: ADAR (human) mapping to 1q21.3; Adar (mouse) mapping to 3 F1.

SOURCE

ADAR1 (15.8.6) is a mouse monoclonal antibody raised against amino acids 440-826 corresponding to the middle region of ADAR1 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.

ADAR1 (15.8.6) is available conjugated to agarose (sc-73408 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-73408 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-73408 PE), fluorescein (sc-73408 FITC), Alexa Fluor® 488 (sc-73408 AF488), Alexa Fluor® 546 (sc-73408 AF546), Alexa Fluor® 594 (sc-73408 AF594) or Alexa Fluor® 647 (sc-73408 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-73408 AF680) or Alexa Fluor® 790 (sc-73408 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, ADAR1 (15.8.6) is available conjugated to biotin (sc-73408 B), 200 µg/ml, for WB, IHC(P) and ELISA.

STORAGE

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

APPLICATIONS

ADAR1 (15.8.6) is recommended for detection of native and recombinant ADAR1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with other members of ADAR family.

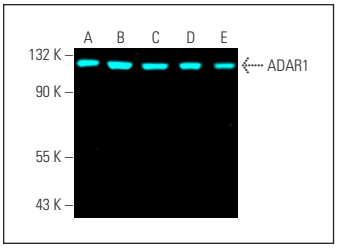
Suitable for use as control antibody for ADAR1 siRNA (h): sc-37657, ADAR1 siRNA (m): sc-37658, ADAR1 shRNA Plasmid (h): sc-37657-SH, ADAR1 shRNA Plasmid (m): sc-37658-SH, ADAR1 shRNA (h) Lentiviral Particles: sc-37657-V and ADAR1 shRNA (m) Lentiviral Particles: sc-37658-V.

Molecular Weight of ADAR1 full length: 150 kDa.

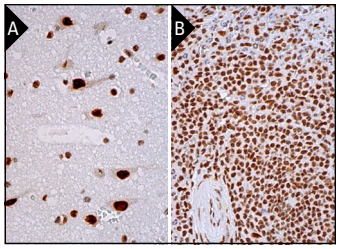
Molecular Weight of ADAR1 cleavage products: 120/110 kDa.

Positive Controls: SK-BR-3 cell lysate: sc-2218, Ramos cell lysate: sc-2216 or NTERA-2 cl.D1 whole cell lysate: sc-364181.

DATA



ADAR1 (15.8.6) Alexa Fluor® 647: sc-73408 AF647. Direct fluorescent western blot analysis of ADAR1 expression in NTERA-2 cl.D1 (**A**), Ramos (**B**), PC-3 (**C**), SK-BR-3 (**D**) and MOLT-4 (**E**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214.



ADAR1 (15.8.6): sc-73408. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebral cortex tissue showing nuclear staining of neuronal cells, glial cells and endothelial cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human spleen tissue showing nuclear staining of cells in white pulp and cells in red pulp (**B**).

SELECT PRODUCT CITATIONS

1. Cai, L., et al. 2010. The influence of ADAR1's regulation on lymphocyte cell function during rejection. Mol. Biol. Rep. 37: 2703-2709.
2. Malik, T.N., et al. 2021. Regulation of RNA editing by intracellular acidification. Nucleic Acids Res. 49: 4020-4036.
3. Riella, C.V., et al. 2022. ADAR regulates APOL1 via A-to-I RNA editing by inhibition of MDA5 activation in a paradoxical biological circuit. Proc. Natl. Acad. Sci. USA 119: e2210150119.
4. Xing, Y., et al. 2023. RNA editing of AZIN1 coding sites is catalyzed by ADAR1 p150 after splicing. J. Biol. Chem. 299: 104840.
5. van Gemert, F., et al. 2024. ADARp150 counteracts whole genome duplication. Nucleic Acids Res. 52: 10370-10384.

RESEARCH USE

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