SANTA CRUZ BIOTECHNOLOGY, INC.

ADAR1 (D-8): sc-271854

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 wild-type cells. ADAR1 may limit the efficacy of siRNA in mammalian cells.

REFERENCES

1. Strehblow, A., et al. 2002. Nucleocytoplasmic distribution of human RNA-editing enzyme ADAR1 is modulated by double-stranded RNA-binding domains, a leucine-rich export signal, and a putative dimerization domain. Mol. Biol. Cell 13: 3822-3835.
2. Herbert, A., et al. 2002. Induction of protein translation by ADAR1 within living cell nuclei is not dependent on RNA editing. Mol. Cell 10: 1235-1246.

CHROMOSOMAL LOCATION

Genetic locus: ADAR (human) mapping to 1q21.3.

SOURCE

ADAR1 (D-8) is a mouse monoclonal antibody raised against amino acids 1051-1226 mapping at the C-terminus of ADAR1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ADAR1 (D-8) is available conjugated to agarose (sc-271854 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-271854 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271854 PE), fluorescein (sc-271854 FITC), Alexa Fluor® 488 (sc-271854 AF488), Alexa Fluor® 546 (sc-271854 AF546), Alexa Fluor® 594 (sc-271854 AF594) or Alexa Fluor® 647 (sc-271854 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271854 AF680) or Alexa Fluor® 790 (sc-271854 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

ADAR1 (D-8) is recommended for detection of all ADAR1 isoforms of 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).

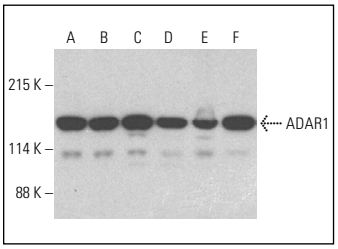
Suitable for use as control antibody for ADAR1 siRNA (h): sc-37657, ADAR1 shRNA Plasmid (h): sc-37657-SH and ADAR1 shRNA (h) Lentiviral Particles: sc-37657-V.

Molecular Weight of full length ADAR1: 150 kDa.

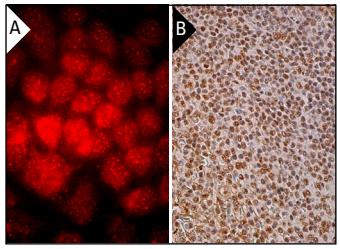
Molecular Weight of ADAR1 cleavage products: 120/110 kDa.

Positive Controls: AN3 CA cell lysate: sc-24662, HeLa nuclear extract: sc-2120 or Ramos cell lysate: sc-2216.

DATA



ADAR1 (D-8) HRP: sc-271854 HRP. Direct western blot analysis of ADAR1 expression in Ramos (**A**), HeLa (**B**) and K-562 (**C**) nuclear extracts and AN3 CA (**D**), NTERA-2 cl.D1 (**E**) and Ramos (**F**) whole cell lysates.



ADAR1 (D-8): sc-271854. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human spleen tissue showing nuclear staining of cells in white pulp (**B**).

SELECT PRODUCT CITATIONS

1. Mangeat, B., et al. 2012. Influenza virus partially counteracts restriction imposed by tetherin/BST-2. J. Biol. Chem. 287: 22015-22029.
2. DeBoer, J., et al. 2014. Alterations in the nuclear proteome of HIV-1 infected T-cells. Virology 468-470: 409-420.
3. Bahn, J.H., et al. 2015. Genomic analysis of ADAR1 binding and its involvement in multiple RNA processing pathways. Nat. Commun. 6: 6355.
4. Wang, Y., et al. 2017. Systematic characterization of A-to-I RNA editing hotspots in microRNAs across human cancers. Genome Res. 27: 1112-1125.
5. Chung, H., et al. 2018. Human ADAR1 prevents endogenous RNA from triggering translational shutdown. Cell 172: 811-824.
6. Ma, C.P., et al. 2019. ADAR1 promotes robust hypoxia signaling via distinct regulation of multiple HIF-1α-inhibiting factors. EMBO Rep. 20 pii: e47107.
7. Zhang, H., et al. 2020. ADAR1 facilitates KSHV lytic reactivation by modulating the RLR-dependent signaling pathway. Cell Rep. 31: 107564.

RESEARCH USE

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