SANTA CRUZ BIOTECHNOLOGY, INC.

ADAR1 (E-18): sc-10004

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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. Maas, S., et al. 1996. Structural requirements for RNA editing in glutamate receptor pre-mRNAs by recombinant double-stranded RNA Adenosine deaminase. J. Biol. Chem. 271: 12221-12226.
2. Melcher, T., et al. 1996. RED2, a brain-specific member of the RNA-specific Adenosine deaminase family. J. Biol. Chem. 271: 31795-31798.
3. Rueter, S.M., et al. 1999. Regulation of alternative splicing by RNA editing. Nature 399: 75-80.
4. Maas, S., et al. 1999. Identification and characterization of a human tRNA-specific Adenosine deaminase related to the ADAR family of pre-mRNA editing enzymes. Proc. Natl. Acad. Sci. USA 96: 8895-8900.
5. Schade, M., et al. 1999. The solution structure of the Zα domain of the human RNA editing enzyme ADAR1 reveals a prepositioned binding surface for Z-DNA. Proc. Natl. Acad. Sci. USA 96: 12465-12470.
6. Lehmann, K.A. and Bass, B.L. 1999. The importance of internal loops within RNA substrates of ADAR1. J. Mol. Biol. 291: 1-13.
7. Keller, W., et al. 1999. Editing of messenger RNA precursors and of tRNAs by adenosine to inosine conversion. FEBS Lett. 452: 71-76.

CHROMOSOMAL LOCATION

Genetic locus: Adar (mouse) mapping to 3 F1.

SOURCE

ADAR1 (E-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of ADAR1 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-10004 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

ADAR1 (E-18) is recommended for detection of ADAR1 of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 ADAR1 siRNA (m): sc-37658, ADAR1 shRNA Plasmid (m): sc-37658-SH and ADAR1 shRNA (m) Lentiviral Particles: sc-37658-V.

Molecular Weight of full length ADAR1: 150 kDa.

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

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Yang, J.H., et al. 2003. Intracellular localization of differentially regulated RNA-specific adenosine deaminase isoforms in inflammation. J. Biol. Chem. 278: 45833-45842.
2. Nie, Y., et al. 2004. Subcellular distribution of ADAR1 isoforms is synergistically determined by three nuclear discrimination signals and a regulatory motif. J. Biol. Chem. 279: 13249-13255.

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.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.