SANTA CRUZ BIOTECHNOLOGY, INC.

ADAR1 (H-176): sc-33179

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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 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.
3. 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.
4. Yang, W., et al. 2005. ADAR1 RNA deaminase limits short interfering RNA efficacy in mammalian cells. J. Biol. Chem. 280: 3946-3953.
5. George, C.X., et al. 2005. Expression of interferon-inducible RNA adenosine deaminase ADAR1 during pathogen infection and mouse embryo development involves tissue-selective promoter utilization and alternative splicing. J. Biol. Chem. 280: 15020-15028.
6. Sallacz, N.B., et al. 2005. Chromosomal storage of the RNA-editing enzyme ADAR1 in *Xenopus* oocytes. Mol. Biol. Cell 16: 3377-3386.

CHROMOSOMAL LOCATION

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

SOURCE

ADAR1 (H-176) is a rabbit polyclonal antibody raised against amino acids 1051-1226 mapping at the C-terminus of ADAR1 of human origin.

PRODUCT

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

APPLICATIONS

ADAR1 (H-176) is recommended for detection of all ADAR1 isoforms 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

ADAR1 (H-176) is also recommended for detection of all ADAR1 isoforms in additional species, including equine, canine, bovine and porcine.

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 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 goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Paz, N., et al. 2007. Altered adenosine-to-inosine RNA editing in human cancer. Genome Res. 17: 1586-1595.

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.