

ADAT1 (H-180): sc-292820

BACKGROUND

Editing of RNA alters the nucleotide sequence of a transcript to produce codon changes, which can result in alternative translation patterns from a single pre-mRNA. One type of RNA editing involves tRNA-specific adenosine deaminase, ADAT1, which is responsible for the first step in the processing of eukaryotic tRNA^{Ala} transcripts that undergo specific adenosine to inosine modifications. Additionally, members of the double-stranded RNA (dsRNA) adenosine deaminase family of enzymes, ADAR1 and ADAR2, act on double-stranded regions of RNA. dsRNA structures are formed by base pairing of an exonic sequence around the editing site with a complementary sequence in the downstream intron. ADAR family member-mediated editing occurs in the nucleus before splicing removes the respective intron. These enzymes all facilitate the deamination of adenosine to generate inosine, which is then translated as guanosine. ADAR1, ADAR2 and a related brain-specific ADAR family member, RED2, contain a central series of double-stranded RNA-binding motifs and a C-terminal catalytic domain. ADAR1 also contains a novel Zn-DNA binding domain at the N-terminal region, and when bound to Z-DNA-ADAR1 is substantially less susceptible to proteolytic degradation.

REFERENCES

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2. Melcher, T., Maas, S., Herb, A., Sprengel, R., Higuchi, M. and Seeburg, P.H. 1996. RED2, a brain-specific member of the RNA-specific adenosine deaminase family. *J. Biol. Chem.* 271: 31795-31798.
3. Rueter, S.M., Dawson, T.R. and Emeson, R.B. 1999. Regulation of alternative splicing by RNA editing. *Nature* 399: 75-80.
4. Maas, S., Gerber, A.P. and Rich, A. 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. Lehmann, K.A. and Bass, B.L. 1999. The importance of internal loops within RNA substrates of ADAR1. *J. Mol. Biol.* 291: 1-13.
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CHROMOSOMAL LOCATION

Genetic locus: ADAT1 (human) mapping to 16q23.1; Adat1 (mouse) mapping to 8 E1.

RESEARCH USE

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

SOURCE

ADAT1 (H-180) is a rabbit polyclonal antibody raised against amino acids 323-502 mapping at the C-terminus of ADAT1 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

ADAT1 (H-180) is recommended for detection of ADAT1 of human and, to a lesser extent, mouse and rat 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).

ADAT1 (H-180) is also recommended for detection of ADAT1 in additional species, including equine, canine and porcine.

Suitable for use as control antibody for ADAT1 siRNA (h): sc-37661, ADAT1 siRNA (m): sc-37662, ADAT1 shRNA Plasmid (h): sc-37661-SH, ADAT1 shRNA Plasmid (m): sc-37662-SH, ADAT1 shRNA (h) Lentiviral Particles: sc-37661-V and ADAT1 shRNA (m) Lentiviral Particles: sc-37662-V.

Molecular Weight of ADAT1 isoforms: 55/39 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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

STORAGE

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

PROTOCOLS

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