

# ADAR1 (L-15): sc-19077

## 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.

## CHROMOSOMAL LOCATION

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

## SOURCE

ADAR1 (L-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of ADAR1 of human origin.

## PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-19077 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## 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.

## APPLICATIONS

ADAR1 (L-15) is recommended for detection of ADAR1 isoforms a, b, and c 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), 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).

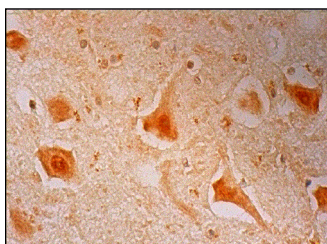
ADAR1 (L-15) is also recommended for detection of ADAR1 isoforms a, b and c in additional species, including equine, canine, bovine and porcine.

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.

## DATA



ADAR1 (L-15): sc-19077. Immunoperoxidase staining of formalin fixed, paraffin-embedded human hippocampus tissue showing nuclear and cytoplasmic staining of neuronal cells and nuclear staining of glial cells.

## SELECT PRODUCT CITATIONS

1. Gan, Z. and Zhao, L. 2006. RNA editing by ADAR2 is metabolically regulated in pancreatic islets and  $\beta$ -cells. *J. Biol. Chem.* 281: 33386-33394.
2. Yang, L., et al. 2010. Deficiency in RNA editing enzyme ADAR2 impairs regulated exocytosis. *FASEB J.* 24: 3720-3732.
3. Barbon, A., et al. 2010. Acute spinal cord injury persistently reduces R/G RNA editing of AMPA receptors. *J. Neurochem.* 114: 397-407.
4. Yang, L., et al. 2012. c-Jun amino-terminal kinase-1 mediates glucose-responsive upregulation of the RNA editing enzyme ADAR2 in pancreatic  $\beta$ -cells. *PLoS ONE* 7: e48611.


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