SANTA CRUZ BIOTECHNOLOGY, INC.

ADAR2 siRNA (m): sc-37660

BACKGROUND

ADAR2, also designated adenosine deaminase, RNA-specific (RED1), RNA-editing enzyme 1, DRABA2, DRADA2, ADAR2α-L1, ADAR2α-L2 and ADAR2α-L3, mediates RNA editing by destabilizing RNA through deamination of adenosine to inosine. ADAR2 is responsible for pre-mRNA editing of the glutamate receptor subunit B by site-specific deamination of adenosines. It can modify its own pre-mRNA and generate new splice sites. Translocation of endogenous ADAR2 from the nucleolus to the nucleoplasm results in increased editing of endogenous ADAR2 substrates. Alternative splicing of this gene results in several transcript variants that may influence RNA editing. RNA editing involves the deamination of adenosines at specific sites, the result of which can be a change in the amino acid sequence of the protein so that it differs from that predicted by the sequence of the DNA.

REFERENCES

1. Higuchi, M., et al. 2000. Point mutation in an AMPA receptor gene rescues lethality in mice deficient in the RNA-editing enzyme ADAR2. Nature 406: 78-81.
2. Wong, S.K., et al. 2001. Substrate recognition by ADAR1 and ADAR2. RNA 7: 846-858.
3. Kallman, A.M., et al. 2003. ADAR2 A→I editing: site selectivity and editing efficiency are separate events. Nucleic Acids Res. 31: 4874-4881.
4. Sansam, C.L., et al. 2003. Modulation of RNA editing by functional nucleolar sequestration of ADAR2. Proc. Natl. Acad. Sci. USA 100: 14018-14023.
5. Dawson, T.R., et al. 2004. Structure and sequence determinants required for the RNA editing of ADAR2 substrates. J. Biol. Chem. 279: 4941-4951.
6. Vitali, P., et al. 2005. ADAR2-mediated editing of RNA substrates in the nucleolus is inhibited by C/D small nucleolar RNAs. J. Cell Biol. 169: 745-753.
7. Macbeth, M.R., et al. 2005. Inositol hexakisphosphate is bound in the ADAR2 core and required for RNA editing. Science 309: 1534-1539.
8. Feng, Y., et al. 2006. Altered RNA editing in mice lacking ADAR2 autoregulation. Mol. Cell. Biol. 26: 480-488.

CHROMOSOMAL LOCATION

Genetic locus: Adarb1 (mouse) mapping to 10 C1.

PRODUCT

ADAR2 siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ADAR2 shRNA Plasmid (m): sc-37660-SH and ADAR2 shRNA (m) Lentiviral Particles: sc-37660-V as alternate gene silencing products.

For independent verification of ADAR2 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-37660A, sc-37660B and sc-37660C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

ADAR2 siRNA (m) is recommended for the inhibition of ADAR2 expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

ADAR2 (C-6): sc-514581 is recommended as a control antibody for monitoring of ADAR2 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ADAR2 gene expression knockdown using RT-PCR Primer: ADAR2 (m)-PR: sc-37660-PR (20 µl, 508 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Yue, T., et al. 2019. Ammonium induced dysfunction of 5-HT2B receptor in astrocytes. Neurochem. Int. 129: 104479.

RESEARCH USE

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