SANTA CRUZ BIOTECHNOLOGY, INC.

ERAB siRNA (h): sc-41938

BACKGROUND

β-Amyloid is a neurotoxic peptide that is associated with the pathogenesis of Alzheimer's disease. β-Amyloid aggregates induce cell death of neurons through the disruption of cell membranes and the generation of reactive oxygen intermediates. These neurotoxic effects are also attributed to the interaction of β-Amyloid with intracellular proteins, specifically ERAB, the endoplasmic reticulum-associated β-Amyloid-binding protein. ERAB is characterized as a NAD^+-dependent dehydrogenase that is constitutively expressed in tissues and overexpressed in neurons affected in Alzheimer's disease. Cells overexpressing ERAB *in vitro* have been shown to be more sensitive to β-Amyloid-induced stress, and blocking the activity of ERAB has been shown to inhibit this cell death, indicating that β-Amyloid induced cell death is mediated by ERAB.

REFERENCES

1. Hensley, K., et al. 1994. A model for β-Amyloid aggregation and neurotoxicity based on free radical generation by the peptide: relevance to Alzheimer disease. Proc. Natl. Acad. Sci. USA 91: 3270-3274.
2. Yan, S.D., et al. 1997. An intracellular protein that binds Amyloid-β peptide and mediates neurotoxicity in Alzheimer's disease. Nature 389: 689-695.
3. Price, D.L., et al. 1998. Genetic neurodegenerative diseases: the human illness and transgenic models. Science 282: 1079-1083.
4. He, X.Y., et al. 1998. A human brain L-3-hydroxyacyl-coenzyme A dehydrogenase is identical to an Amyloid β-peptide-binding protein involved in Alzheimer's disease. J. Biol. Chem. 273: 10741-10746.
5. Hansis, C., et al. 1998. The gene for the Alzheimer associated β Amyloid-binding protein (ERAB) is differentially expressed in the testicular Leydig cells of the azoospermic by w/w(v) mouse. Eur. J. Biochem. 258: 53-60.
6. Sambamurti, K., et al. 1998. ERAB contains a putative noncleavable signal peptide. Biochem. Biophys. Res. Commun. 249: 546-549.

CHROMOSOMAL LOCATION

Genetic locus: HSD17B10 (human) mapping to Xp11.22.

PRODUCT

ERAB siRNA (h) 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 ERAB shRNA Plasmid (h): sc-41938-SH and ERAB shRNA (h) Lentiviral Particles: sc-41938-V as alternate gene silencing products.

For independent verification of ERAB (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-41938A, sc-41938B and sc-41938C.

PROTOCOLS

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

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

ERAB siRNA (h) is recommended for the inhibition of ERAB expression in human 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

ERAB (E-10): sc-393693 is recommended as a control antibody for monitoring of ERAB 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 ERAB gene expression knockdown using RT-PCR Primer: ERAB (h)-PR: sc-41938-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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