SANTA CRUZ BIOTECHNOLOGY, INC.

ACYP2 siRNA (m): sc-38901

BACKGROUND

The formation of stable highly organized protein aggegrates, known as amyloid fibrils, is associated with several debilitating human diseases, including Alzheimer's disease, Parkinson's disease and Creutzfeldt-Jakob disease. In each of these conditions, a peptide or protein that is normally soluble accumulates into insoluble fibrils. Muscle acylphosphatase (AcP) has emerged as a significant model system to study protein misfolding and aggregation. It is particularly suitable for these studies because muscle AcP is a small, simple protein of only 98 amino acids consisting of a 5-stranded antiparallel β-sheet and two parallel α-helices. Mutations in the muscle AcP between residues 16-31 and 87-98, which includes its phosphate binding site at Arg-23, significantly increases the rate of aggregation. These mutations correlate with changes in the hydrophobicity of AcP and a conversion of the α-helical structures to β-sheets. Therefore, a reduction in the net charge of a protein may be a key determinant in some forms of protein deposition diseases.

REFERENCES

1. Serpell, L.C., et al. 1997. The molecular basis of amyloidosis. Cell. Mol. Life Sci. 53: 871-887.
2. Chiti, F., et al. 2000. Mutational analysis of the propensity for amyloid formation by a globular protein. EMBO J. 19: 1441-1449.
3. Chiti, F., et al. 2001. Reduction of the amyloidogenicity of a protein by specific binding of ligands to the native conformation. Protein Sci. 10: 879-886.
4. Taddei, N., et al. 2001. Folding and aggregation are selectively influenced by the conformational preferences of the α-helices of muscle acylphosphatase. J. Biol. Chem. 276: 37149-37154.
5. Chiti, F., et al. 2002. Kinetic partitioning of protein folding and aggregation. Nat. Struct. Biol. 9: 137-143.
6. Chiti, F., et al. 2002. Studies of the aggregation of mutant proteins *in vitro* provide insights into the genetics of amyloid diseases. Proc. Natl. Acad. Sci. USA 99: 16419-16426.

CHROMOSOMAL LOCATION

Genetic locus: Acyp2 (mouse) mapping to 11 A4.

PRODUCT

ACYP2 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 ACYP2 shRNA Plasmid (h): sc-38900-SH and ACYP2 shRNA (h) Lentiviral Particles: sc-38900-V as alternate gene silencing products.

For independent verification of ACYP2 (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-38900A, sc-38900B and sc-38900C.

RESEARCH USE

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

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

ACYP2 siRNA (m) is recommended for the inhibition of ACYP2 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

ACYP2 (B-3): sc-398298 is recommended as a control antibody for monitoring of ACYP2 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 ACYP2 gene expression knockdown using RT-PCR Primer: ACYP2 (m)-PR: sc-38901-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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