SANTA CRUZ BIOTECHNOLOGY, INC.

X11α siRNA (h): sc-36851

BACKGROUND

The β-Amyloid precursor protein (β-APP) is a major constituent of the amyloid deposits in patients with Alzheimer's disease. The β-Amyloid precursor is known to interact with several proteins, including X11 and the G heterotrimetric protein APP-BP1. The neuronal, transmembrane protein X11 is known to bind to the β-Amyloid precursor protein via a phosphotyrosine binding (PTB) domain, reducing the secretion of cellular β-APP and slowing β-APP processing pathways. X11 binds specifically to the YENPTY motif, which is involved in the internalization of β-APP. Multiple splice varitents of X11 have been identified, including X11α (also designated Mint 1), X11β (Mint 2) and X11γ (Mint 3).

REFERENCES

1. Borg, J.P., et al. 1996. The phosphotyrosine interaction domains of X11 and FE65 bind to distinct sites on the YENPTY motif of Amyloid precursor protein. Mol. Cell. Biol. 16: 6229-6241.
2. Okamoto, M., et al. 1997. Mints, Munc18-interacting proteins in synaptic vesicle exocytosis. J. Biol. Chem. 272: 31459-31464.
3. Zhang, Z., et al. 1997. Sequence-specific recognition of the internalization motif of the Alzheimer's Amyloid precursor protein by the X11 PTB domain. EMBO J. 16: 6141-6150.
4. Russo, T., et al. 1998. Fe65 and the protein network centered around the cytosolic domain of the Alzheimer's β-Amyloid precursor protein. FEBS Lett. 434: 1-7.
5. Borg, J.P., et al. 1998. The X11α protein slows cellular Amyloid precursor protein processing and reduces Aβ40 and Aβ42 secretion. J. Biol. Chem. 273: 14761-14766.
6. Sastre, M., et al. 1998. X11 interaction with β-Amyloid precursor protein modulates its cellular stabilization and reduces amyloid β-protein secretion. J. Biol. Chem. 273: 22351-22357.
7. Biederer, T., et al. 2000. Mints as adaptors. Direct binding to neurexins and recruitment of munc18. J. Biol. Chem. 275: 39803-39806.
8. Lau, K.F., et al. 2000. X11α and X11β interact with presenilin-1 via their PDZ domains. Mol. Cell. Neurosci. 16: 557-565.

CHROMOSOMAL LOCATION

Genetic locus: APBA1 (human) mapping to 9q21.11.

PRODUCT

X11α 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 X11α shRNA Plasmid (h): sc-36851-SH and X11α shRNA (h) Lentiviral Particles: sc-36851-V as alternate gene silencing products.

For independent verification of X11α (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-36851A, sc-36851B and sc-36851C.

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

X11α siRNA (h) is recommended for the inhibition of X11α 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

X11α (A-12): sc-137022 is recommended as a control antibody for monitoring of X11α 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 X11α gene expression knockdown using RT-PCR Primer: X11α (h)-PR: sc-36851-PR (20 µl, 479 bp). 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.

PROTOCOLS

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