SANTA CRUZ BIOTECHNOLOGY, INC.

neuroserpin siRNA (h): sc-42109

BACKGROUND

Neuroserpin is an axonally secreted glycoprotein in the central nervous system (CNS) that belongs to the family of protease inhibitors known as serpins. Neuroserpin is a serine-protease inhibitor that forms SDS-stable complexes with tissue plasminogen activator (tPA), urokinase and plasmin, but not thrombin. Neuroserpin is expressed in the neocortex, the hippocampal formation, the olfactory bulb and the amygdala in the adult CNS, and it is expressed in the cerebellum, the granule cells and a subgroup of Purkinje cells in the developing embryo. tPA expression has been linked to "neuronal plasticity", either in the developing embryo CNS (2,4) or in cases of synpatic remodeling or long-term potentiation. Overexpression of tPA may promote neuronal cell death. Mutations in the gene which codes for neuroserpin are linked to hereditary dementia. Intracerebral administration of neuroserpin after stroke decreases stroke volume and diminishes the apoptotic features of the resulting ischemic penumbra.

REFERENCES

1. Osterwalder, T., et al. 1996. Neuroserpin, an axonally secreted serine protease inhibitor. EMBO J. 15: 2944-2953.
2. Krueger, S., et al. 1997. Expression of neuroserpin, an inhibitor of tissue plasminogen activator, in the developing and adult nervous system of the mouse. J. Neurosci. 17: 8984-8996.
3. Hastings, G., et al. 1997. Neuroserpin, a brain-associated inhibitor of tissue plasminogen activator is localized primarily in neurons. J. Biol. Chem. 272: 33062-33067.
4. Osterwalder, T., et al. 1998. The axonally secreted serine proteinase inhibitor, neuroserpin, inhibits plasminogen activators and plasmin but not thrombin. J. Biol. Chem. 273: 2312-2321.
5. Yepes, M., et al. 2000. Neuroserpin reduces cerebral infarct volume and protects neurons from ischemia-induced apoptosis. Blood 96: 569-576.
6. Huntington, J., et al. 2001. The serpins: natures molecular mousetraps. Sci. Prog. 84: 125-136.
7. Yazaki, M., et al. 2001. Biochemical characterization of a neuroserpin variant associated with herditary dementia. Am. J. Pathol. 158: 227-233.

CHROMOSOMAL LOCATION

Genetic locus: SERPINI1 (human) mapping to 3q26.1.

PRODUCT

neuroserpin 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 neuroserpin shRNA Plasmid (h): sc-42109-SH and neuroserpin shRNA (h) Lentiviral Particles: sc-42109-V as alternate gene silencing products.

For independent verification of neuroserpin (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-42109A, sc-42109B and sc-42109C.

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

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

neuroserpin (C-9): sc-48360 is recommended as a control antibody for monitoring of neuroserpin 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 neuroserpin gene expression knockdown using RT-PCR Primer: neuroserpin (h)-PR: sc-42109-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.

PROTOCOLS

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