

Synaptopodin siRNA (r): sc-270158

BACKGROUND

Dendritic spines are dynamic structures that alter their shape and size by remodeling the cytoskeleton in response to changes in synaptic activity. Synaptopodin is a proline-rich, Actin-associated protein expressed in mature dendritic spines and renal podocytes. Synaptopodin appears to play a role in the Actin-based plasticity of spines by linking Actin to the spine apparatus. In the principal neurons of the hippocampus, synaptopodin preferentially localizes to the spine neck. Synaptopodin expression increases during long-term potentiation (LTP) *in vivo* and elevated levels of synaptopodin correlate with the persistence of LTP. In renal podocytes, synaptopodin localizes to the foot processes. Synaptopodin is absent in the sclerosed glomeruli of idiopathic nephrotic syndrome. Myopodin, a member of the synaptopodin family, is expressed in skeletal muscle and cardiac muscle. Like synaptopodin, myopodin associates with actin and appears to display Actin-bundling activity. Myopodin is frequently absent in invasive prostate cancer and may serve as a prognostic marker for prostate cancers.

REFERENCES

1. Mundel, P., et al. 1997. Synaptopodin: an actin-associated protein in telencephalic dendrites and renal podocytes. *J. Cell Biol.* 139: 193-204.
2. Deller, T., et al. 2000. Potential role of synaptopodin in spine motility by coupling actin to the spine apparatus. *Hippocampus* 10: 569-581.
3. Deller, T., et al. 2000. Actin-associated protein synaptopodin in the rat hippocampal formation: localization in the spine neck and close association with the spine apparatus of principal neurons. *J. Comp. Neurol.* 418: 164-181.
4. Yamazaki, M., et al. 2001. Regulated expression of an Actin-associated protein, synaptopodin, during long-term potentiation. *J. Neurochem.* 79: 192-199.
5. Srivastava, T., et al. 2001. Synaptopodin expression in idiopathic nephrotic syndrome of childhood. *Kidney Int.* 59: 118-125.
6. Weins, A., et al. 2001. Differentiation- and stress-dependent nuclear cytoplasmic redistribution of myopodin, a novel Actin-bundling protein. *J. Cell Biol.* 155: 393-404.

CHROMOSOMAL LOCATION

Genetic locus: Synpo (rat) mapping to 18q12.1.

PRODUCT

Synaptopodin siRNA (r) is a pool of 2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Synaptopodin shRNA Plasmid (r): sc-270158-SH and Synaptopodin shRNA (r) Lentiviral Particles: sc-270158-V as alternate gene silencing products.

For independent verification of Synaptopodin (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270158A and sc-270158B.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Synaptopodin siRNA (r) is recommended for the inhibition of Synaptopodin expression in rat 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 μ M in 66 μ l. 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

Synaptopodin (D-9): sc-515842 is recommended as a control antibody for monitoring of Synaptopodin 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 Synaptopodin gene expression knockdown using RT-PCR Primer: Synaptopodin (r)-PR: sc-270158-PR (20 μ l). 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.