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# Synaptopodin shRNA (m) Lentiviral Particles: sc-44777-V

## 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

- Mundel, P., et al. 1997. Synaptopodin: an Actin-associated protein in telencephalic dendrites and renal podocytes. *J. Cell Biol.* 139: 193-204.
- Deller, T., et al. 2000. Potential role of Synaptopodin in spine motility by coupling Actin to the spine apparatus. *Hippocampus* 10: 569-581.
- 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.
- Srivastava, T., et al. 2001. Synaptopodin expression in idiopathic nephrotic syndrome of childhood. *Kidney Int.* 59: 118-125.
- 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 (mouse) mapping to 18 D3.

## PRODUCT

Synaptopodin shRNA (m) Lentiviral Particles is a pool of concentrated, transduction-ready viral particles containing 3 target-specific constructs that encode 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200  $\mu$ l frozen stock containing  $1.0 \times 10^6$  infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see Synaptopodin siRNA (m): sc-44777 and Synaptopodin shRNA Plasmid (m): sc-44777-SH as alternate gene silencing products.

## STORAGE

Store lentiviral particles at  $-80^\circ\text{C}$ . Stable for at least one year from the date of shipment. Once thawed, particles can be stored at  $4^\circ\text{C}$  for up to one week. Avoid repeated freeze thaw cycles.

## APPLICATIONS

Synaptopodin shRNA (m) Lentiviral Particles is recommended for the inhibition of Synaptopodin expression in mouse cells.

## SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200  $\mu$ l frozen viral stock containing  $1.0 \times 10^6$  infectious units of virus (IFU); contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

## GENE EXPRESSION MONITORING

Synaptopodin (P-19): sc-21537 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 (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Synaptopodin gene expression knockdown using RT-PCR Primer: Synaptopodin (m)-PR: sc-44777-PR (20  $\mu$ l). Annealing temperature for the primers should be  $55-60^\circ\text{C}$  and the extension temperature should be  $68-72^\circ\text{C}$ .

## BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

## RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.

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