

PSD-95 siRNA (m): sc-42012

BACKGROUND

The *Drosophila* discs large (dlg) tumor suppressor gene was first identified in *Drosophila* through genetic analysis of germline mutations. Several mammalian homologs were subsequently identified and categorized into a protein family termed MAGUK (membrane-associated guanylate kinase homolog). Human homologs of dlg include hdlg-1 (rat SAP 97) and NE-dlg (neuronal and endocrine dlg). The rat synaptic protein PSD-95 (also designated SAP 90) also shares homology with these proteins. MAGUKs are localized at the membrane-cytoskeleton interface and contain several distinct domains which suggest a role for these proteins in intracellular signal transduction. Interaction of hdlg-1 and NE-dlg with the tumor suppressor protein APC suggest that MAGUK proteins may also play a role in regulation of growth.

REFERENCES

1. Gateff, E., et al. 1989. Tumor-suppressor genes of *Drosophila melanogaster*. Crit. Rev. Oncog. 1: 221-245.
2. Cho, K.O., et al. 1992. The rat brain postsynaptic density fraction contains a homolog of the *Drosophila* discs-large tumor suppressor protein. Neuron 9: 929-942.
3. Stehle, T., et al. 1992. Refined structure of the complex between guanylate kinase and its substrate GMP at 2.0 Å resolution. J. Mol. Biol. 224: 1127-1141.
4. Woods, D.F., et al. 1993. ZO-1, DlgA and PSD-95/SAP 90: homologous proteins in tight, septate and synaptic cell junctions. Mech. Dev. 44: 85-89.

CHROMOSOMAL LOCATION

Genetic locus: Dlg4 (mouse) mapping to 11 B3.

PRODUCT

PSD-95 siRNA (m) 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 PSD-95 shRNA Plasmid (m): sc-42012-SH and PSD-95 shRNA (m) Lentiviral Particles: sc-42012-V as alternate gene silencing products.

For independent verification of PSD-95 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-42012A, sc-42012B and sc-42012C.

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

PSD-95 siRNA (m) is recommended for the inhibition of PSD-95 expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29527 (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

PSD-95 (7E3): sc-32290 is recommended as a control antibody for monitoring of PSD-95 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 PSD-95 gene expression knockdown using RT-PCR Primer: PSD-95 (m)-PR: sc-42012-PR (20 µl, 463 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Fan, J., et al. 2009. Interaction of postsynaptic density protein-95 with NMDA receptors influences excitotoxicity in the yeast artificial chromosome mouse model of Huntington's disease. J. Neurosci. 29: 10928-10938.
2. Xu, J., et al. 2018. Synaptic NMDA receptor activation induces ubiquitination and degradation of STEP61. Mol. Neurobiol. 55: 3096-3111.

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.