

Dpl siRNA (m): sc-42205

BACKGROUND

Prion diseases or transmissible spongiform encephalopathies (TSEs) are manifested as genetic, infectious or sporadic, lethal neurodegenerative disorders involving alterations of the prion protein (PrP). Infectious PrP^{Sc} is highly expressed in the brain of animals affected by TSEs, including scrapie in sheep, BSE in cattle, and Cruetzfeldt-Jacob disease in humans. The PRND gene locus, located on human chromosome 20p, encodes for the doppel protein (Dpl), which exhibits approximately 25% sequence homology with PrP. Dpl is characterized by an α -helical conformation, intramolecular disulfide bonds, and two N-linked oligosaccharides, and it is presented on the cell surface by a glycosylphosphatidylinositol anchor. Dpl is highly expressed in adult testis and heart and is detectable in the brain of neonatal mice. Dpl does not appear to contribute to prion disease progression, but ectopic expression of Dpl is implicated in neuronal degeneration of ataxic PRP-deficient mice. Dpl is also thought to play a role in angiogenesis, specifically maturation of the blood-brain barrier.

REFERENCES

1. Prusiner, S.B. 1998. Prions. *Proc. Natl. Acad. Sci. USA* 95: 13363-13383.
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3. Mead, S., et al. 2000. Examination of the human prion protein-like gene doppel for genetic susceptibility to sporadic and variant Creutzfeldt-Jakob disease. *Neurosci. Lett.* 290: 117-120.
4. Silverman, G.L., et al. 2000. Doppel is an N-glycosylated, glycosylphosphatidylinositol-anchored protein. Expression in testis and ectopic production in the brains of Prnp^{0/0} mice predisposed to Purkinje cell loss. *J. Biol. Chem.* 275: 26834-26841.
5. Li, A., et al. 2000. Physiological expression of the gene for PrP-like protein, PrPLP/Dpl, by brain endothelial cells and its ectopic expression in neurons of PrP-deficient mice ataxic due to Purkinje cell degeneration. *Am. J. Pathol.* 157: 1447-1452.
6. Mo, H., et al. 2001. Two different neurodegenerative diseases caused by proteins with similar structures. *Proc. Natl. Acad. Sci. USA* 98: 2352-2357.

CHROMOSOMAL LOCATION

Genetic locus: Prnd (mouse) mapping to 2 F2.

PRODUCT

Dpl 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Dpl shRNA Plasmid (m): sc-42205-SH and Dpl shRNA (m) Lentiviral Particles: sc-42205-V as alternate gene silencing products.

For independent verification of Dpl (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-42205A, sc-42205B and sc-42205C.

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

Dpl siRNA (m) is recommended for the inhibition of Dpl expression in mouse 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Dpl gene expression knockdown using RT-PCR Primer: Dpl (m)-PR: sc-42205-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.