SANTA CRUZ BIOTECHNOLOGY, INC.

Dpl (FL-176): sc-25657

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 PrPSc 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 alpha-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.
2. Lee, I.Y., et al. 1998. Complete genomic sequence and analysis of the prion protein gene region from three mammalian species. Genome. Res. 8: 1022-1037.
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.

CHROMOSOMAL LOCATION

Genetic locus: PRND (human) mapping to 20p13; Prnd (mouse) mapping to 2 F2.

SOURCE

Dpl (FL-176) is a rabbit polyclonal antibody raised against amino acids 1-176 representing full length Dpl of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

Dpl (FL-176) is recommended for detection of Dpl of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Dpl siRNA (h): sc-42204, Dpl siRNA (m): sc-42205, Dpl shRNA Plasmid (h): sc-42204-SH, Dpl shRNA Plasmid (m): sc-42205-SH, Dpl shRNA (h) Lentiviral Particles: sc-42204-V and Dpl shRNA (m) Lentiviral Particles: sc-42205-V.

Molecular Weight of Dpl: 34 kDa.

Positive Controls: mouse brain extract: sc-2253 or mouse testis extract: sc-2405.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Yoshikawa, D., et al. 2008. Dominant-negative effects of the N-terminal half of prion protein on neurotoxicity of prion protein-like protein/doppel in mice. J. Biol. Chem. 283: 24202-24211.
2. Cordier-Dirikoc, S., et al. 2008. Expression profiles of prion and doppel proteins and of their receptors in mouse splenocytes. Eur. J. Immunol. 38: 2131-2141.
3. Xu, K., et al. 2009. Transient expressions of doppel and its structural analog prionΔ32-121 in SH-SY5Y cells caused cytotoxicity possibly by triggering similar apoptosis pathway. Mol. Biol. Rep. E-published.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

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