

Dkk-1 (G-18): sc-30785

BACKGROUND

The Wnt genes are a group of well conserved, cysteine-rich secreted glycoproteins that are required for numerous developmental processes including embryogenesis, asymmetric cell division and central nervous system (CNS) patterning. Wnt association with the seven membrane spanning receptor frizzled activates dishevelled, which downregulates glycogen synthase kinase (GSK) through serine phosphorylation, causing the accumulation of β -catenin and subsequent regulation of developmentally significant Wnt target genes. The Dickkopf family of secreted inhibitors of Wnt signaling ensures proper morphological development by antagonizing different stages of the Wnt cascade. Dkk-1 (Dickkopf-1) acts upstream of β -catenin and dishevelled to inhibit Wnt signaling. Dkk-1 is a 266-amino acid (human), secreted protein that contains a 31-residue N-terminal signal peptide, 2 cysteine rich domains and a putative carboxy terminal N-glycosylation site. Human Dkk-1 transcripts are abundantly present in fetal kidney, adult placenta and adult prostate. Putative *cis* regulatory elements upstream of the Dkk-1 start site include p53, Sp1, MyoD, Stat, Oct-1/2, C/EBP- α , C/EBP- β , GATA-1, GATA-2 and GATA-3.

REFERENCES

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2. Cadigan, K.M., et al. 1997. Wnt signaling: a common theme in animal development. *Genes Dev.* 11: 3286-3305.
3. Sakanaka, C., et al. 1998. Bridging of β -catenin and glycogen synthase kinase-3 β by axin and inhibition of β -catenin-mediated transcription. *Proc. Natl. Acad. Sci. USA* 95: 3020-3023.
4. Glinka, A., et al. 1998. Dickkopf-1 is a member of a new family of secreted proteins and functions in head induction. *Nature* 391: 357-362.
5. Fedi, P., et al. 1999. Isolation and biochemical characterization of the human Dkk-1 homologue, a novel inhibitor of mammalian Wnt signaling. *J. Biol. Chem.* 274: 19465-19472.
6. Wang, J., et al. 2000. Dickkopf-1, an inhibitor of the Wnt signaling pathway, is induced by p53. *Oncogene* 19: 1843-1848.
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CHROMOSOMAL LOCATION

Genetic locus: DKK1 (human) mapping to 10q21.1; Dkk1 (mouse) mapping to 19 C1.

SOURCE

Dkk-1 (G-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Dkk-1 of mouse origin.

STORAGE

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

PRODUCT

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

Blocking peptide available for competition studies, sc-30785 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Dkk-1 (G-18) is recommended for detection of precursor and mature Dkk-1 of mouse, rat and, to a lesser extent, human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 Dkk-1 siRNA (h): sc-37082, Dkk-1 siRNA (m): sc-37083, Dkk-1 shRNA Plasmid (h): sc-37082-SH, Dkk-1 shRNA Plasmid (m): sc-37083-SH, Dkk-1 shRNA (h) Lentiviral Particles: sc-37082-V and Dkk-1 shRNA (m) Lentiviral Particles: sc-37083-V.

Molecular Weight of Dkk-1: 35 kDa.

RECOMMENDED SECONDARY REAGENTS

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.

SELECT PRODUCT CITATIONS

1. Kasaai, B., et al. 2012. Spatial and temporal localization of WNT signaling proteins in a mouse model of distraction osteogenesis. *J. Histochem. Cytochem.* 60: 219-228.

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.



Try **Dkk-1 (B-7): sc-374574**, our highly recommended monoclonal alternatives to Dkk-1 (G-18). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **Dkk-1 (B-7): sc-374574**.