Mouse Dkk-1 Biotinylated Antibody

Antigen Affinity-purified Polyclonal Goat IgG
Catalog Number: BAF1765

DESCRIPTION

Species Reactivity	Mouse
Specificity	Detects mouse Dkk-1 in ELISAs and Western blots. In sandwich immunoassays, less than 6% cross-reactivity with recombinant human Dkk-1 is observed and less than 0.1% cross-reactivity with recombinant mouse (rm) Dkk-2, rmDkk-3, and rmDkk-4 is observed.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	Mouse myeloma cell line NS0-derived recombinant mouse Dkk-1 (R&D Systems, Catalog # 1765-DK) Ser30-His272 Accession # O54908
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Western Blot	0.1 µg/mL	Recombinant Mouse Dkk-1 (Catalog # 1765-DK)
Mouse Dkk-1 Sandwich Immunoassay		**Reagent**
ELISA Capture	0.2-0.8 µg/mL	Mouse Dkk-1 Antibody (Catalog # AF1765)
ELISA Detection	0.1-0.4 µg/mL	Mouse Dkk-1 Biotinylated Antibody (Catalog # BAF1765)
Standard		Recombinant Mouse Dkk-1 (Histidine-tagged) (Catalog # 1765-DK)

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Dickkopf related protein 1 (Dkk-1) is a member of the Dkk protein family that includes Dkk-1, -2, -3, and -4 (1). All four members are secreted proteins that are synthesized as precursor proteins with an N-terminal signal peptide and 2 conserved cysteine-rich domains, which are separated by a linker region. Dkk proteins have potential furin type proteolytic cleavage sites, and short forms of Dkk-2 and Dkk-4 containing only the second cysteine-rich domain can be generated by proteolytic processing (1). Dkk proteins have distinct patterns of expression in adult and embryonic tissues, suggesting that they may play diverse roles in these tissues.

The Dkk proteins have distinct effects on Wnt signaling. Dkk-1 and Dkk-4 are Wnt antagonists. Dkk-3 has not been demonstrated to affect Wnt signaling, and Dkk-2 acts as an agonist or antagonist, depending on the cellular context. Wnt signaling regulates many important developmental processes including neural crest differentiation, brain development, kidney morphogenesis, and sex determination. In addition, Wnt signaling has also been implicated in tumor formation. Canonical Wnt signaling via the beta-catenin pathway is transduced by a receptor complex composed of the Frizzled proteins (Fz) and low-density lipoprotein (LDL) receptor-related proteins (LRP5/6) (2, 3). Unlike many soluble Wnt antagonists that function by binding extracellular Wnt ligands to prevent interaction of Wnt with the Fz-LRP5/6 receptor complex, Dkk-1 and Dkk-4 antagonize Wnt/β-catenin signaling by direct high-affinity binding to the Wnt coreceptor LRP5/6 and inhibiting interaction of LRP5/6 with the Wnt-Frizzled complex (4). Dkk-1 and Dkk-4 also bind the transmembrane proteins Kremen1 (Krm1) and Krm2 with high-affinity (5). Krm2 has been shown to form a ternary complex with Dkk-1 or -4 and LRP5/6 to trigger internalization of the complex and removal LRP6 from the cell surface. Thus, Dkk-1/4 and Kremens function synergistically to antagonize LRP5/6-mediated Wnt activity. Dkk-2 also binds to LRP5/6 and the Kremens, but Dkk-2 acts as antagonist of the Wnt signaling pathway only in the presence of Krm2 (5, 6). Dkk-2 binding to LRP5/6 in the absence of Krm2 activates rather than inhibits Wnt signalling (6).

References:

1. Krupnik, V.E. *et al.* (1999) Gene **238**:301.
2. Zorn, A.M (2001) Current Biology R592.
3. Mao, J. *et al.* (2001) Mol. Cell **7**:801.
4. Nusse, R. *et al.* (2001) Nature **411**:255.
5. Mao, J. *et al.* (2002) Nature **417**:664.
6. Mao, B. and C. Niehrs (2003) Gene **302**:179.

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