

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Dkk-4 in ELISAs and Western blots. In direct ELISAs and Western blots, less than 2% cross-reactivity with recombinant mouse (rm) Dkk-4 is observed and no cross-reactivity with recombinant human (rh) Dkk-1 or rhDkk-3 is observed. In
Source	Monoclonal Mouse IgG _{2B} Clone # 185709
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant human Dkk-4 Leu19-Leu224 Accession # Q9UBT3
Conjugate	Alexa Fluor 532 Excitation Wavelength: 534 nm Emission Wavelength: 553 nm
Formulation	Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide
*Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.	

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.

ELISA Capture (Matched Antibody Pair)	Optimal dilution of this antibody should be experimentally determined.
ELISA Detection (Matched Antibody Pair)	Optimal dilution of this antibody should be experimentally determined.
Western Blot	Optimal dilution of this antibody should be experimentally determined.

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied

BACKGROUND

Dickkopf related protein 4 (Dkk-4) 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/beta-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 of 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 an 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).

PRODUCT SPECIFIC NOTICES

This product is provided under an agreement between Life Technologies Corporation and R&D Systems, Inc, and the manufacture, use, sale or import of this product is subject to one or more US patents and corresponding non-US equivalents, owned by Life Technologies Corporation and its affiliates. The purchase of this product conveys to the buyer the non-transferable right to use the purchased amount of the product and components of the product only in research conducted by the buyer (whether the buyer is an academic or for-profit entity). The sale of this product is expressly conditioned on the buyer not using the product or its components (1) in manufacturing; (2) to provide a service, information, or data to an unaffiliated third party for payment; (3) for therapeutic, diagnostic or prophylactic purposes; (4) to resell, sell, or otherwise transfer this product or its components to any third party, or for any other commercial purpose. Life Technologies Corporation will not assert a claim against the buyer of the infringement of the above patents based on the manufacture, use or sale of a commercial product developed in research by the buyer in which this product or its components was employed, provided that neither this product nor any of its components was used in the manufacture of such product. For information on purchasing a license to this product for purposes other than research, contact Life Technologies Corporation, Cell Analysis Business Unit, Business Development, 29851 Willow Creek Road, Eugene, OR 97402, Tel: (541) 465-8300. Fax: (541) 335-0354.