Recombinant Mouse Dkk-4

Catalog Number: 3105-DK/CF

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived mouse Dkk-4 protein Leu19-Ile221 (Arg67Ser and Arg70Ser), with a C-terminal 6-His tag Accession # Q8VEJ3
N-terminal Sequence Analysis	Leu19
Predicted Molecular Mass	23 kDa

SPECIFICATIONS

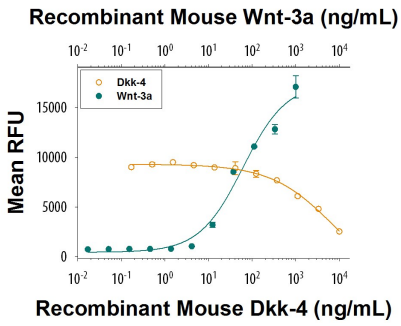
SDS-PAGE	31 kDa, reducing conditions
Activity	Measured by its ability to inhibit proliferation in MC3T3-E1 mouse preosteoblast cells. The ED_{50} for this effect is 1-4 µg/mL. **Optimal concentrations should be determined by each laboratory for each application.** Measured by its ability to inhibit Wnt induced TCF reporter activity in HEK293 human embryonic kidney cells. Recombinant Mouse Dkk-4 (Catalog # 3105-DK/CF) inhibits a constant dose of 100 ng/mL of Recombinant Mouse Wnt-3a (Catalog # 1324-WN). The ED_{50} for this effect is 0.2-1.2 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/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. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

DATA

Binding Activity



Recombinant Mouse Dkk-4 Protein Binding Activity
Recombinant Mouse Wnt-3a (Catalog # Catalog # 1324-WN) induces a dose responsive increase in Wnt reporter activity in HEK293 cells (green circles). Recombinant Mouse Dkk-4 (Catalog # 3105-DK/CF) inhibits a constant dose of 100 ng/mL of Recombinant Mouse Wnt-3a. The ED_{50} for this effect is 0.2-1.2 µg/mL (orange circles).

bio-techne®
Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 Canada TEL 855 668 8722 China TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449

Recombinant Mouse Dkk-4

Catalog Number: 3105-DK/CF

BACKGROUND

Dickkopf related protein 4 (Dkk-4) is a member of the Dickkopf protein family that includes Dkk-1, -2, -3, and -4 and a related protein, Soggy (1). Expression of Dkk-4 has only been shown with sensitive PCR techniques during early embryonic development in mice (2), in differentiated human ES cells (3), or in mice that express dominant-active β-catenin elevating Wnt signaling in the forebrain (4). Dkk proteins are secreted proteins that are synthesized as precursors with an N-terminal signal peptide; all have two conserved cysteine-rich domains separated by a linker region which contains a potential furin type proteolytic cleavage site. The domains contain 10 cysteines each; prokineticin and colipase families show a configuration of cysteines similar to the second motif (5). Mouse Dkk-4 shows 91%, 72% and 71% amino acid (aa) identity with rat, human and canine Dkk-4, respectively, and 40-46% aa identity with other mouse Dkk proteins. Dkk-4 is predicted as a 25 kDa protein, but transfection of 293T cells produces a shorter (15-17 kDa) form containing only the second cysteine-rich domain, as well as longer (30-32 and 40 kDa) forms that do not appear to be glycosylated or form covalent multimers (1). Of the four Dkk proteins, Dkk-4 is the most like Dkk-1. Both are unequivocal antagonists of the canonical Wnt signaling pathway (1, 6), which is activated by Wnt protein engagement of a receptor complex composed of the Frizzled proteins and one of two low-density lipoprotein receptor-related proteins, LRP5 or LRP6 (7). Dkk-1 and Dkk-4 antagonize Wnt by direct high-affinity binding to LRP5/6, forming ternary complexes of LRP5/6 with the Kremens protein Krm2. Internalization of the complex is triggered, making LRP5/6 unavailable for interaction with Wnt ligands (6-9).

References:

1. Krupnik, V.E. *et al.* (1999) Gene **238**:301.
2. Kemp, C. *et al.* (2005) Dev. Dyn. **233**:1064.
3. Katoh, Y. and M. Katoh (2005) Int. J. Mol. Med. **16**:477.
4. Diep, D.B. *et al.* (2004) Dev. Brain Res. **153**:261.
5. Bullock, C.M. *et al.* (2004) Mol. Pharmacol. **65**:582.
6. Mao, B. and C. Niehrs (2003) Gene **302**:179.
7. Logan, C.Y. and R. Nusse (2004) Ann. Rev. Cell Dev. Biol. **20**:781.
8. Mao, B. *et al.* (2002) Nature **417**:664.
9. Mao, B. *et al.* (2001) Nature **411**:321.

bio-techne®
Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 **Canada** TEL 855 668 8722 **China** TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449