

DESCRIPTION

Source Mouse myeloma cell line, NS0-derived
Ala20-Pro1368, with a C-terminal 6-His tag
Accession # O88572

N-terminal Sequence Analysis Ala20

Predicted Molecular Mass 152.6 kDa

SPECIFICATIONS

SDS-PAGE 170 kDa, reducing conditions

Activity Measured by its binding ability in a functional ELISA.
rmLRP-6 binds rhDkk-1, biotin with an apparent $K_D < 15$ nM.

Biotinylated rmWnt-3a immobilized on a streptavidin-coated plate at 1 μ g/mL can bind rmLRP-6 with a linear range of 0.2-10 μ g/mL.

Endotoxin Level <0.10 EU per 1 μ g of the protein by the LAL method.

Purity >90%, by SDS-PAGE under reducing conditions and visualized by silver stain.

Formulation Lyophilized from a 0.2 μ m filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100 μ g/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.

BACKGROUND

The low-density lipoprotein (LDL) receptor-related protein 5 (LRP-5) and LRP-6 constitute a distinct subgroup of the LDL receptor family (1). Both LRP-5 and LRP-6 are type I transmembrane proteins that function as Wnt co-receptors with Frizzled proteins (FZD) (2, 3, 4). The mouse LRP-6 cDNA encodes a 1613 amino acid (aa) residue precursor including a 19 aa signal sequence, 1351 aa extracellular domain (ECD), a 23 aa transmembrane (TM) segment, and a 20 aa cytoplasmic domain (5). The ECD contains 20 YWTD motif-containing LDLR-B domains, four EGF-like repeats, and three cysteine-rich LDLR-A repeats. The ECD of mouse LRP-6 shares 71% aa sequence identity with the ECD of mouse LRP-5 and 98% aa sequence identity with the ECD of human, rat, and canine LRP-6. The intracellular region of LRP-6 contains repeated PPPSP motifs. When the Ser/Thr in these motifs are phosphorylated, LRP-6 can interact with Axin and propagate canonical Wnt signal transduction (6, 7). LRP-6 forms inactive homodimers via its YWTD-EGF domains (8). Wnt binding to FZD and subsequent association with LRP-6 lead to activating conformational changes in LRP-6 cytoplasmic domains (8). LRP-6 can also interact directly with the Dickkopf (Dkk), sclerostin, and Wise proteins which are modulators of Wnt signaling (9 - 14). Formation of a ternary complex of LRP-6, Dkk-1, and Kremen triggers the internalization of the complex and removal LRP-6 from the cell surface. LRP-5 and LRP-6 share overlapping functions in diverse embryonic developmental processes (15).

References:

1. Schneider, W.J. and J. Nimpf (2003) *Cell Mol Life Sci.* **60**:892.
2. He, X. *et al.* (2004) *Development* **131**:1663.
3. Seto, E.S. and H.J. Bellen (2004) *Trends Cell Biol.* **14**:45.
4. Pinson, K.I. *et al.* (2000) *Nature* **407**:535.
5. Brown, S.D. *et al.* (1996) *Biochem. Biophys. Res. Commun.* **248**:879.
6. Tamai, K. *et al.* (2000) *Nature* **407**:530.
7. Tamai, K. *et al.* (2004) *Mol. Cell* **13**:149.
8. Liu, G. *et al.* (2003) *Mol. Cell Biol.* **23**:5825.
9. Mao, B. *et al.* (2001) *Nature* **411**:321.
10. Semenov, M.V. *et al.* (2001) *Curr. Biol.* **11**:951.
11. Bafico, A. *et al.* (2001) *Nat. Cell Biol.* **3**:683.
12. Li, X. *et al.* (2005) *J. Biol. Chem.* **280**:19883.
13. Semenov, M. *et al.* (2005) *J. Biol. Chem.* **280**:26770.
14. Itasaki, N. *et al.* (2003) *Development* **130**:4295.
15. Kelly, O. *et al.* (2004) *Development* **131**:2803.