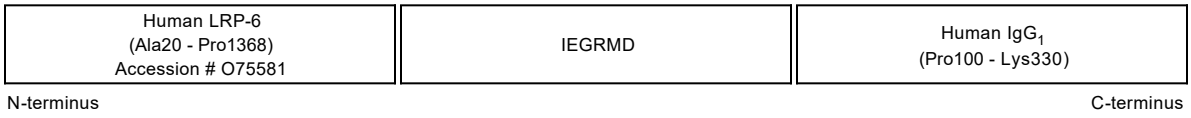
Recombinant Human LRP-6 Fc Chimera

Catalog Number: 1505-LR

DESCRIPTION

Source

Mouse myeloma cell line, NS0-derived



N-terminal Sequence Analysis	Ala20
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	180 kDa (monomer)

SPECIFICATIONS

SDS-PAGE	200 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. rhLRP-6/Fc Chimera binds rhDkk-1, biotin with an apparent K_D <25 nM. Biotinylated rmWnt-3a immobilized on a streptavidin-coated plate at 1 µg/mL can bind rhLRP-6/Fc Chimera with a linear range of 0.2-10 µg/mL. **Optimal concentrations should be determined by each laboratory for each application.**
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>80%, 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 200 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.

BACKGROUND

The low-density lipoprotein (LDL) receptor-related protein 5 (LRP5) and LRP6 constitute a distinct subgroup of the LDL receptor family. Both LRP5 and LRP6 are type I transmembrane proteins that function as co-receptors with Frizzled (FZD) in the canonical Wnt signaling pathway (1, 2). LRP6 cDNA encodes a 1613 amino acid residue (aa) precursor with a 19 aa signal sequence, a 1353 aa extracellular region, a 23 aa transmembrane (TM) segment and a 218 aa cytoplasmic domain (3). The extracellular region contains four N-terminal cysteine-rich EGF-like repeats, followed by three cysteine-rich LDLR repeats. This pattern of the EGF and LDLR repeat arrangement is different than that typically found in other LDL receptor family proteins. The intracellular region of LRP6 contains protein-protein interaction motifs and is required for canonical Wnt signal transduction (4). Human LRP-6 shares 98% and 74% aa sequence identity with mouse LRP-6 and human LRP-5, respectively. Based on the current model, canonical Wnt signaling requires the interaction of Wnt with FZD and LRP to form a trimeric complex which signals downstream to stabilize cytoplasmic β-catenin. The stabilized β-catenin is then translocated to the nucleus where it complexes with the transcription factor LEF/TCF to regulate the transcription of target genes (5). LRP6 has also been shown to interact with the Dickkopf proteins (DKKs), which are modulators of Wnt signaling (6 - 8). Binding of DKK-1 to LRP6 dissociates LRP6 from FZD, and antagonizes the formation of the functional receptor complex. On cells where the transmembrane proteins Kremens are also present, a ternary complex of LRP6, DKK-1 and Kremen is formed to trigger the internalization of the complex and removal LRP6 from the cell surface. Thus, DKK-1 and Kremen function synergistically to antagonize LRP6-mediated Wnt activity. Although DKK-2 also functions as a Wnt antagonist on cells that express Kremen, DKK-2 binding to LRP-6 in the absence of Kremen activates rather than inhibits LRP mediated β-catenin signaling (9, 10).

References:

1. Howell, B.W. and J. Herz (2001) Curr. Op. Neurobiology **11**:74.
2. Pinson, K.I. *et al.* (2000) Nature **407**:535.
3. Brown, S.D. *et al.* (1998) Biochem. Biophys. Res. Commun. **248**:879.
4. Tamai, K. *et al.* (2000) Nature **407**:530.
5. Schweizer, L. and H. Varmus (2003) BMC Cell Biology **4**:4.
6. Mao, B. *et al.* (2001) Nature **411**:321.
7. Semenov, M.V. *et al.* (2001) Curr. Biol. **11**:951.
8. Bafico, A. *et al.* (2001) Nature Cell Biol. **3**:683.
9. Zorn, A.M. (2001) Curr. Biol. **11**:R592.
10. Mao, B. *et al.* (2002) Nature **417**:664.

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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