Recombinant Porcine DLL4 Fc Chimera

Catalog Number: 10508-DL

DESCRIPTION

Source

Chinese Hamster Ovary cell line, CHO-derived porcine DLL4 protein

Porcine DLL4 (Ser27-Pro524) Accession # NP_001231347.1	IEGRMD	Human IgG_1 (Pro100-Lys330)

N-terminus C-terminus

N-terminal Sequence Analysis	Ser27
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	81 kDa

SPECIFICATIONS

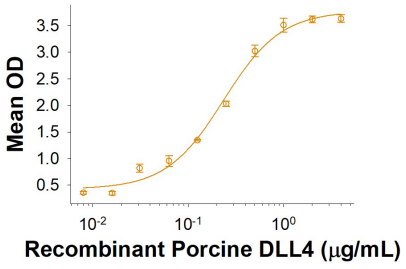
SDS-PAGE	89-99 kDa, under reducing conditions
Activity	Measured by the ability of the immobilized protein to enhance BMP-2 induced alkaline phosphatase activity in C3H10T1/2 mouse embryonic fibroblast cells. Nobta, M. *et al.* (2005) J. Biol. Chem. **280**:15842. The ED_{50} for this effect is 0.07-0.42 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in 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.

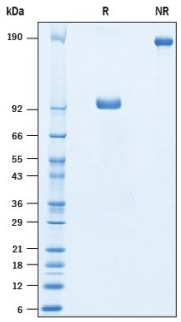
DATA

Bioactivity



Immobilized Recombinant Porcine DLL4 Fc Chimera (Catalog # 10508-DL) enhances Recombinant Human BMP-2 (Catalog # 355-BM/CF) induced alkaline phosphatase activity in C3H10T1/2 mouse embryonic fibroblast cells. The ED_{50} for this effect is 0.07-0.42 µg/mL.

SDS-PAGE



2 µg/lane of Recombinant Porcine DLL4 Fc Chimera Protein (Catalog # 10508-DL) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 89-99 kDa and 160-190 kDa, respectively.

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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

Recombinant Porcine DLL4 Fc Chimera

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BACKGROUND

Delta-like protein 4 (DLL4) is a type I membrane protein belonging to the Delta/Serrate/Lag2 (DSL) family of Notch ligands (1). Notch signaling is an evolutionarily conserved pathway that controls cell fate and is required in multiple developmental processes including vascular development, hematopoiesis, somatogenesis, myogenesis, and neurogenesis (2 - 4). Dysregulation in the Notch pathway is associated with various human diseases. In mammals, four Notch homologs (Notch 1 to 4) and five ligands (DLL 1, 3 and 4, Jagged 1 and 2) have been identified. Notch ligands are transmembrane proteins with a DSL motif necessary for Notch binding, tandem EGF repeats, a transmembrane region and a short intracellular domain (ICD). Porcine DLL4 cDNA encodes a 685 amino acid (aa) residue precursor protein that shares 92% aa sequence homology with human DLL4 in the extracellular domain. Notch ligands are categorized into two subfamilies based on the presence of an extracellular cysteine-rich domain and insertions that interrupt some EGF repeats in the Jagged but not the Delta ligand family. Interactions of Notch receptors with their ligands results in reciprocal regulated intramembrane proteolysis (RIP) (4). RIP is a mechanism for transmembrane signal transduction that involves the sequential processing by a disintegrin metalloprotease (ADAM) and then by presenilin/γ secretase, resulting in shedding of the extracellular domains and the generation of the soluble ICD signaling fragments, respectively. The Notch ICD translocates to the nucleus and interacts with transcriptional coactivators, resulting in the transcription of target genes. The ICDs of the Notch ligands have also been shown to translocate to the nucleus where they may have a signaling function (5, 6). DLL4 is expressed highly and selectively within the arterial endothelium and has been shown to function as a ligand for Notch 1 and Notch 4. Human and mouse DLL4 share 86% amino acid sequence identity (1).

References:

1. Shutter, J.R. *et al.* (2000) Genes Dev. **14**:1313.
2. Iso, Tatsuya *et al.* (2002) Arterioscler. Thromb. Vasc. Biol. **23**:543.
3. Walker, L. *et al.* (2001) Stem Cells **19**:543.
4. Baron, M. (2002) Semin. Cell Dev. Biol. **14**:113.
5. Ikeuchi, T. and S.S. Sisodia (2003) J. Biol. Chem. **278**:7751.
6. Bland, C.E. *et al.* (2003) J. Biol. Chem. **278**:13607.

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