



LD Biopharma, Inc.
7384 Trade Street, Suite B
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Tel: 858-876-8266
<http://www.ldbiopharma.com>

- PRODUCT DATA SHEET -

Name of Product: Recombinant Human PDPN Protein
Catalog Number: HRP-2661
Manufacturer: LD Biopharma, Inc.

Introduction

Human Podoplanin (PDPN) gene encodes a single-pass transmembrane protein, which mediates effects on cell migration and adhesion through its different partners. During development PDPN plays a role in blood and lymphatic vessels separation by binding CLEC1B, triggering CLEC1B activation in platelets and leading to platelet activation and/or aggregation. Its interaction with CD9, on the contrary, attenuates platelet aggregation induced by PDPN. Through MSN or EZR, PDPN interaction, which promotes epithelial-mesenchymal transition (EMT) leading to ERZ phosphorylation and triggering RHOA activation leading to cell migration increase and invasiveness. It also interacts with CD44 promoting directional cell migration in epithelial and tumor cells. In lymph nodes, PDPN controls fibroblastic reticular cells (FRCs) adhesion to the extracellular matrix (ECM) and contraction of the actomyosin by maintaining ERM proteins (EZR; MSN and RDX) and MYL9 activation through association with unknown transmembrane proteins. Its engagement of CLEC1B and promotes FRCs relaxation by blocking lateral membrane interactions leading to reduction of ERM proteins (EZR; MSN and RDX) and MYL9 activation. Through binding with LGALS8, PDPN may participate to connection of the lymphatic endothelium to the surrounding extracellular matrix. In keratinocytes, it induces changes in cell morphology. It controls invadopodia stability and maturation leading to efficient degradation of the extracellular matrix (ECM) in tumor cells through modulation of RHOC activity in order to activate ROCK1/ROCK2 and LIMK1/LIMK2 and inactivation of CFL1. It is required for normal lung cell proliferation and alveolus formation at birth. Recent data indicated that PDPN⁺ is a critical biomarker for skeletal stem cell.

Full-length extracellular domain of human PDPN cDNA (23 – 131 aa) was constructed with codon optimization gene synthesis and expressed with a human alpha Fetal Protein N-terminal (AFPn) -His-TEV cleavage site Tag (217aa) fusion at its N-terminal in E.coli as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

Gene Symbol: PDPN (AGGRUS; GP36; HT1A-1; OTS8; TI1A)
Accession Number: NP_006465
Species: Human



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Size:	50 µg / Vial
Composition:	0.5 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose, DTT and others.
Storage:	In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

Key References

Charles K.F, et al., *Identification of the Human Skeletal Stem Cell*. Cell. 175, 43-56 (2018)

Maruyama S, et al., *Podoplanin Expression as a Prognostic Factor in Gastric Cancer*. Anticancer Res. 38 (5), 2717-2722 (2018)

Gissi DB, et al., *Podoplanin expression as a predictive marker of dysplasia in oral leukoplakia*. J Craniomaxillofac Surg 46 (5), 759-764 (2018)

Krishnan H, et al., *Podoplanin: An emerging cancer biomarker and therapeutic target*. Cancer Sci. 109 (5), 1292-1299 (2018)

Applications

1. May be used for PDPN mediated various signaling regulation study in vitro for various cells with this recombinant PDPN protein either as soluble factor or as coating matrix protein.
2. May be used for PDPN protein-protein interaction assay.
3. Potential Therapeutic / diagnostic protein. (such as anti-PDPN antibody) for various cancer treatment.
4. As native human PDPN immunogen for specific antibody production.

Quality Control

Purity: > 93 % by SDS-PAGE.

Recombinant Human AFPn- PDPN Fusion Protein Sequence (35.8 kD)



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MTLHRNEYGIASILDSYQCTAEISLADLATIFFAQFVQEATYKEVSKMVKDALTAIEKPTGDEQ
SSGCLLENQLPAFLEELCHEKEILEKYGHSDCCSQSEEGRHNCFLAHKKPTPASIPLFQVPEPVT
SCEAYEEDRETFMNFYIYEIARRHPFLYAPTILLWAARYDKIIPSCCKAENAVECFQTKAATVT
KELRESSGGSHHHHHGSEENLYFQGEASTGQPEDDTETTGLEGGVAMPGAEDDVVTPGTSEDR
YKSGLTTLVATSVNSVTGIRIEDLPTSESTVHAQEQSPSATASNVATSHSTEKVDGDTQTTVEK
DGLSTVTL