Podoplanin Protein, Rat (HEK293, hFc)

Cat. No.:	HY-P74624
Synonyms:	Podoplanin; T1-alpha; T1A; Type I cell 40 kDa protein; PDPN
Species:	Rat
Source:	HEK293
Accession:	Q64294 (G23-L135)
Gene ID:	54320
Molecular Weight:	Approximately 55-70 kDa

PROPERTIES

AA Sequence	G A I G A L E D D L V T P G P G D D M V N P G L E D R I E T T D T T G E L D K S T A K A P L V P T Q P P I E E L P T S G T S D H D H K E H E S T T T V K A V T S H S T D K K T T H P N R D N A G G E T Q T T D K K D G L A V V T L
Biological Activity	Measured by its binding ability in a functional ELISA. Immobilized Rat Podoplanin at 10 μg/mL (100 μL/well) can bind biotinylated Human CLEC2B. The ED_{50} for this effect is 0.4651 μg/mL.
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.2 μm filtered solution of PBS, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	Podoplanin, a multifaceted protein, orchestrates diverse cellular functions related to migration and adhesion through its interactions with various partners. In developmental processes, it contributes to the separation of blood and lymphatic vessels by binding CLEC1B, activating platelets, and inducing platelet activation or aggregation. Conversely, its interaction with CD9 attenuates platelet aggregation and pulmonary metastasis induced by Podoplanin. Furthermore, Podoplanin plays a crucial role in epithelial-mesenchymal transition (EMT) by promoting ERZ phosphorylation and triggering RHOA activation through interactions with MSN or EZR, leading to increased cell migration and invasiveness. Its binding with CD44

facilitates directional cell migration in epithelial and tumor cells. Within lymph nodes, Podoplanin controls fibroblastic reticular cells (FRCs) adhesion to the extracellular matrix (ECM) and actomyosin contraction by maintaining ERM proteins (EZR, MSN, and RDX) and MYL9 activation. Engagement with CLEC1B promotes FRC relaxation by blocking lateral membrane interactions. Additionally, Podoplanin participates in connecting lymphatic endothelium to the ECM through binding with LGALS8. In keratinocytes, it induces morphological changes, including an elongated shape and increased motility. Podoplanin also regulates invadopodia stability and maturation in tumor cells, influencing extracellular matrix degradation. Moreover, it is essential for normal lung cell proliferation and alveolus formation at birth. Podoplanin exhibits homodimeric structure and interacts with various proteins, including CLEC1B, CD9, LGALS8, HSPA9, CD44, MSN, EZR, and CCL21, playing a critical role in mediating diverse cellular functions.

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