PDGF R alpha Protein, Rat (HEK293, Fc)

Cat. No.:	HY-P73722
Synonyms:	Platelet-derived growth factor receptor alpha; PDGFR-alpha; PDGFR-2; CD140a; PDGFRA
Species:	Rat
Source:	HEK293
Accession:	P20786 (M1-E523)
Gene ID:	25267
Molecular Weight:	112-120 kDa

PROPERTIES

Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of PBS, pH 7.4. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
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.
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	PDGF R alpha protein, a tyrosine-protein kinase acting as a cell-surface receptor for PDGFA, PDGFB, and PDGFC, plays a pivotal role in the orchestration of embryonic development, cell proliferation, survival, and chemotaxis. Its multifaceted functions include both promotion and inhibition of cell proliferation and migration depending on the cellular context. PDGF R alpha is integral to the differentiation of bone marrow-derived mesenchymal stem cells, essential for normal skeletal development, and crucial for cephalic closure during embryonic development. Furthermore, it is indispensable for the development of the gastrointestinal tract mucosa, playing a role in recruiting mesenchymal cells and facilitating the normal development of intestinal villi. In the context of wound healing, PDGF R alpha contributes to cell migration and chemotaxis. Its involvement in platelet activation, secretion of agonists from platelet granules, and thrombin-induced platelet aggregation highlights its significance in hemostasis. Binding to its cognate ligands activates several signaling cascades, with the response modulated by ligand nature and heterodimer formation between PDGFRA and PDGFRB. PDGF R alpha phosphorylates PIK3R1, PLCG1, and PTPN11, leading to the activation of diverse signaling pathways, including AKT1, HRAS, and MAP kinases. Additionally, it promotes the activation of STAT family members, such as STAT1, STAT3, STAT5A, and/or STAT5B. Receptor signaling is tightly regulated by protein phosphatases and rapid internalization of the activated receptor.

	The intricate functions of PDGF R alpha underscore its crucial role in diverse physiological processes.

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