Recombinant Human PDGF Rα His-tag

Catalog Number: 10383-PR

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived human PDGF R alpha protein Gln24 - Glu524, with a C-terminal 6-His tag Accession # P16234.1
N-terminal Sequence Analysis	Gln24, deduced from Leu25 upon deblocking
Predicted Molecular Mass	59 kDa

SPECIFICATIONS

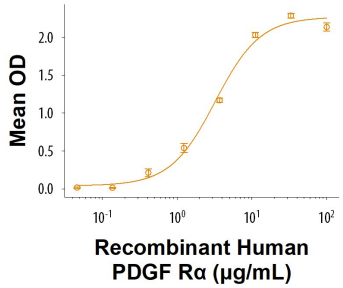
SDS-PAGE	89-100 kDa, under reducing conditions.
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Human PDGF-AA Protein (Catalog # 221-AA) is presented at 2 µg/mL (100 µL/well), Recombinant Human PDGF Rα His-tag (Catalog # 10382-PR) binds with an ED_{50} of 2.00-16.00 µg/mL.
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 with Trehalose. 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.

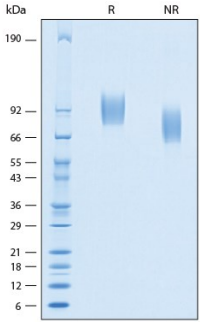
DATA

Binding Activity



Recombinant Human PDGF R alpha His-tag Protein Binding Activity. Measured by its binding ability in a functional ELISA. When Recombinant Human PDGF-AA Protein (Catalog # 221-AA) is presented at 2 µg/mL (100 µL/well), Recombinant Human PDGF Rα His-tag Protein (Catalog # 10383-PR) binds with an ED_{50} of 2.00-16.00 µg/mL.

SDS-PAGE



Recombinant Human PDGF R alpha His-tag Protein SDS-PAGE. 2 µg/lane of Recombinant Human PDGF R alpha His-tag Protein (Catalog # 10383-PR) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 89-100 kDa.

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BACKGROUND

PDGF Rα (platelet-derived growth factor receptor alpha) is a type I transmembrane glycoprotein in the class III subfamily of receptor tyrosine kinases (RTK) (1 - 4). PDGF Rα and PDGF Rβ can form homo- or hetero-dimeric receptors when engaged by dimers of the PDGF family of growth factors, which include disulfide-linked homodimers of PDGF-A, B, C or D, or the heterodimer PDGF-AB that is mainly found in human platelets. While multiple *in vitro* ligand-receptor combinations have been identified, *in vivo* evidence indicates that PDGF Rα primarily binds PDGF-AA and PDGF-CC, while PDGF Rβ primarily binds PDGF-BB and probably PDGF-DD. Like all class III RTKs, the extracellular domain (ECD) of human PDGF Rα (aa 24 - 524) contains five immunoglobulin-like domains, while the intracellular region contains a split tyrosine kinase domain (aa 593 - 954) (1 - 4). Within the ECD, human PDGF Rα shares 85%, 83%, 95%, 93%, and 88% aa sequence identity with mouse, rat, equine, canine and bovine PDGF Rα respectively. PDGF Rα autophosphorylates upon dimerization, activating signaling cascades in PI 3-kinase Ras-MAP kinase, and PLC-γ pathways (1, 2). Signaling is down-regulated by SHP-2 phosphatase activity and by receptor endocytosis and lysosomal degradation. PDGF Rα is expressed at low levels in most mesenchymal cells, but is strongly expressed in oligodendrocyte, lung, skin and intestinal progenitor cells and induced by inflammation or growth in culture (1 - 4). During development, mesenchymal cells expressing PDGF Rα respond to local gradients of epithelially produced PDGF-AA or PDGF-CC during formation of the cranial and cardiac neural crest, retina, gonads, lung alveoli, intestinal villi, skin, hair follicles, skeleton, teeth, palate, and interstitial kidney mesenchyme (1, 5). Deletion of PDGF Rα in mice severely impairs mesenchymal derivatives in both embryo and extraembryonic tissues, and high or low PDGF Rα signaling in humans may result in spina bifida or cleft palate-type malformations. Postnatally, PDGF Rα is implicated in gliomas and fibrotic disorders of lung, heart and skin (scleroderma) (6 - 8).

References:

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