Recombinant Mouse PDGF Rα His-tag

Catalog Number: 10065-PR

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived mouse PDGF R alpha protein Leu25-Glu524, with a C-terminal 6-His tag Accession # P26618.3
N-terminal Sequence Analysis	Leu25
Predicted Molecular Mass	57 kDa

SPECIFICATIONS

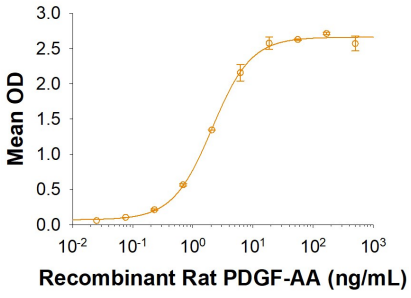
SDS-PAGE	86-97 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Mouse PDGF Rα is immobilized at 1 µg/mL (100 µL/well), the concentration of Recombinant Rat PDGF-AA (Catalog # 1055-AA) that produces 50% of the optimal binding response is 0.75-7.5 ng/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 °C under sterile conditions after reconstitution.

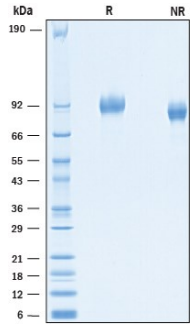
DATA

Binding Activity



When Recombinant Mouse PDGF Rα (Catalog # 10065-PR) is coated at 1 µg/mL, 100 µL/well, Recombinant Rat PDGF-AA (Catalog # 1055-AA) binds with an ED_{50} of 0.75-7.5 ng/mL.

SDS-PAGE



2 µg/lane of Recombinant Mouse PDGF Rα was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 86-97 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) (1-3). 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 mouse PDGF Rα (amino acids 25-525) contains five immunoglobulin-like domains, while the intracellular region contains a split tyrosine kinase domain (aa 593-954). Within the ECD, mouse PDGF Rα shares 85%, 93%, 84%, 84%, and 81% amino acid sequence identity with human, 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 (1-3). 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, 4). 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) (5- 7).

References:

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