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ProductInformation

Platelet-Derived Growth Factor Receptor β (PDGF Rβ)/Fc Chimera
Human, Recombinant
Expressed in mouse NSO cells

Product Number **P 3618**

Product Description

Recombinant Human Platelet-Derived Growth Factor Receptor β (PDGF Rβ)/Fc Chimera is produced from a DNA sequence encoding the extracellular domain of human PDGF Rβ (amino acids 1-530)[1] fused to the Fc region of human IgG1 (containing ENIEGR added at the N-terminus and 6 histidine residues added at the C-terminus of IgG1) and expressed in the mouse myeloma cell line, NSO. Mature recombinant human PDGF Rβ (743 amino acid residues) has a predicted molecular mass of 84 kDa. As a result of glycosylation, the recombinant chimeric protein migrates as an approximately 150 kDa protein in SDS-PAGE.

Platelet derived growth factor (PDGF), the major mitogen in serum for cultured connective tissue cells, exerts its actions via specific receptors on the cell surface. A receptor for PDGF has been identified as a transmembrane glycoprotein of 170-185 kDa, with an intrinsic protein tyrosine kinase activity. The PDGF receptor is synthesized as a 140-160 kDa precursor that carries immature N-linked carbohydrate groups. It is then further post-translationally modified to its final size. Both PDGF receptors (PDGF Rα and PDGF Rβ) are members of the class III subfamily of receptor tyrosine kinases (RTK). The PDGF receptor is composed of an extracellular region containing five immunoglobulin-like domains and an intracellular region with a split-kinase domain.

The different isoforms of PDGF (PDGF-AA, PDGF-AB and PDGF-BB) bind with different affinities to two distinct receptors.[2] Ligand-binding induces receptor homo- and hetero-dimerization. PDGF Rα binds all three PDGF isoforms with high affinity, whereas PDGF Rβ binds only PDGF-BB with high affinity. Binding of PDGF to its receptor activates the tyrosine kinase domain and leads to enhanced phosphorylation of intracellular substrates as well as to autophosphorylation of the receptor itself. In addition, several other cellular responses are induced.

The expression of α and β receptors is independently regulated. PDGF β-receptors are not present on most cells of normal tissues but are upregulated in conjunction with inflammation,[3] excess cell proliferation,[4] malignancytic,[5] and fibrotic conditions.[6, 7]

Reagent

Recombinant Human Platelet-Derived Growth Factor Receptor β/Fc Chimera is supplied as approximately 100 µg of protein lyophilized from a 0.2 µm filtered solution in phosphate buffered saline (PBS) containing 5 mg bovine serum albumin.

Preparation Instructions

Reconstitute the contents of the vial using sterile phosphate-buffered saline (PBS) containing at least 0.1% human serum albumin or bovine serum albumin. Prepare a stock solution of no less than 50 µg/ml.

Storage/Stability

Store at –20 °C. Upon reconstitution, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Do not store in a frost-free freezer.

Product Profile

Recombinant Human Platelet-Derived Growth Factor Receptor β/Fc Chimera is measured by its ability to inhibit the PDGF-BB induced ^{3}H-thymidine incorporation in the NR6R-3T3 fibroblast cell-line.[8]

The ED_{50} for this effect is typically 0.01 µg/ml to 0.03 µg/ml in the presence of 4 ng/ml recombinant human PDGF-BB.

The ED_{50} is defined as the effective concentration of growth factor that elicits a 50% increase in cell growth in a cell based bioassay.

Purity: >97% as determined by SDS-PAGE, visualized by silver stain.

Endotoxin level is < 0.1 ng/μg cytokine as determined by the LAL (Limulus amebocyte lysate) method.

References

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