

CXCL4 Protein, Human, Recombinant

General Information

Synonyms:	PF-4;platelet factor 4;SCYB4;CXCL4
Protein Construction:	A DNA sequence encoding the human CXCL4 (NP_002610.1) (Glu 32-Ser 101) was expressed. Predicted N terminal: Met
Species:	Human
Expression Host:	E. coli
Accession:	P02776
Molecular Weight:	7.8 kDa (predicted); 7.8 kDa (reducing conditions)

QC Testing

Biological Activity:	Measured by its ability to inhibit bFGF-dependent proliferation of human umbilical vein endothelial cells (HUVEC). The ED50 for this effect is typically 1-5µg/ml in the presence of 5 ng/ml bFGF.
Purity:	> 80 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/µg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:
A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Platelet factor 4 (PF4), also known as chemokine (C-X-C motif) ligand 4 (CXCL4), is a small cytokine belonging to the CXC chemokine family. CXCL4/PF4 is released from the alpha-granules of activated platelets and binds with high affinity to heparin. Its major physiologic role appears to be neutralization of heparin-like molecules on the endothelial surface of blood vessels, thereby inhibiting local antithrombin III activity and promoting coagulation.

As a strong chemoattractant for neutrophils and fibroblasts, CXCL4/PF4 probably has a role in inflammation and wound repair. This protein is released during platelet aggregation. CXCL4/PF4 neutralizes the anticoagulant effect of heparin because it binds more strongly to heparin than to the chondroitin-4-sulfate chains of the carrier molecule. CXCL4 is chemotactic for neutrophils and monocytes. It inhibits endothelial cell proliferation, the short form is a more potent inhibitor than the longer form. CXCL4/PF4 is up-regulated in human liver fibrosis and that it plays a nonredundant, functional role in experimental liver fibrosis by mediating stellate cell proliferation, migration, and intrahepatic immune cell recruitment.

Reference

Zaldivar MM, et al. (2010) CXC chemokine ligand 4 (Cxcl4) is a platelet-derived mediator of experimental liver fibrosis. *Hepatology*. 51(4): 1345-53.

Lasagni L, et al. (2007) PF-4/CXCL4 and CXCL4L1 exhibit distinct subcellular localization and a differentially regulated mechanism of secretion. *Blood*. 109(10): 4127-34.

Struyf S, et al. (2004) Platelets release CXCL4L1, a nonallelic variant of the chemokine platelet factor-4/CXCL4 and potent inhibitor of angiogenesis. *Circ Res*. 95(9): 855-7.

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