Recombinant Human CXCL4/PF4

Catalog Number: 7989-P4/CF

DESCRIPTION

Source	Human embryonic kidney cell, HEK293-derived Glu32-Ser101 Accession # P02776
N-terminal Sequence Analysis	Glu32
Predicted Molecular Mass	7.8 kDa

SPECIFICATIONS

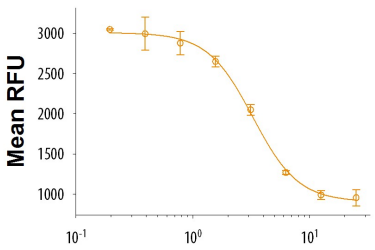
SDS-PAGE	9-11 kDa, reducing conditions
Activity	Measured by its ability to inhibit the FGF basic-dependent proliferation of HUVEC human umbilical vein endothelial cells. Dubrac, A. *et al.* (2010) Blood **116**:4703. The ED_{50} for this effect is typically 1-6 µg/mL.
Endotoxin Level	<0.01 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE with silver staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 200 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

Bioactivity



Recombinant Human CXCL4/PF4 (Catalog # 7989-P4/CF) inhibits FGF basic-dependent proliferation of HUVEC human umbilical vein endothelial cells. The ED_{50} for this effect is 1-6 µg/mL.

bio-techne®
Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 Canada TEL 855 668 8722 China TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449

Recombinant Human CXCL4/PF4

Catalog Number: 7989-P4/CF

BACKGROUND

CXCL4, also called PF4 (platelet factor 4), is an 8 kDa member of the CXC chemokine family, sharing features with CXCL8/IL-8 and CXCL7/NAP-2 (1-3). Mature human CXCL4 shares 65-76% amino acid sequence identity with mouse, rat, bovine, ovine and porcine CXCL4. The active protein is a tetramer of CXCL4 subunits that forms a ring of heparin-binding positive charges from sites at the C-terminal region of each monomer (3). Megakaryocytes synthesize CXCL4 and store it in platelet α-granules (2, 3). Secretion from activated platelets can produce micromolar levels in serum and over 100-fold higher within clots (2, 3). In contrast to other CXC chemokines, CXCL4 does not contain an ELR motif and lacks binding to nearly all chemokine receptors (2, 3). A potential high-affinity G-protein-coupled receptor for CXCL4, the CXCR3 isoform CXCR3B, is expressed in human but not mouse (2, 3). In most cases, it is likely that cell surface binding and signaling properties of CXCL4 are due to binding of glycosaminoglycans chains, particularly chondroitin sulfates (2). CXCL4 released from activated platelets binds and regulates thrombin/thrombomodulin complexes, regulates and enhances production of activated Protein C (APC), and limits the coagulation cascade (2-6). It binds and influences the enzymatic activity of coagulation factor Xa (7). It binds fibrin and affects clot structure (8). Therapeutic doses of the anticoagulant heparin neutralize CXCL4 procoagulant effects (9). The complex between heparin and CXCL4 can be immunogenic, and circulating CXCL4-heparin antibodies cause the pathological syndrome HITT (heparin-induced thrombocytopenia and thrombosis, also called HIT) (2). In addition, immunogenic complexes of CXCL4 with apolipoprotein H can contribute to antiphospholipid syndrome (APS) (10). CXCL4 can be antiproliferative and antiangiogenic, at least in part via interfering with FGF-2 and VEGF heparin binding and thus inhibiting their signaling (3, 11-13). However, it can also be proinflammatory and pro-atherogenic through multiple effects on monocytes, macrophages and endothelial cells (2, 3).

References:

1. Poncz, M. *et al.* (1987) Blood **69**:219.
2. Kowalska, M.A. *et al.* (2010) Thromb. Res. **125**:292.
3. Slungaard, A. (2005) Int. J. Biochem. Cell Biol. **37**:1162.
4. Slungaard, A. *et al.* (2003) Blood **102**:146.
5. Kowalska, M.A. *et al.* (2007) Blood **110**:1903.
6. Preston, R.J.S. *et al.* (2009) J. Biol. Chem. **284**:5869.
7. Fiore, M.M. and I.J. Mackie (2009) Biochem. Biophys. Res. Commun. **379**:1072.
8. Amelot, A.A. *et al.* (2007) J. Biol. Chem. **282**:710.
9. Eslin, D.E. *et al.* (2004) Blood **104**:3173.
10. Sikara, M.P. *et al.* (2010) Blood **115**:713.
11. Perollet, C. *et al.* (1998) Blood **91**:3289.
12. Gengrinovitch, S. *et al.* (1995) Journal of Biological Chemistry **270**:15059.
13. Sulpice, E. *et al.* (2004) Eur. J. Biochem. **271**:3310.

bio-techne®
Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 **Canada** TEL 855 668 8722 **China** TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449