Recombinant Human/Feline CXCL12/SDF-1β aa 19-93

Catalog Number: 2716-SD/CF

DESCRIPTION

Source	*E. coli*-derived Ser19-Met93 Accession # BAA28602
N-terminal Sequence Analysis	Ser19
Predicted Molecular Mass	8.8 kDa

SPECIFICATIONS

Activity	Measured by its ability to chemoattract BaF3 mouse pro-B cells transfected with mouse CXCR4. The ED_{50} for this effect is 0.15-0.6 µg/mL.
Endotoxin Level	<0.01 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE under reducing conditions and visualized by silver stain.
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 100 µg/mL in sterile 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.

BACKGROUND

CXCL12, also known as SCYB12, PBSF and SDF-1β, is an 8.3 kDa, heparin-binding member of the CXC (or alpha-) family of chemokines (1, 2). Feline CXCL12(β) is synthesized as a 93 amino acid (aa) precursor that contains a 21 aa signal sequence and a 72 aa mature region (3). The mature molecule exhibits a typical three antiparallel β-strand chemokine-like fold. There are no potential N-linked glycosylation sites. N-terminal aa's 1 - 8 form a receptor binding site, while aa's 1 and 2 (Lys-Pro) are involved in receptor activation (4). The C-terminus is likely associated with heparin binding (5). SDF-1β circulates and undergoes proteolytic processing. CD26 will remove the first two N-terminal amino acids, possibly creating a reduced-activity chemokine (5, 6). In addition to the β-isoform, alternate splicing of the feline SDF-1 gene generates an α-isoform. The alpha isoform is identical to SDF-1β, but shorter by four aa's at the C-terminus (3). Although α- and β-isoforms show similar activity, SDF-1α is differentially processed, and different cells secrete the two isoforms (5, 7). Mature feline SDF-1β is 96%, 97% and 100% aa identical to rat, mouse and human SDF-1β, respectively. Human (and by inference, feline) SDF-1 is active on mouse cells. SDF-1α and β are reported to be a monomers at neutral pH and physiologic ionic strength (4). SDF-1α is also reported to form dimers in the presence of heparan sulfate (8). On the cell surface, this may well facilitate SDF-1 interaction with its two receptors, CXCR4 and syndecan-4 (9). Heparan sulfate is known to protect SDF-1 from proteolysis, and CXCR4 exists constitutively as a dimer (9 - 11). Among its many functions, CXCL12 is known to influence lymphopoiesis, regulate patterning and cell number of neural progenitors, and promote angiogenesis (12, 13). It also enhances the survival of myeloid progenitor cells.

References:

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