Human CXCL12/SDF-1β Antibody

Antigen Affinity-purified Polyclonal Goat IgG
Catalog Number: AF-351-NA

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human CXCL12/SDF-1β in direct ELISAs and Western blots. Neutralizes 60-80% of the biological activity of CXCL12/SDF-1β and does not neutralize the biological activity of SDF-1α. In Western blots, less than 5% cross-reactivity with recombinant human SDF-1α is observed.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	*E. coli*-derived recombinant human CXCL12/SDF-1β Lys22-Met93 Accession # P48061
Endotoxin Level	<0.10 EU per 1 µg of the antibody by the LAL method.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

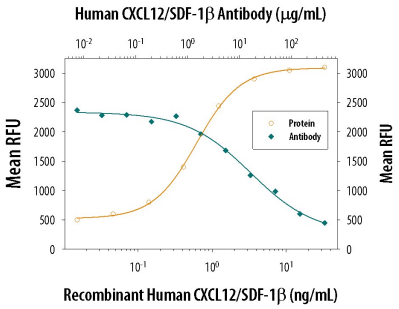
APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Western Blot	0.1 µg/mL	Recombinant Human/Feline CXCL12/SDF-1β aa 19-93 (Catalog # 2716-SD)
Neutralization	Measured by its ability to neutralize CXCL12/SDF-1β-induced chemotaxis in the BaF3 mouse pro-B cell line transfected with human CXCR4. The Neutralization Dose (ND_{50}) is typically 10-30 µg/mL in the presence of 10 ng/mL Recombinant Human/Feline CXCL12/SDF-1β.	

DATA

Neutralization



Chemotaxis Induced by CXCL12/SDF-1β and Neutralization by Human CXCL12/SDF-1β Antibody. Recombinant Human/Feline CXCL12/SDF-1β chemoattracts the BaF3 mouse pro-B cell line transfected with human CXCR4 in a dose-dependent manner (orange line). The amount of cells that migrated through to the lower chemotaxis chamber was measured by Resazurin (Catalog # AR002). Chemotaxis elicited by Recombinant Human/Feline CXCL12/SDF-1β (10 ng/mL) is neutralized (green line) by increasing concentrations of Goat Anti-Human CXCL12/SDF-1β Antigen Affinity-purified Polyclonal Antibody (Catalog # AF-351-NA). The ND_{50} is typically 10-30 µg/mL.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/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. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

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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 monomers at neutral pH and physiologic ionic strength (4). SDF-1α is also reported to form dimers in the presence of heparansulfate (8). On the cell surface, this may well facilitate SDF-1 interaction with its two receptors, CXCR4 and syndecan-4 (9). Heparin 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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