

## Product datasheet

# Anti-CXCR4 antibody [44716.111] ab10403

### 7 References

#### Overview

<b>Product name</b>	Anti-CXCR4 antibody [44716.111]
<b>Description</b>	Mouse monoclonal [44716.111] to CXCR4
<b>Host species</b>	Mouse
<b>Specificity</b>	This product reacts with human CXCR4 (fusin) transfected into a mouse cell line, and does not detect the endogenous mouse protein in the untransfected cells by flow cytometry. The antibody shows no cross-reactivity with other chemokine receptors. The antibody will neutralize human cell surface CXCR4 mediated SDF/ PBSF response using human cultured lymphocytes in a chemotaxis assay.
<b>Tested applications</b>	<b>Suitable for:</b> IHC-Fr, ICC/IF, IHC-FoFr, Flow Cyt, Inhibition Assay, Neutralising
<b>Species reactivity</b>	<b>Reacts with:</b> Cat, Human <b>Does not react with:</b> Rat
<b>Immunogen</b>	Human CXCR4 transfected NSO mouse myeloma cells.
<b>Positive control</b>	ICC: stimulated human peripheral blood mononuclear cells (PBMC) Inhib: BaF/3 human CXCR-4 transfected cells

#### Properties

<b>Form</b>	Liquid
<b>Storage instructions</b>	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C or -80°C. Avoid freeze / thaw cycle.
<b>Storage buffer</b>	Constituent: PBS
	Endotoxin level is < 10 ng per mg antibody as determined by the LAL method.
<b>Purity</b>	Protein G purified
<b>Purification notes</b>	The antibody is purified from ascites fluid using protein G chromatography.
<b>Clonality</b>	Monoclonal
<b>Clone number</b>	44716.111
<b>Myeloma</b>	NS0
<b>Isotype</b>	IgG2b

## Applications

**The Abpromise guarantee** Our **Abpromise guarantee** covers the use of ab10403 in the following tested applications. The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
IHC-Fr		Use a concentration of 0.5 - 5 µg/ml.
ICC/IF		Use a concentration of 5 µg/ml. Fix with 2% formaldehyde and permeabilize with 0.1% saponin.
IHC-FoFr		Use at an assay dependent concentration.
Flow Cyt		Use 10µg for 10 <sup>6</sup> cells. (see Endres et al reference).
		<b>ab170102</b> Mouse monoclonal IgG2b is suitable for use as an isotype control.
Inhibition Assay		Use a concentration of 2.5 - 20 µg/ml. (this is the ND50 where the antibody will block 50% of the bioactivity due to 0.1 µg/ml recombinant human SDF-1 in an assay measuring chemotaxis using BaF/3 human CXCR-4 transfected cells).
Neutralising		Use at an assay dependent concentration. PubMed: 22995914

## Target

<b>Function</b>	Receptor for the C-X-C chemokine CXCL12/SDF-1 that transduces a signal by increasing intracellular calcium ions levels and enhancing MAPK1/MAPK3 activation. Acts as a receptor for extracellular ubiquitin; leading to enhance intracellular calcium ions and reduce cellular cAMP levels. Involved in haematopoiesis and in cardiac ventricular septum formation. Plays also an essential role in vascularization of the gastrointestinal tract, probably by regulating vascular branching and/or remodeling processes in endothelial cells. Could be involved in cerebellar development. In the CNS, could mediate hippocampal-neuron survival. Acts as a coreceptor (CD4 being the primary receptor) for HIV-1 X4 isolates and as a primary receptor for some HIV-2 isolates. Promotes Env-mediated fusion of the virus.
<b>Tissue specificity</b>	Expressed in numerous tissues, such as peripheral blood leukocytes, spleen, thymus, spinal cord, heart, placenta, lung, liver, skeletal muscle, kidney, pancreas, cerebellum, cerebral cortex and medulla (in microglia as well as in astrocytes), brain microvascular, coronary artery and umbilical cord endothelial cells. Isoform 1 is predominant in all tissues tested.
<b>Involvement in disease</b>	Defects in CXCR4 are a cause of WHIM syndrome (WHIM) [MIM:193670]; also known as warts, hypogammaglobulinemia, infections and myelokathexis. WHIM syndrome is an immunodeficiency disease characterized by neutropenia, hypogammaglobulinemia and extensive human papillomavirus (HPV) infection. Despite the peripheral neutropenia, bone marrow aspirates from affected individuals contain abundant mature myeloid cells, a condition termed myelokathexis.
<b>Sequence similarities</b>	Belongs to the G-protein coupled receptor 1 family.
<b>Domain</b>	The amino-terminus is critical for ligand binding. Residues in all four extracellular regions

contribute to HIV-1 coreceptor activity.

#### Post-translational modifications

Phosphorylated on agonist stimulation. Rapidly phosphorylated on serine and threonine residues in the C-terminal. Phosphorylation at Ser-324 and Ser-325 leads to recruitment of ITCH, ubiquitination and protein degradation.

Ubiquitinated by ITCH at the cell membrane on agonist stimulation. The ubiquitin-dependent mechanism, endosomal sorting complex required for transport (ESCRT), then targets CXCR4 for lysosomal degradation. This process is dependent also on prior Ser-/Thr-phosphorylation in the C-terminal of CXCR4. Also binding of ARRB1 to STAM negatively regulates CXCR4 sorting to lysosomes though modulating ubiquitination of SFR5S.

Sulfation on Tyr-21 is required for efficient binding of CXCL12/SDF-1alpha and promotes its dimerization.

O- and N-glycosylated. Asn-11 is the principal site of N-glycosylation. There appears to be very little or no glycosylation on Asn-176. N-glycosylation masks coreceptor function in both X4 and R5 laboratory-adapted and primary HIV-1 strains through inhibiting interaction with their Env glycoproteins. The O-glycosylation chondroitin sulfate attachment does not affect interaction with CXCL12/SDF-1alpha nor its coreceptor activity.

#### Cellular localization

Cell membrane. In unstimulated cells, diffuse pattern on plasma membrane. On agonist stimulation, colocalizes with ITCH at the plasma membrane where it becomes ubiquitinated.

**Please note:** All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

#### Our Abpromise to you: Quality guaranteed and expert technical support

- Replacement or refund for products not performing as stated on the datasheet
- Valid for 12 months from date of delivery
- Response to your inquiry within 24 hours
- We provide support in Chinese, English, French, German, Japanese and Spanish
- Extensive multi-media technical resources to help you
- We investigate all quality concerns to ensure our products perform to the highest standards

If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit <https://www.abcam.com/abpromise> or contact our technical team.

#### Terms and conditions

- Guarantee only valid for products bought direct from Abcam or one of our authorized distributors