

## Anti-HIV-1 GP120 [X5] Standard Size Ab02852-10.27

This is a Fab fragment with no tags.

This reformatted human antibody was made using the variable domain sequences of the original Human Fab format for improved compatibility with existing reagents assays and techniques.

**Isotype and Format:** Human Fab fragment, Kappa

**Clone Number:** X5

**Alternative Name(s) of Target:** Glycoprotein 120; SU; surface protein gp120; env polyprotein; envelope glycoprotein gp16

**UniProt Accession Number of Target Protein:** P04578

**Published Application(s):** functional assay, neutralization, WB, ELISA, FC

**Published Species Reactivity:** HIV-1

**Immunogen:** This antibody was raised by panning a phage library (IgG1κ) from a seropositive individual with a relatively high cross-clade neutralizing titer against gp120-CD4-CCR5.

**Specificity:** This antibody is specific for the gp120 and gp140 envelope protein of HIV-1. HIV are two species of Lentivirus (a subgroup of retrovirus) that infect humans. Over time, they cause acquired immunodeficiency syndrome (AIDS), a condition in which progressive failure of the immune system allows life-threatening opportunistic infections and cancers to thrive.

**Application Notes:** To characterize this antibody an ELISA was preformed on both gp120 and gp140 from HIV-1 using the Fab version of this antibody. Furthermore, the Fab version of this antibody was used for flow cytometry on 3T3 cells expressing CD4 and CCR5. A cell-cell fusion assay was preformed using the Fab version of this antibody on cells expressing Env with sCD4 and cells expressing CXCR4 or CCR5. Finally, a peripheral blood mononuclear cell (PBMC)-based neutralization assay was performed. HIV-1 virus was mixed with the Fab version of this antibody after which the ability of the virus to infect cells was assayed (Moulard et al, 2002; pmid:11997472). CD4 cells infected with different HIV strains were added to uninfected untransduced or AB65-transduced cells or the scFv version of this antibody bound to GPI. Finally, an in vivo assay was preformed. Cells from one healthy human donor were used to generate the scFv version of this antibody bound to GPI or AB65-transduced primary CD4 T cells. These cells were grafted into a mouse and the infectivity was determined (Ye et al, 2017; pmid:27881659). To try and understand the nature of the neutralization, a western blot was preformed on HIV virus like particles using the scFv version of this antibody (Crooks et al, 2005; pmid:16720980). The ability of this antibody to bind HIV envelope proteins was tested by ELISA. The ELISA was preformed on the gp140 antigen using the scFv version of this

antibody (Xiao et al, 2009; pmid:19748484). The ability of this antibody to neutralize HIV was assessed. This was done by using the scFv version of this antibody on viruses pseudotyped with Envs from HIV-1 primary isolates representing HIV-1 group M, clades A-E (Choudhry et al, 2006; pmid:16904645). To test the effect of sCD4 on anti-HIV potency of this antibody, the GPI-scFv version of this antibody was incubated with HIV-1 Bru-3 and Bru-Yu2 after which the HIV-1 infectivity was determined using BrightGlo Luciferase assay. Further, a long term culture of HIV-1 infected cells was preformed. CEMss-CCR5 cells transduced with the GPI-scFv version of this antibody and the secretory scFv version of this antibody were infected with HIV-1 strains Bru-3 and Bru-Yu2. The supernatant was analysed using ELISA. Finally, a cell fusion experiment was preformed on 69TiRev/Env cells to which the CEMss-GPI-scFv version of this antibody was added. The cell-fusion was monitored using light microscopy (Wen et al, 2010; pmid:20923574).

**Antibody First Published in:** Moulard et al. Broadly cross-reactive HIV-1-neutralizing human monoclonal Fab selected for binding to gp120-CD4-CCR5 complexes. Proc Natl Acad Sci U S A. 2002 May 14;99(10):6913-8. [PMID:11997472](https://pubmed.ncbi.nlm.nih.gov/11997472/)

**Note on publication:** evidence is provided that purified gp120JR-FL-CD4-CCR5 complexes exhibit an epitope recognized by a Fab (X5) obtained by selection of a phage display library from a seropositive donor with a relatively high broadly neutralizing serum antibody titer against an immobilized form of the trimolecular complex.

## Product Form

**Size:** 200 µg Purified antibody.

**Purification:** Purified by Immobilized Metal Affinity Chromatography

**Supplied In:** PBS with 0.02% Proclin 300.

**Storage Recommendation:** Store at 4°C for up to 3 months. For longer storage, aliquot and store at -20°C.

**Concentration:** 1 mg/ml.

Important note – This product is for research use only. It is not intended for use in therapeutic or diagnostic procedures for humans or animals.