

HIV-1 Nef (vC-19): sc-17438

BACKGROUND

Human immunodeficiency virus (HIV) is a retrovirus that causes acquired immune deficiency syndrome (AIDS), a condition in humans in which the immune system begins to fail, leading to life-threatening opportunistic infections. HIV mainly infects vital cells in the human immune system such as helper T cells (specifically CD4⁺ T cells), macrophages and dendritic cells. Negative factor (Nef), also called F-protein, is a peripheral membrane protein which acts as a linker molecule in its mediation of protein-protein interactions in host cell signalling pathways. Myristoylated Nef is localized to cytoplasm, Golgi and plasma membrane, but non-myristoylated Nef localizes exclusively to cytoplasm. Nef interacts with Src-family tyrosine kinases and activator molecules for GTPases at its SH3-binding domain. Nef affects the PI 3-kinase sphingomyelinase signaling pathways and downregulates CD4 by triggering rapid endocytosis of cell surface CD4. Nef contains two relatively unstructured loops, through which it interacts with the cellular proteins that coat vesicles involved in membrane trafficking. This interaction is essential for the ability of Nef to control transmembrane protein distribution and to evade the host immune system. This evasion occurs via the inhibition of MHC class II-restricted peptide presentation to specific T cells. Nef does this by reducing the surface level of mature MHC class II while increasing levels of invariant chain-associated, immature MHC class II. Nef is the only HIV-1 gene product capable of this action.

REFERENCES

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2. Cheingsong-Popov, R., et al. 1991. Antibodies to HIV-1 Nef (p27): prevalence, significance, and relationship to seroconversion. *AIDS Res. Hum. Retroviruses* 6: 1099-1105.
3. Chopin, J., et al. 1991. HLA-binding regions of HIV-1 proteins. I. Detection of seven HLA binding regions in the HIV-1 Nef protein. *J. Immunol.* 147: 569-574.
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5. Richard, A., et al. 1997. Interference of HIV-1 Nef in the sphingomyelin transduction pathway activated by tumour necrosis factor- α in human glial cells. *AIDS* 11: F1-F7.
6. Kim, Y.H., et al. 1999. HIV-1 Nef plays an essential role in two independent processes in CD4 downregulation: dissociation of the CD4-p56(lck) complex and targeting of CD4 to lysosomes. *Virology* 257: 208-219.
7. Rasola, A., et al. 2001. Apoptosis enhancement by the HIV-1 Nef protein. *J. Immunol.* 166: 81-88.
8. Kohleisen, B., et al. 2001. HIV-1 Nef co-localizes with the astrocyte-specific cytoskeleton protein GFAP in persistently Nef-expressing human astrocytes. *J. Neurovirol.* 7: 52-55.
9. Stumptner-Cuvelette, P., et al. 2001. HIV-1 Nef impairs MHC class II antigen presentation and surface expression. *Proc. Natl. Acad. Sci. USA* 98: 12144-12149.

SOURCE

HIV-1 Nef (vC-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of HIV-1 Nef of HIV-1 origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-17438 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

HIV-1 Nef (vC-19) is recommended for detection of Nef of HIV-1 origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker[™] compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker[™] Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048.

SELECT PRODUCT CITATIONS

1. Qiao, X., et al. 2006. Human immunodeficiency virus 1 Nef suppresses CD40-dependent immunoglobulin class switching in bystander B cells. *Nat. Immunol.* 7: 302-310.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.



Try **HIV-1 Nef (JR6): sc-130522**, our highly recommended monoclonal alternative to HIV-1 Nef (vC-19).