

HIV-1 Nef (01-003): sc-65906

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 II restricted peptide presentation to specific T cells. Nef does this by reducing the surface level of mature MHC II while increasing levels of invariant chain-associated, immature MHC II. Nef is the only HIV-1 gene product capable of this action.

REFERENCES

1. Culmann, B., Gomard, E., Kieny, M.P., Guy, B., Dreyfus, F., Saimot, A.G., Sereni, D. and Levy, J.P. 1990. An antigenic peptide of the HIV-1 Nef protein recognized by cytotoxic T lymphocytes of seropositive individuals in association with different HLA-B molecules. *Eur. J. Immunol.* 19: 2383-2386.
2. Cheingsong-Popov, R., Panagiotidi, C., Ali, M., Bowcock, S., Watkins, P., Aronstam, A., Wassef, M. and Weber, J. 1991. Antibodies to HIV-1 Nef (p27): prevalence, significance, and relationship to seroconversion. *AIDS Res. Hum. Retroviruses.* 6: 1099-1105.
3. Choppin, J., Martinon, F., Connan, F., Gomard, E. and Levy, J.P. 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.
4. Graziani, A., Galimi, F., Medico, E., Cottone, E., Gramaglia, D., Boccaccio, C. and Comoglio, P.M. 1996. The HIV-1 Nef protein interferes with phosphatidylinositol 3-kinase activation 1. *J. Biol. Chem.* 271: 6590-6593.
5. Richard, A., Robichaud, G., Lapointe, R., Bourgoin, S., Darveau, A. and Poulin, L. 1997. Interference of HIV-1 Nef in the sphingomyelin transduction pathway activated by tumour necrosis factor- α in human glial cells. *AIDS* 11: F1-7.
6. Kim, Y.H., Chang, S.H., Kwon, J.H. and Rhee, S.S. 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., Gramaglia, D., Boccaccio, C. and Comoglio, P.M. 2001. Apoptosis enhancement by the HIV-1 Nef protein. *J. Immunol.* 166: 81-88.

SOURCE

HIV-1 Nef (01-003) is a mouse monoclonal antibody raised against recombinant Nef protein of HIV-1 (BRU) origin with epitope mapping to amino acids 150-158.

PRODUCT

Each vial contains 100 μ g IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

HIV-1 Nef (01-003) is recommended for detection of Nef of HIV-1 origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Molecular Weight of HIV-1 Nef: 27 kDa.

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 for detailed protocols and support products.