

HIV-1 Tat (02-001): sc-65912

BACKGROUND

Infection by human immunodeficiency virus (HIV) is associated with an early immune dysfunction and progressive destruction of CD4⁺ T lymphocytes. The HIV-induced, premature destruction of lymphocytes is associated with the continuous production of HIV viral proteins, which modulate apoptotic pathways. The HIV-1 Tat protein, also designated Tbp1, is a viral protein that is essential for activation of the HIV genes and plays a critical role in HIV-induced immunodeficiency. Extracellular HIV-1 Tat has been implicated in the development of AIDS and of AIDS-associated pathologies. HIV-1 Tat is associated with chronic immune activation and the continuous induction of apoptotic factors. It can also protect HIV-infected cells from apoptosis by increasing anti-apoptotic proteins and downregulating cell surface receptors recognized by immune system cells. HIV-1 Tat has been shown to have neurotoxic activity and is able to promote certain proinflammatory functions of microglia.

REFERENCES

1. Peloponese, J.M., Jr., et al. 2000. 1H-13C nuclear magnetic resonance assignment and structural characterization of HIV-1 Tat protein. *C. R. Acad. Sci. III, Sci. Vie* 323: 883-894.
2. Ross, T.M. 2001. Using death to one's advantage: HIV modulation of apoptosis. *Leukemia* 15: 332-341.
3. Rusnati, M., et al. 2001. Pentosan polysulfate as an inhibitor of extracellular HIV-1 Tat. *J. Biol. Chem.* 276: 22420-22425.
4. Visentin, S., et al. 2001. Altered outward-rectifying K⁺ current reveals microglial activation induced by HIV-1 Tat protein. *Glia* 33: 181-190.
5. Patrizio, M., et al. 2001. Human immunodeficiency virus type 1 Tat protein decreases cyclic AMP synthesis in rat microglia cultures. *J. Neurochem.* 77: 399-407.
6. Yang, Y., et al. 2003. Monocytes treated with human immunodeficiency virus Tat kill uninfected CD4⁺ cells by a tumor necrosis factor-related apoptosis-induced ligand-mediated mechanism. *J. Virol.* 77: 6700-6708.
7. Bruce-Keller, A.J., et al. 2003. Synaptic transport of human immunodeficiency virus Tat protein causes neurotoxicity and gliosis in rat brain. *J. Neurosci.* 23: 8417-8422.
8. Leifert, J.A., et al. 2003. The cationic region from HIV Tat enhances the cell-surface expression of epitope/MHC class I complexes. *Gene Ther.* 10: 2067-2673.
9. Lee, Y.W., et al. 2004. Estrogen-mediated protection against HIV Tat protein-induced inflammatory pathways in human vascular endothelial cells. *Cardiovasc. Res.* 63: 139-148.

SOURCE

HIV-1 Tat (02-001) is a mouse monoclonal antibody raised against a recombinant protein corresponding to amino acids 2-9 of Tat of HIV-1 (HAN) origin.

PRODUCT

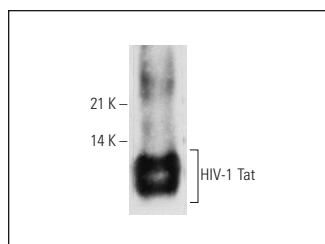
Each vial contains 100 µg IgG_{2b} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

HIV-1 Tat (02-001) is recommended for detection of Tat of HIV-1 origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Molecular Weight of HIV-1 Tat: 15 kDa.

DATA



HIV-1 Tat (02-001): sc-65912. Western blot analysis of viral recombinant HIV-1 Tat.

SELECT PRODUCT CITATIONS

1. Rayne, F., et al. 2010. HIV-1 Tat is unconventionally secreted through the plasma membrane. *Cell Biol. Int.* 34: 409-413.
2. Tryoen-Tóth, P., et al. 2013. HIV-1 Tat protein inhibits neurosecretion by binding to phosphatidylinositol 4,5-bisphosphate. *J. Cell Sci.* 126: 454-463.
3. Sagnier, S., et al. 2015. Autophagy restricts HIV-1 infection by selectively degrading Tat in CD4⁺ T lymphocytes. *J. Virol.* 89: 615-625.
4. Es-Salah-Lamoureux, Z., et al. 2016. HIV-Tat induces a decrease in I_{Kr} and I_{Ks} via reduction in phosphatidylinositol-(4,5)-bisphosphate availability. *J. Mol. Cell. Cardiol.* 99: 1-13.
5. Rayne, F., et al. 2016. Detecting HIV-1 Tat in cell culture supernatants by ELISA or western blot. *Methods Mol. Biol.* 1354: 329-342.
6. Lacombe, B., et al. 2016. Specific inhibition of HIV infection by the action of spironolactone in T cells. *J. Virol.* 90: 10972-10980.
7. Chopard, C., et al. 2018. Cyclophilin A enables specific HIV-1 Tat palmitoylation and accumulation in uninfected cells. *Nat. Commun.* 9: 2251.
8. Valyaeva, A.A., et al. 2022. Ectopic expression of HIV-1 Tat modifies gene expression in cultured B cells: implications for the development of B-cell lymphomas in HIV-1-infected patients. *PeerJ* 10: e13986.

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.