SANTA CRUZ BIOTECHNOLOGY, INC.

APOBEC3C/D/F (N-13): sc-46732

The Power to Question

BACKGROUND

APOBEC (apolipoprotein B mRNA editing enzyme, catalytic) proteins inhibit retroviruses by deaminating cytosine residues of viral RNA and DNA. The seven APOBEC3 genes or pseudogenes are found in a cluster thought to result from gene duplication on chromosome 22. Like APOBEC3G, APOBEC3F deaminates deoxycytosine to deoxyuracil in the minus strand of HIV-1 DNA, resulting in G to A hypermutation in the plus strand of DNA. Thus, APOBEC3G and APOBEC3F provide a mechanism for innate immunity to retroviruses, and are also likely contribute to sequence variation observed in many viruses. Viral infectivity factor (Vif) imparts APOBEC3G and APOBEC3F resistance to HIV through impaired translation of their mRNA and accelerated posttranslational degradation of the APOBEC3 proteins by the 26S Proteasome. Interestingly, HIV-1 Vif cannot form a complex with APOBEC3G or APOBEC3F of mouse origin as it does with the human protein, and thus mouse APOBEC3G and APOBEC3F function as a potent inhibitors of wildtype HIV-1 replication, where human APOBEC3G and APOBEC3F are only able to inhibit Vif-deficient HIV-1 replication. This implies that induction of APOBEC3G and APOBEC3F activity or a method of blocking their interaction with Vif may provide a method for therapeutic intervention.

REFERENCES

1. Yu, Q., Chen, D., Konig, R., Mariani, R., Unutmaz, D. and Landau, N.R. 2004. APOBEC3B and APOBEC3C are potent inhibitors of simian immunodeficiency virus replication. J. Biol. Chem. 279: 53379-53386.
2. Dutko, J.A., Schafer, A., Kenny, A.E., Cullen, B.R. and Curcio, M.J. 2005. Inhibition of a yeast LTR retrotransposon by human APOBEC3 cytidine deaminases. Curr. Biol. 15: 661-666.
3. Mahieux, R., Suspene, R., Delebecque, F., Henry, M,. Schwartz, O., Wain-Hobson, S. and Vartanian, J.P. 2005. Extensive editing of a small fraction of human T cell leukemia virus type 1 genomes by four APOBEC3 cytidine deaminases. J. Gen. Virol. 86: 2489-2494.
4. Langlois, M.A., Beale, R.C., Conticello, S.G. and Neuberger, M.S. 2005. Mutational comparison of the single-domained APOBEC3C and double-domained APOBEC3F/G anti-retroviral cytidine deaminases provides insight into their DNA target site specificities. Nucleic Acids Res. 33: 1913-1923.
5. Suspene, R., Guetard, D., Henry, M., Sommer, P., Wain-Hobson, S. and Vartanian, J.P. 2005. Extensive editing of both hepatitis B virus DNA strands by APOBEC3 cytidine deaminases *in vitro* and *in vivo*. Proc. Natl. Acad. Sci. USA 102: 8321-8326.

SOURCE

APOBEC3C/D/F (N-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of APOBEC3C of human origin.

STORAGE

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

PRODUCT

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

Blocking peptide available for competition studies, sc-46732 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

APOBEC3C/D/F (N-13) is recommended for detection of APOBEC3C, APOBEC3D and APOBEC3F of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of APOBEC3C: 22 kDa.

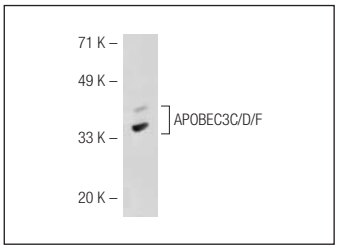
Molecular Weight of APOBEC3D: 46 kDa.

Molecular Weight of APOBEC3F: 45 kDa.

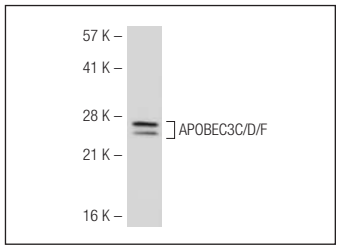
RECOMMENDED SECONDARY REAGENTS

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



APOBEC3C/D/F (N-13): sc-46732. Western blot analysis of APOBEC3C/D/F expression in HeLa whole cell lysate.



APOBEC3C/D/F (N-13): sc-46732. Western blot analysis of APOBEC3C/D/F expression in Jurkat whole cell lysate.

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.