

# APOBEC3D/F (K-16): sc-46735

## 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

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2. Tian, C., Yu, X., Zhang, W., Wang, T., Xu, R. and Yu, X.F. 2006. Differential requirement for conserved tryptophans in human immunodeficiency virus type 1 Vif for the selective suppression of APOBEC3G and APOBEC3F. *J. Virol.* 80: 3112-3115.
3. Franca, R., Spadari, S. and Maga, G. 2006. APOBEC deaminases as cellular antiviral factors: A novel natural host defense mechanism. *Med. Sci. Monit.* 12: 92-98.
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## CHROMOSOMAL LOCATION

Genetic locus: APOBEC3D/APOBEC3F (human) mapping to 22q13.1.

## SOURCE

APOBEC3D/F (K-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of APOBEC3F 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-46735 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

APOBEC3D/F (K-16) is recommended for detection of APOBEC3D and APOBEC3F isoform 1 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); may cross-reactive with a broad range of APOBEC3 proteins.

Molecular Weight of APOBEC3D: 47 kDa.

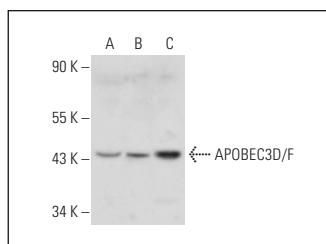
Molecular Weight of APOBEC3F: 45 kDa.

Positive Controls: A549 cell lysate: sc-2413, Hep G2 cell lysate: sc-2227 or MCF7 whole cell lysate: sc-2206.

## 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



APOBEC3D/F (K-16): sc-46735. Western blot analysis of APOBEC3D/F expression in MCF7 (A), Hep G2 (B) and A549 (C) whole cell lysates.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.