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Anti-APOBEC3G Antibody Picoband™ (monoclonal, 6C2)

Catalog # ABO14849

Product Information

Application	WB, IHC, IF, ICC, FC
Primary Accession	Q9HC16
Host	Mouse
Isotype	Mouse IgG1
Reactivity	Human
Clonality	Monoclonal
Format	Lyophilized
Description	Anti-APOBEC3G Antibody Picoband™ (monoclonal, 6C2) . Tested in Flow Cytometry, IF, IHC, ICC, WB applications. This antibody reacts with Human.
Reconstitution	Add 0.2ml of distilled water will yield a concentration of 500 □g/ml.

Additional Information

Gene ID	60489
Other Names	DNA dC->dU-editing enzyme APOBEC-3G, 3.5.4.38, APOBEC-related cytidine deaminase, APOBEC-related protein, ARCD, APOBEC-related protein 9, ARP-9, CEM-15, CEM15, Deoxycytidine deaminase, A3G, APOBEC3G
Calculated MW	46408
Application Details	Western blot, 0.1-0.5 □g/ml Immunohistochemistry (Paraffin-embedded Section), 0.5-1 □g/ml Immunocytochemistry/Immunofluorescence, 2 □g/ml Flow Cytometry, 1-3 □g/1x10^6 cells
Subcellular Localization	Nucleus. Cytoplasm. P-body.
Tissue Specificity	Expressed in spleen, testes, ovary and peripheral blood leukocytes and CD4+ lymphocytes. Also expressed in non-permissive peripheral blood mononuclear cells, and several tumor cell lines; no expression detected in permissive lymphoid and non-lymphoid cell lines. Exists only in the LMM form in peripheral blood-derived resting CD4 T-cells and monocytes, both of which are refractory to HIV-1 infection. LMM is converted to a HMM complex when resting CD4 T-cells are activated or when monocytes are induced to differentiate into macrophages. This change correlates with increased susceptibility of these cells to HIV-1 infection.
Source	Eukaryota
Contents	Each vial contains 4mg Trehalose, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg NaN3.

Clone Names	Clone: 6C2
Immunogen	E.coli-derived human APOBEC3G recombinant protein (Position: E191-N384).
Cross Reactivity	No cross-reactivity with other proteins.
Storage	Store at -20˚C for one year from date of receipt. After reconstitution, at 4˚C for one month. It can also be aliquotted and stored frozen at -20˚C for six months. Avoid repeated freeze-thaw cycles.

Protein Information

Name	APOBEC3G {ECO:0000303|PubMed:14557625, ECO:0000312|HGNC:HGNC:17357}
Function	DNA deaminase (cytidine deaminase) which acts as an inhibitor of retrovirus replication and retrotransposon mobility via deaminase- dependent and -independent mechanisms (PubMed:12808465, PubMed:16527742, PubMed:17121840, PubMed:18288108, PubMed:18849968, PubMed:19153609, PubMed:21123384, PubMed:22791714, PubMed:25542899). Exhibits potent antiviral activity against Vif-deficient HIV-1 (PubMed:12167863, PubMed:12859895, PubMed:14557625, PubMed:20219927, PubMed:21835787, PubMed:22807680, PubMed:22915799, PubMed:23097438, PubMed:23152537, PubMed:31397674). After the penetration of retroviral nucleocapsids into target cells of infection and the initiation of reverse transcription, it can induce the conversion of cytosine to uracil in the minus-sense single-strand viral DNA, leading to G-to-A hypermutations in the subsequent plus-strand viral DNA (PubMed:12808465, PubMed:12808466, PubMed:12809610, PubMed:12970355, PubMed:14528300, PubMed:22807680). The resultant detrimental levels of mutations in the proviral genome, along with a deamination-independent mechanism that works prior to the proviral integration, together exert efficient antiretroviral effects in infected target cells (PubMed:12808465, PubMed:12808466, PubMed:12809610, PubMed:12970355, PubMed:14528300). Selectively targets single-stranded DNA and does not deaminate double-stranded DNA or single- or double-stranded RNA (PubMed:12808465, PubMed:12809610, PubMed:12970355, PubMed:14528300). Exhibits antiviral activity also against simian immunodeficiency viruses (SIVs), hepatitis B virus (HBV), equine infectious anemia virus (EIAV), xenotropic MuLV-related virus (XMRV) and simian foamy virus (SFV) (PubMed:15031497, PubMed:16378963, PubMed:18448976, PubMed:19458006, PubMed:20335265). May inhibit the mobility of LTR and non-LTR retrotransposons (PubMed:16527742).
Cellular Location	Cytoplasm. Nucleus Cytoplasm, P-body. Note=Mainly cytoplasmic (PubMed:16527742, PubMed:16699599, PubMed:21835787). Small amount are found in the nucleus (PubMed:18667511). During HIV-1 infection, virion-encapsidated in absence of HIV-1 Vif (PubMed:12859895)
Tissue Location	Expressed in spleen, testes, ovary and peripheral blood leukocytes and CD4+ lymphocytes. Also expressed in non-permissive peripheral blood mononuclear cells, and several tumor cell lines; no expression detected in permissive lymphoid and non-lymphoid cell lines Exists only in the LMM form in peripheral blood-derived resting CD4 T- cells and monocytes, both of which are refractory to HIV-1 infection LMM is converted to a HMM complex when resting CD4 T-cells are activated or when monocytes are induced to differentiate into macrophages. This change correlates with increased susceptibility of these cells to HIV-1 infection.

Background

APOBEC3G (apolipoprotein B mRNA editing enzyme, catalytic polypeptide-like 3G) is a human enzyme encoded by the APOBEC3G gene. This gene is a member of the cytidine deaminase gene family. It is one of seven related genes or pseudogenes found in a cluster, thought to result from gene duplication, on chromosome 22. Members of the cluster encode proteins that are structurally and functionally related to the C to U RNA-editing cytidine deaminase APOBEC1. It is thought that the proteins may be RNA editing enzymes and have roles in growth or cell cycle control. The protein encoded by this gene has been found to be a specific inhibitor of human immunodeficiency virus-1 (HIV-1) infectivity.

Images

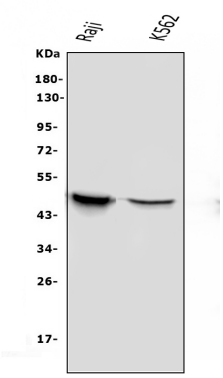


Figure 1. Western blot analysis of APOBEC3G using anti-APOBEC3G antibody (M00708).
Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 50ug of sample under reducing conditions.
Lane 1: Raji whole cell lysates,
Lane 2: K562 whole cell lysates.
After Electrophoresis, proteins were transferred to a Nitrocellulose membrane at 150mA for 50-90 minutes. Blocked the membrane with 5% Non-fat Milk/ TBS for 1.5 hour at RT. The membrane was incubated with mouse anti-APOBEC3G antigen affinity purified monoclonal antibody (Catalog # M00708) at 0.5 µg/mL overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-mouse IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1001) with Tanon 5200 system. A specific band was detected for APOBEC3G at approximately 46KD. The expected band size for APOBEC3G is at 46KD.

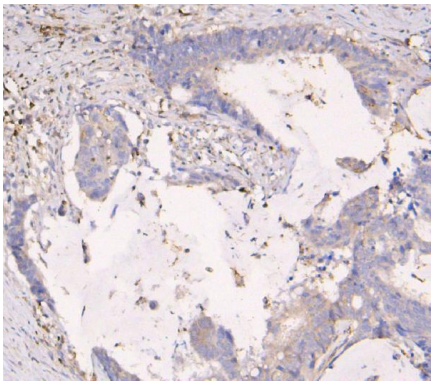
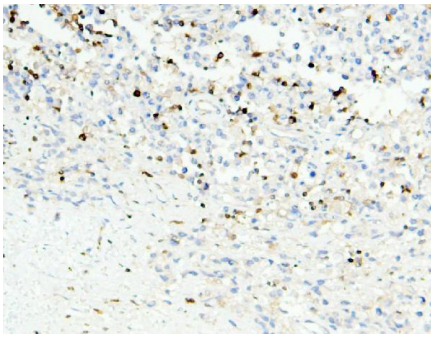


Figure 2. IHC analysis of APOBEC3G using anti-APOBEC3G antibody (M00708).
APOBEC3G was detected in paraffin-embedded section of human intestinal cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 µg/ml mouse anti-APOBEC3G Antibody (M00708) overnight at 4°C. Biotinylated goat anti-mouse IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) (Catalog # SA1021) with DAB as the chromogen.

Figure 3. IHC analysis of APOBEC3G using anti-APOBEC3G antibody (M00708).
APOBEC3G was detected in paraffin-embedded section of human testis cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 µg/ml mouse anti-APOBEC3G Antibody (M00708) overnight at 4°C. Biotinylated goat anti-mouse IgG was



used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) (Catalog # SA1021) with DAB as the chromogen.

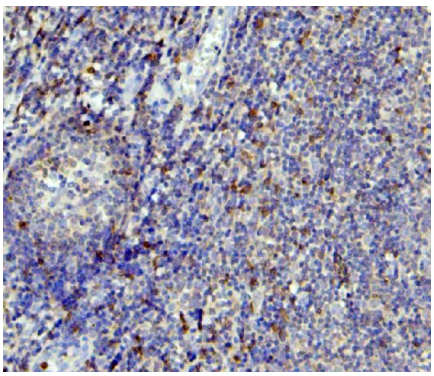


Figure 4. IHC analysis of APOBEC3G using anti-APOBEC3G antibody (M00708).
APOBEC3G was detected in paraffin-embedded section of human tonsil tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 µg/ml mouse anti-APOBEC3G Antibody (M00708) overnight at 4°C. Biotinylated goat anti-mouse IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) (Catalog # SA1021) with DAB as the chromogen.

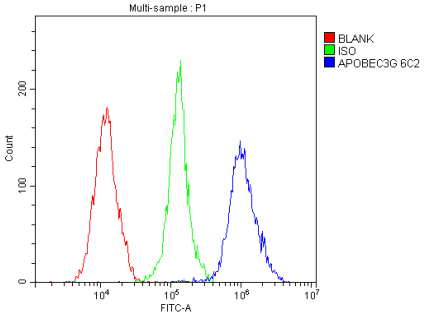


Figure 5. Flow Cytometry analysis of THP-1 cells using anti-APOBEC3G antibody (M00708).
Overlay histogram showing THP-1 cells stained with M00708 (Blue line).The cells were blocked with 10% normal goat serum. And then incubated with mouse anti-APOBEC3G Antibody (M00708,1 µg/1x10^6 cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-mouse IgG (BA1126, 5-10 µg/1x10^6 cells) was used as secondary antibody for 30 minutes at 20°C. Isotype control antibody (Green line) was mouse IgG (1 µg/1x10^6) used under the same conditions. Unlabelled sample (Red line) was also used as a control.

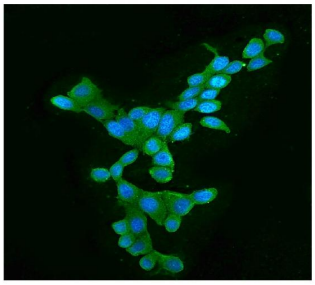


Figure 6. IF analysis of APOBEC3G using anti-APOBEC3G antibody (M00708).
APOBEC3G was detected in immunocytochemical section of MCF7 cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent (AR0022) for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 2 µg/mL mouse anti-APOBEC3G Antibody (M00708) overnight at 4°C. DyLight®488 Conjugated Goat Anti-Mouse IgG (BA1126) was used as secondary antibody at 1:100 dilution and incubated for 30 minutes at 37°C. The section was counterstained with DAPI. Visualize using a fluorescence microscope and filter sets appropriate for the label used.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.