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Retrovirus Restriction Factor Detection Set

Cat. No.: PSI-1817

Retrovirus Restriction Factor Detection Set

Specifications

SPECIES REACTIVITY:	Human
IMMUNOGEN:	Rabbit polyclonal antibodies were raised against peptides corresponding to amino acid sequences from each of the corresponding proteins.
TESTED APPLICATIONS:	IF, IHC, WB
APPLICATIONS:	These polyclonal antibodies can be used for detection of AID, APOBEC3G, TRIM5a, UNG1 and UNG2 by immunoblot at 1 - 5 µg/mL. These antibodies can also be used at 1 - 10 µg/mL to detect their respective proteins via immunohistochemistry / immunocytochemistry, and Immunoflourescence.
POSITIVE CONTROL:	1) AID Antibody: Ramos Lysate, Catalog No. 1225 APOBEC3G Antibody: Caco-2 Cell Lysate, Catalog No. 1223 TRIM5α Antibody: Human Uterus Tissue Lysate, Catalog No. 1317 UNG1 Antibody: C2C12 Cell Lysate, Catalog No. 1285 UNG2 Antibody: Mouse Bladder Tissue Lysate, Catalog No. 1410

Properties

PURIFICATION:	Antibodies are supplied as affinity chromatography purified IgG.

PHYSICAL STATE:	Liquid
BUFFER:	PBS containing 0.02% sodium azide.
CONCENTRATION:	Antibody 1 mg/mL
STORAGE CONDITIONS:	Stable at 4˚C for three months, store at -20˚C for up to one year.

Additional Info

USER NOTE:	Optimal dilutions for each application to be determined by the researcher.

Background and References

BACKGROUND:	Mammalian cells have developed multiple strategies to limit retroviral infection including numerous proteins termed restriction factors that restrict retrovirus replication and infection. One such protein is TRIM5, a member of a broad family of otherwise unrelated proteins whose longest isoform, TRIM5α, enables resistance to infection by HIV-1 through rapid degradation of HIV-1 Gag polyproteins. Another protein, APOBEC3G (and to a lesser extent APOBEC3F) can be incorporated into HIV-1 virions and induce hypermutation in the newly synthesized viral DNA and thus destabilize the viral genome. This innate mechanism of retroviral resistance is counteracted by the HIV-1 Vif protein by inducing the ubiquitization and degradation of APOBEC3G; a single amino acid substitution (D128K) blocks APOBEC3G depletion without affecting its inhibitory activity. The human uracil-DNA glycosylase UNG2 can also be incorporated into the HIV-1virion, indicating that it is required to remove uracils from the viral genome. It has been suggested that the UNG2 contributes to the APOBEC3G-mediated loss of infectivity by generating abasic sites in the viral genome. UNG1, the mitochondrial form of UNG, is transcribed from the same gene as UNG2 through differentially regulated promoters and alternative splicing, but does not appear to have anti-retroviral properties. AID, a protein related to APOBEC3 also possesses cytidine deaminase activity that can be blocked by the HIV-1 Vif protein in E. coli, but so far it appears unlikely that AID deaminates dC to dU residues in HIV cDNA as does APOBEC3G. **For images please see PDF data sheet**
REFERENCES:	1) Reymond A, Meroni G, Fantozzi A, et al. The tripartite motif family identifies cell compartments. EMBO J. 2001; 20:2140-51.
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	4) Sakuma R, Noser JA, Ohmine S, et al. Rhesus monkey TRIM5alpha restricts HIV-1 production through rapid degradation of viral Gal polyproteins. Nat. Med. 2007; 13:631-5.