

Datasheet for 100-401-P12

MMTV Antibody

Overview

Description:	Anti-MMTV (RABBIT) Antibody - 100-401-P12
Item No.:	100-401-P12
Size:	100 µL
Applications:	WB
Reactivity:	Virus
Host Species:	Rabbit

Product Details

Background:	This antibody is designed, produced, and validated as part of a collaboration between Rockland and the National Cancer Institute (NCI) and is suitable for Cancer, Enzyme, and Viral research. Mouse mammary tumor virus capsid is a polyprotein that is cleaved by aspartyl protease during or after the release of the virion from the plasma membrane. After entering the cell, reverse transcriptase converts the viral dimeric RNA genome into dsDNA in the cytoplasm. Displaying DNA polymerase activity and RNase H activity, this enzyme copies either DNA or RNA templates and cleaves the RNA strand of the RNA-DNA heteroduplex in a partially processive 3' to 5' endonucleasic mode. tRNA binds to the primer at the 5' end of the viral RNA. Reverse transcriptase uses the 3' end of the tRNA primer to perform a short round of RNA-dependent minus-strand DNA synthesis proceeding through the U5 region and ending after the repeated region. This RNA-DNA heteroduplex is digested by the RNase H and hybridizes with the identical R region at the 3' end of the viral RNA. RNase H then digests the RNA template except for a polypurine tract situated at the 5' end of the genome. RNase H probably can proceed both in a polymerase-dependent and a polymerase-independent mode. Reverse transcriptase also performs DNA-directed plus-strand DNA synthesis using the polypurine tract that has not been removed by RNase H as primers. Polypurine tract and tRNA primers are then removed by RNase H and the 3' and 5' ssDNA primer binding site regions hybridize to form a circular dsDNA intermediate. Strand displacement synthesis by reverse transcriptase to the primer binding site and polypurine tract ends produces a blunt ended, linear dsDNA copy of the viral genome that includes long terminal repeats at both ends. Anti-MMTV Antibody is ideal for researchers interested in Cancer, Enzyme, and Viral research.
Synonyms:	rabbit anti-MMTV antibody, rabbit anti-mouse mammary tumor virus capsid protein antibody, Gag-Pro-Pol, Mouse mammary tumor virus (strain C3H), MMTV capsid, Reverse transcriptase/ribonuclease H, Capsid protein p27
Host Species:	Rabbit

Clonality:	Polyclonal
Format:	Antiserum

Target Details

Gene Name:	gag-pro-pol
Reactivity:	Virus
Immunogen Type:	Native Protein
Immunogen:	MMTV was prepared from whole rabbit serum produced by repeated immunizations with a full length sequence for mouse mammary tumor virus capsid protein tagged with His.
Purity/Specificity:	Mouse mammary tumor virus capsid antibody was prepared from monospecific, delipidated and defibrinated antiserum, with addition of sodium azide to 0.01% and cross adsorbed with 6X HIS. A BLAST analysis was used to suggest cross-reactivity with MMTV from mouse based on a 100% homology with the immunizing sequence. Reactivity against homologues from other sources is not known.
Relevant Links:	• 100-401-P12 • UniProtKB - P11283 • AF228552 - EMBL

Application Details

Tested Applications:	WB
Application Note:	Anti-MMTV Antibody has been tested for use in western blotting. Specific conditions for reactivity should be optimized by the end user. Expect band approximately 26.7 kDa in size corresponding to MMTV capsid protein by western blotting in the appropriate cell lysate or extract.
Assay Dilutions:	All assays should be optimized by the user. Recommended dilutions (if any) may be listed below.
ELISA:	1:10,000-1:20,000
WB:	1:1000-1:2000

Formulation

Physical State:	Liquid (sterile filtered)
Concentration:	77mg/mL by Refractometry

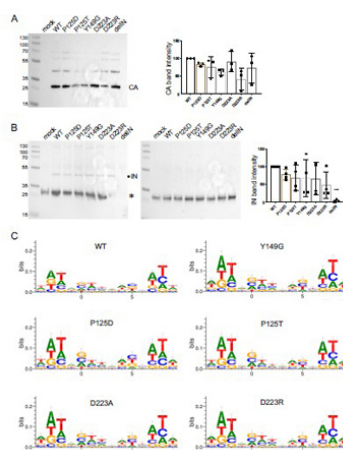
Buffer:	0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2
Preservative:	0.01% (w/v) Sodium Azide
Stabilizer:	None

Shipping Condition:	Dry Ice
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Storage Condition:	Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.
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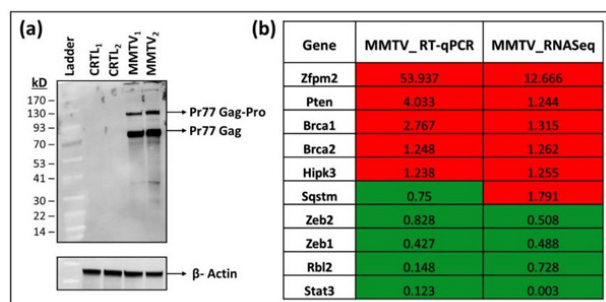
Expiration:	Expiration date is one (1) year from date of receipt.
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Images



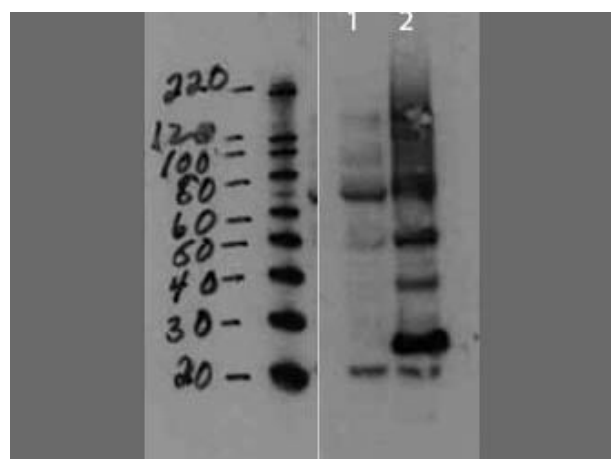
Western Blot

MMTV WT and IN mutant virus protein content and integration site logos. (A) Capsid (CA) content of indicated viruses (delIN = IN deletion control virus); the supernatant of mock-transfected cells was processed in parallel. (B) IN content of the indicated viruses. The samples on the leftward blot were immunoprecipitated with affinity-purified rabbit anti-IN antibodies while the samples to the right were treated with normal rabbit control antibodies. The specific IN signal is marked; a more intense non-specific signal, marked by asterisk, was observed in mock samples and samples treated with normal rabbit antibodies. Quantitation of CA and IN signal intensities (average $\pm$ s.t.d.) are shown in bar graphs for $n=3$ independent immunoblotting experiments. Statistical difference versus WT MMTV (***, $p<0.001$) was determined by one-way ANOVA. (C) WT and IN mutant base sequence logos surrounding common GTTAAC TSDs (x-axes positions 0 to 5). Supplementary Figure S11. PMID: 35947647.



Western Blot

Establishment of HC11 cells stably expressing mouse mammary tumor virus (MMTV) and validation of their RNAseq data. (a) Western blot analysis of MMTV Gag gene expression in normal mouse mammary epithelial HC11 cells stably expressing MMTV. β -actin was used as the loading control. (b) RT-qPCR validation of RNAseq outcomes in MMTV expressing HC11 cells. The relative quantitative (RQ) values (MMTV/CTRL) obtained from RT-PCR data were compared with the relative (MMTV/CTRL) expression values of individual genes obtained from RNAseq data. The genes with value < 1 represent down-regulated genes, while those with value > 1 represent up-regulated genes, respectively, after MMTV expression. The red highlighted boxes depict up-regulated, while green boxes show down-regulated genes in cells expressing MMTV when compared with control HC11 cells. Fig 1. PMID: 37243196.



Western Blot

Western Blot of Rabbit anti-MMTV antibody. Lane 1: cell lysate negative control. Lane 2: cell lysate spiked with purified virus. Load: 10 μ g per lane. Primary antibody: Mouse Mammary Tumor Virus Capsid antibody at 1:1000 for overnight at 4°C. Secondary antibody: IRDye800™ rabbit secondary antibody at 1:10,000 for 45 min at RT. Block: 5% BLOTTO overnight at 4°C. Predicted/Observed size: ~26.7kDa, ~28kDa and ~50kDa for MMTV. Other bands: higher bands are not unexpected since proteins are made from a larger precursor.

References

- Ahmad W et al. Global Down-regulation of Gene Expression Induced by Mouse Mammary Tumor Virus (MMTV) in Normal Mammary Epithelial Cells. *Viruses*. (2023)
- Jozwik IK et al. B-to-A transition in target DNA during retroviral integration. *Nucleic Acids Research* (2022)

Disclaimer

This product is for research use only and is not intended for therapeutic or diagnostic applications. Please contact a technical service representative for more information. All products of animal origin manufactured by Rockland Immunochemicals are derived from starting materials of North American origin. Collection was performed in United States Department of Agriculture (USDA) inspected facilities and all materials have been inspected and certified to be free of disease and suitable for exportation. All properties listed are typical characteristics and are not specifications. All suggestions and data are offered in good faith but without guarantee as conditions and methods of use of our products are beyond our control. All claims must be made within 30 days following the date of delivery. The prospective user must determine the suitability of our materials before adopting them on a commercial scale. Suggested uses of our products are not recommendations to use our products in violation of any patent or as a license under any patent of Rockland Immunochemicals, Inc. If you require a commercial license to use this material and do not have one, then return this material, unopened to: Rockland Inc., P.O. BOX 5199, Limerick, Pennsylvania, USA.