

Datasheet for 600-401-B67S**RRM2B p53R2 Antibody****Overview**

Description:	Anti-Human RRM2B/p53R2 (RABBIT) Antibody - 600-401-B67S
Item No.:	600-401-B67S
Size:	25 µL
Applications:	ELISA, WB, IHC
Reactivity:	Human
Host Species:	Rabbit

Product Details

Background:	RRM2B/p53-R2, or p53-inducible ribonucleotide reductase small subunit 2-like protein, is a member of a broad superfamily of ferritin-like diiron-carboxylate proteins. The RRM2B protein is an enzyme that catalyzes the conversion of ribonucleotides to deoxyribonucleotides that are essential for DNA synthesis, and is found in all eukaryotes. RRM2B plays a pivotal role in cell survival by repairing damaged DNA in a p53/TP53-dependent manner. It supplies deoxyribonucleotides for DNA repair in cells arrested at G1 or G2. It contains an iron-tyrosyl free radical center required for catalysis, and forms an active ribonucleotide reductase (RNR) complex with RRM1 which is expressed both in resting and proliferating cells in response to DNA damage. It is a heterotetramer with a large (RRM1) subunit, and interacts with p53/TP53. The interaction with RRM1 occurs in response to DNA damage and results in its translocation from cytoplasm to nucleus. It is widely expressed at a high level in skeletal muscle and at a weak level in thymus, and expressed in epithelial dysplasias and squamous cell carcinoma. Defects in RRM2B are the cause of encephalomyopathic mitochondrial depletion syndrome with renal tubulopathy (EMDSRT). Mitochondrial DNA depletion syndrome (MDS) is a clinically heterogeneous group of disorders characterized by a reduction in mitochondrial DNA (mtDNA) copy number. The encephalomyopathic form with renal tubulopathy is presented with various combinations of hypotonia, tubulopathy, seizures, respiratory distress, diarrhea, and lactic acidosis.
Synonyms:	rabbit anti-RRM2B p53R2 antibody, rabbit anti-RRM2B antibody, rabbit anti-p53R2 antibody, Ribonucleoside-diphosphate reductase subunit M2 B, TP53-inducible ribonucleotide reductase M2 B, p53-inducible ribonucleotide reductase small subunit 2-like protein
Host Species:	Rabbit
Clonality:	Polyclonal

Format: IgG

Target Details

Gene Name:	RRM2B
Reactivity:	Human
Immunogen Type:	Conjugated Peptide
Immunogen:	Anti-Human RRM2B/p53R2 antibody was prepared by repeated immunizations with a synthetic peptide corresponding to a region near the N-terminus of human RRM2B1 protein. A residue of cysteine was added to facilitate coupling.
Purity/Specificity:	Anti-Human RRM2B/p53R2 is directed against RRM2B and reacts with the RRM2B from human tissues. Based on sequence we expect this antibody to react as well with RRM2B from other species. Based on 100% homology to the immunizing sequence, one may expect reactivity to chimpanzee and orangutan; based on 93% homology, reactivity to macaque, and 92% to pig and Drosophila.
Relevant Links:	• UniProtKB - Q7LG56 • NCBI - 42544136 • GenelD - 50484

Application Details

Tested Applications:	ELISA, WB
Suggested Applications:	IHC (Based on references)
Application Note:	RRM2B/p53R2 antibody is tested in Western Blot and ELISA and suitable for IP, IHC, and IF. Specific conditions for reactivity should be optimized by the end user. Expect a band approximately 41 kDa in size corresponding to RRM2B1 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:	1:3,000
IF:	User Optimized
IHC:	User Optimized
IP:	User Optimized
WB:	1 µg/mL

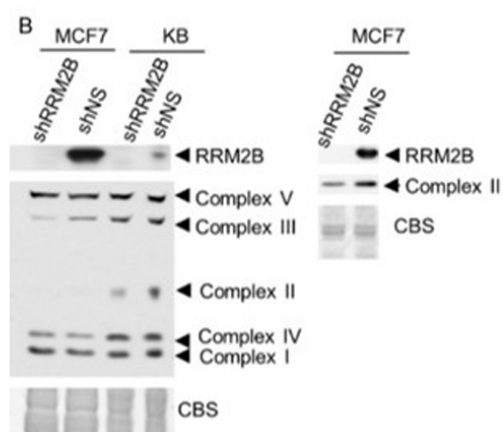
Formulation

Physical State:	Liquid (sterile filtered)
Concentration:	0.82 mg/mL by UV absorbance at 280 nm
Buffer:	0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2
Preservative:	0.01% (w/v) Sodium Azide
Stabilizer:	None

Shipping & Handling

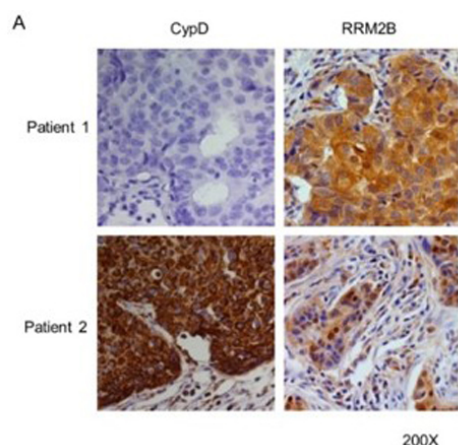
Shipping Condition:	Dry Ice
Storage Condition:	Store vial at -20° C or below prior to opening. This vial contains a relatively low volume of reagent (25 µL). To minimize loss of volume dilute 1:10 by adding 225 µL of the buffer stated above directly to the vial. Recap, mix thoroughly and briefly centrifuge to collect the volume at the bottom of the vial. Use this intermediate dilution when calculating final dilutions as recommended below. Store the vial at -20°C or below after dilution. Avoid cycles of freezing and thawing.
Expiration:	Expiration date is three (3) months from date of receipt.

Images



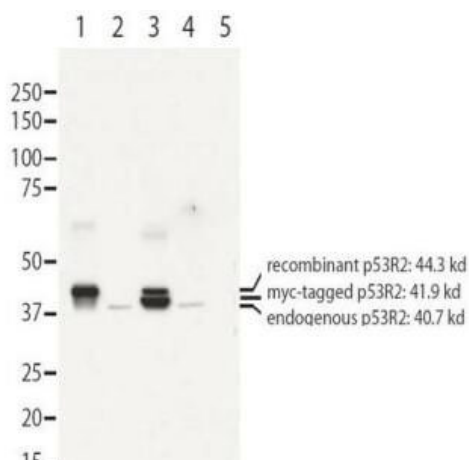
Western Blot

RRM2B silencing results in dysfunctional oxidative phosphorylation and enhanced ROS production. B: Western blot analysis shows reduced expression of the core genes of the oxidative phosphorylation (OXPHOS) complex II and III in RRM2B-silenced cells. Fig 3. PMID: 30662615



Immunohistochemistry

RRM2B and CypD are inversely correlated in protein expression levels as well as in their associated clinical pathologic parameters. A: Representative immunohistochemistry (IHC) image from two breast cancer patients (Patient 1, Patient 2). Fig 5. PMID: 30662615



Western Blot

Western blot using Rockland's affinity purified anti-RRM2B antibody shows detection of recombinant (lanes 1 and 3) and endogenous protein (lanes 1 to 4) in whole cell extracts from transfected 293T. Lane 1 contains purified recombinant human p53R2. Lane 2 contains 293T cells transfected with control vector. Lane 3 contains 293T transfected with p53R2-myc. Lane 4: 293T transfected with ScRNA. Lane 5: 293T transfected with p53R2 siRNA. The band at 40.7 kDa, indicated by the bottom arrowhead, corresponds to the expected molecular weight of endogenous RRM2B. The band with the middle arrow corresponds to myc-tagged p53R2 at 41.9 kDa. The highest band at 44.3 kDa corresponds to recombinant p53R2. Primary antibody was diluted to 1 µg/mL and incubated overnight at 4°C. ECL detection was used.

References

- Xue et al. Ribonucleotide reductase subunit M2B deficiency leads to mitochondrial permeability transition pore opening and is associated with aggressive clinicopathologic manifestations of breast cancer. *American Journal of Translational Research* (2019)
- Chen et al. Autophagy induction causes a synthetic lethal sensitization to ribonucleotide reductase inhibition in breast cancer cells. *Oncotarget* (2016)

Disclaimer

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