Anti-SMC1 pS957 (MOUSE) Monoclonal Antibody - 200-301-397

Code: 200-301-397 **Size:** 100 µg

Product Description: Anti-SMC1 pS957 (MOUSE) Monoclonal Antibody - 200-301-397

Concentration: 1.0 mg/mL by UV absorbance at 280 nm

PhysicalState: Liquid (sterile filtered)

Label	Unconjugated
Host	Mouse
Gene Name	SMC1B
Species Reactivity	human, mouse
Buffer	0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2
Stabilizer	None
Preservative	0.01% (w/v) Sodium Azide
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.
Synonyms	Structural maintenance of chromosomes protein 1B antibody, SMC1beta protein antibodySMC1B antibody, SMC1L2 antibody
Application Note	Protein G Purified Mab anti-SMC1 was tested by ELISA, immunohistochemistry and western blotting against native protein. The antibody reacts with SMC1 from irradiated human and mouse cells. A 160 kDa band corresponding to human SMC1 is noted in
Background	Structural maintenance of chromosomes (SMC) proteins play important roles in sister chromatid cohesion, chromosome condensation, sex-chromosome dosage compensation, and DNA recombination and repair (DNA damage). Protein complexes containing heterodimers of the SMC1 and SMC3 proteins have been implicated specifically in both sister chromatid cohesion and DNA recombination. ATM, a protein kinase belonging to the phosphatidylinositol 3-kinase family that regulates cell cycle checkpoints and DNA recombination and repair, phosphorylates SMC1 protein after ionizing irradiation. ATM protein kinase phosphorylates SMC1 on serines 957 and 966 in vitro and in vivo, and expression of an SMC1 protein mutated at these phosphorylation sites abrogates the ionizing irradiation-induced S phase cell cycle checkpoint. Optimal phosphorylation of these sites in SMC1 after ionizing irradiation also requires the presence of the ATM protein kinase substrates NBS1 and BRCA1. These same sites in SMC1 are phosphorylated after treatment with UV irradiation or hydroxyurea in an ATM-independent manner, thus demonstrating that another kinase must be involved in responses to these cellular stresses. Yeast containing hypomorphic mutations in SMC1 and human cells overexpressing SMC1 mutated at both of these phosphorylation sites exhibit decreased survival following ionizing irradiation. These results demonstrate that SMC1 participates in cellular responses to DNA damage and link SMC1 to the ATM protein kinase signal transduction pathway.
Purity And Specificity	This Protein G Purified Mab antibody is directed against human SMC1 and is useful in determining its presence in various assays. This monoclonal anti-SMC1 antibody recognizes the phosphorylated epitope in native and over-expressed proteins found in various tissues and extracts. Minimal reactivity is observed against the non-phosphorylated epitope. Reactivity is observed against human and mouse SMC1. Cross reactivity with SMC1 from other eukaryotic sources has not been tested.
Assay Dilutions	User Optimized
ELISA	1:20,000 - 1:100,000
WESTERN BLOT	1:100 - 1:2,000
IFMICROSCOPY	2.5 µg/ml
OTHER ASSAYS	User Optimized
Immunogen	This antibody was produced from a synthetic peptide corresponding to aa 951-962 of human SMC1 by injection into a balb/c mouse.
General Reference	Seong-Tae Kim, Bo Xu, and Michael B. Kastan (2002) Involvement of the cohesin protein, Smc1, in ATM-dependent and independent responses to DNA damage. Genes Dev. March; 16 (5): 560–570. Bakkenist, C. J. & Kastan, M. B. (2003). DNA damage activates ATM through intermolecular autophosphorylation and dimer dissociation. Nature 421, 499-506.

Related Products

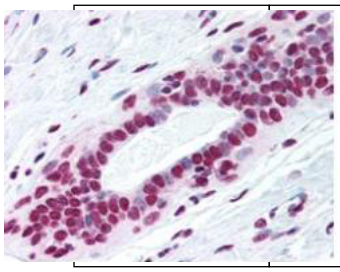
200-301-400	Anti-ATM Protein Kinase pS1981 (MOUSE) Monoclonal Antibody - 200-301-400
600-401-927	Anti-MDM2 (RABBIT) Antibody - 600-401-927
610-132-121	Anti-MOUSE IgG (H&L) (GOAT) Antibody IRDye® 800 Conjugated (Min X Bv Ch Gt GP Ham Hs Hu Rb Rt & Sh Serum Proteins) - 610-132-121
610-4302	Anti-MOUSE IgG (H&L) (RABBIT) Antibody Peroxidase Conjugated - 610-4302

Related Links

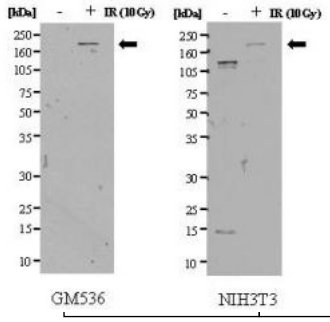
UniProtKB	http://www.uniprot.org/uniprot/Q8NDV3
NCBI - Q8NDV3.2	http://www.ncbi.nlm.nih.gov/protein/Q8NDV3.2
UniProt - Q8NDV3	http://www.uniprot.org/uniprot/Q8NDV3
Gene ID - 27127	http://www.ncbi.nlm.nih.gov/gene/27127

Images

1	Rockland's Protein G Purified Mab anti-SMC1 pS957 antibody was used at a 2.5 µg/ml to detect nuclear signal in a variety of tissues including multi-human, multi-brain and multi-cancer slides. This image shows moderate to strong nuclear anti-SMC1 pS957 staining of human breast ductal epithelium. Tissue was formalin-fixed and paraffin embedded. The image shows localization of the antibody as the precipitated red signal, with a hematoxylin purple nuclear counterstain. Personal Communication, Tina Roush, LifeSpanBiosciences, Seattle, WA.



2	Western blot of gamma irradiated (+ lanes) and mock-irradiated (- lanes) human GM536 lymphoblastoid cell lysate (left panel) and mouse NIH3T3 cell lysate (right panel). Rockland's Protein G Purified Mab anti-SMC1 pS957 detects a 160 kDa band corresponding to phosphorylated SMC1. The antibody does not react with non-phosphorylated SMC1 present in the human control lane. Non specific binding may occur in control lanes of lysates from mouse cell origins. The cell lysates were prepared in a RIPA buffer containing 200 mM NaCl, and 20 ?g protein was loaded per lane. A 4-12% Bis-Tris gradient gel (Invitrogen) was used for SDS-PAGE. The membrane was probed with the primary antibody at 10??g/ml for 1 h at 20°C followed by washes and reaction with a 1:1000 dilution of HRP conjugated Dnky-a-Mouse IgG [H&L] (code 610-703-124) for 30 min.



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.