Datasheet for ABIN6655981

anti-SMC1B antibody (pSer957)

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Overview

Quantity:	100 µg
Target:	SMC1B
Binding Specificity:	pSer957
Reactivity:	Human
Host:	Mouse
Clonality:	Monoclonal
Conjugate:	This SMC1B antibody is un-conjugated
Application:	Western Blotting (WB), ELISA, Immunohistochemistry (IHC), Fluorescence Microscopy (FM)

Product Details

Purpose:	SMC1 phospho S957 Antibody
Immunogen:	This antibody was produced from a synthetic peptide corresponding to aa 951-962 of human SMC1 by injection into a balb/c mouse.
Clone:	5D11-G5
Isotype:	IgG1 kappa
Cross-Reactivity (Details):	This monoclonal anti-SMC1 antibody recognizes the phosphorylated epitope in native and over-expressed proteins found in various tissues and extracts.
Purification:	This Protein G Purified Mab antibody is directed against human SMC1 and is useful in determining its presence in various assays.
Sterility:	Sterile filtered

Target Details

Target:	SMC1B
Alternative Name:	SMC1B (SMC1B Products)
Background:	Synonyms: mouse anti-SMC1 pS957 antibody, Structural maintenance of chromosomes protein 1B antibody, SMC1beta protein antibody, SMC1B antibody, SMC1L2 antibody 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. Gene Name: SMC1B
Gene ID:	27127
UniProt:	Q8NDV3

Application Details

Application Notes:	ELISA_Dilution: 1:20,000 - 1:100,000 Immunohistochemistry_Dilution: 2.5 µg/mL IF_Microscopy_Dilution: 2.5 µg/mL Western_Blot_Dilution: 1:100 - 1:2,000 Other: User Optimized
Comment:	Suggested Applications: IF, Multiplex

Application Details

	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 phosphorylated human SMC1 is noted in gamma irradiated human and mouse lysates.
Restrictions:	For Research Use only

Handling

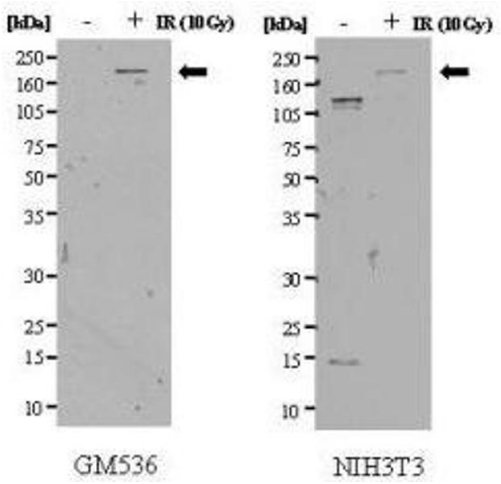
Format:	Liquid
Buffer:	Buffer: 0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2 Stabilizer: None Preservative: 0.01 % (w/v) Sodium Azide
Preservative:	Sodium azide
Precaution of Use:	This product contains Sodium azide: a POISONOUS AND HAZARDOUS SUBSTANCE which should be handled by trained staff only.
Storage:	4 °C,-20 °C
Storage Comment:	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.
Expiry Date:	12 months

Publications

Product cited in:	Callén, Jankovic, Wong, Zha, Chen, Difilippantonio, Di Virgilio, Heidkamp, Alt, Nussenzweig, Nussenzweig: "Essential role for DNA-PKcs in DNA double-strand break repair and apoptosis in ATM-deficient lymphocytes." in: **Molecular cell**, Vol. 34, Issue 3, pp. 285-97, (2009) (PubMed). Pusapati, Rounbehler, Hong, Powers, Yan, Kiguchi, McArthur, Wong, Johnson: "ATM promotes apoptosis and suppresses tumorigenesis in response to Myc." in: **Proceedings of the National Academy of Sciences of the United States of America**, Vol. 103, Issue 5, pp. 1446-51, (2006) (PubMed). Kitagawa, Bakkenist, McKinnon, Kastan: "Phosphorylation of SMC1 is a critical downstream

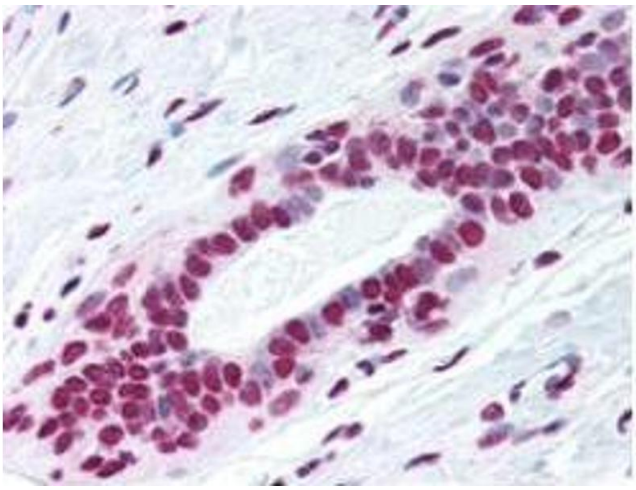
event in the ATM-NBS1-BRCA1 pathway." in: **Genes & development**, Vol. 18, Issue 12, pp. 1423-38, (2004) (PubMed).

Images



Western Blotting

Image 1. Anti-SMC1 pS957 Antibody - Western Blot. Western blot of gamma irradiated (+ lanes) and mock-irradiated (- lanes) human GM536 lymphoblastoid cell lysate (left panel) and mouse NIH3T3 cell lysate (right panel). 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 µg 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 10µg/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.



Immunohistochemistry

Image 2. Anti-SMC1 pS957 Antibody - Immunohistochemistry 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.