abcam

Product datasheet

Anti-SMC1A (phospho S966) antibody ab1276

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Overview

Product name	Anti-SMC1A (phospho S966) antibody
Description	Rabbit polyclonal to SMC1A (phospho S966)
Host species	Rabbit
Tested applications	**Suitable for:** ICC, IP, WB
Species reactivity	**Reacts with:** Human **Predicted to work with:** Rhesus monkey, Orangutan
Immunogen	Synthetic peptide within SMC1A (phospho S966) conjugated to keyhole limpet haemocyanin. The exact immunogen sequence used to generate this antibody is proprietary information. If additional detail on the immunogen is needed to determine the suitability of the antibody for your needs, please **contact** our Scientific Support team to discuss your requirements. Database link: **Q14683**
Positive control	WB: Jurkat whole cell lysate. IP: Jurkat whole cell lysate. ICC: HeLa and SKN cells.
General notes	The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing. If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&As

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Upon delivery aliquot and store at -20°C. Avoid freeze / thaw cycles.
Storage buffer	pH: 7 Preservative: 0.1% Sodium azide Constituents: 0.021% PBS, 1.764% Sodium citrate, 1.815% Tris
Purity	Immunogen affinity purified
Purification notes	Antibodies that were not phospho-specific were removed by solid phase absorption. Antibodies specific for SMC1A pSer957 were affinity purified using the phosphopeptide immobilized onsolid support.

Clonality	Polyclonal
Isotype	IgG

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab1276 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
ICC	★★★★☆ (1)	1/500 - 1/5000.
IP		Use at 2-5 µg/mg of lysate.
WB	★★★★☆ (1)	1/500 - 1/5000. Detects a band of approximately 160 kDa (predicted molecular weight: 143 kDa).

Target

Function Involved in chromosome cohesion during cell cycle and in DNA repair. Central component of cohesin complex. The cohesin complex is required for the cohesion of sister chromatids after DNA replication. The cohesin complex apparently forms a large proteinaceous ring within which sister chromatids can be trapped. At anaphase, the complex is cleaved and dissociates from chromatin, allowing sister chromatids to segregate. The cohesin complex may also play a role in spindle pole assembly during mitosis. Involved in DNA repair via its interaction with BRCA1 and its related phosphorylation by ATM, or via its phosphorylation by ATR. Works as a downstream effector both in the ATM/NBS1 branch and in the ATR/MSH2 branch of S-phase checkpoint.

Involvement in disease Defects in SMC1A are the cause of Cornelia de Lange syndrome type 2 (CDLS2) [MIM:300590]; also known as Cornelia de Lange syndrome X-linked. CDLS is a clinically heterogeneous developmental disorder associated with malformations affecting multiple systems. CDLS is characterized by facial dysmorphisms, abnormal hands and feet, growth delay, cognitive retardation and various other malformations including gastroesophageal dysfunction and cardiac, ophthalmologic and genitourinary anomalies.

Sequence similarities Belongs to the SMC family. SMC1 subfamily.

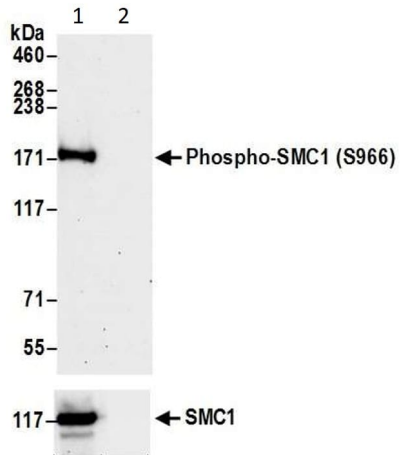
Domain The flexible hinge domain, which separates the large intramolecular coiled coil regions, allows the heterotypic interaction with the corresponding domain of SMC3, forming a V-shaped heterodimer. The two heads of the heterodimer are then connected by different ends of the cleavable RAD21 protein, forming a ring structure.

Post-translational modifications Phosphorylated by ATM upon ionizing radiation in a NBS1-dependent manner. Phosphorylated by ATR upon DNA methylation in a MSH2/MSH6-dependent manner. Phosphorylation of Ser-957 and Ser-966 activates it and is required for S-phase checkpoint activation.

Cellular localization Nucleus. Chromosome. Chromosome > centromere > kinetochore. Associates with chromatin. Before prophase it is scattered along chromosome arms. During prophase, most of cohesin complexes dissociate from chromatin probably because of phosphorylation by PLK, except at centromeres, where cohesin complexes remain. At anaphase, the RAD21 subunit of the cohesin complex is cleaved, leading to the dissociation of the complex from chromosomes, allowing chromosome separation. In germ cells, cohesin complex dissociates from chromatin at prophase

l, and may be replaced by a meiosis-specific cohesin complex. The phosphorylated form on Ser-957 and Ser-966 associates with chromatin during G1/S/G2 phases but not during M phase, suggesting that phosphorylation does not regulate cohesin function. Integral component of the functional centromere-kinetochore complex at the kinetochore region during mitosis.

Images



Western blot - Anti-SMC1A (phospho S966) antibody (ab1276)

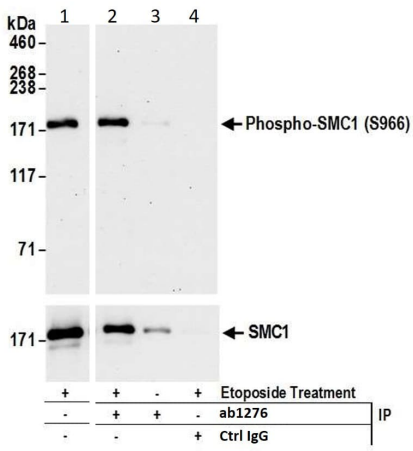
All lanes : Anti-SMC1A (phospho S966) antibody (ab1276) at 0.1 µg/ml

Lane 1 : Jurkat (Human T cell leukemia cell line from peripheral blood) whole cell lysate with 100 µM etoposide (+)
Lane 2 : Jurkat (Human T cell leukemia cell line from peripheral blood) whole cell lysate with 100 µM etoposide (-)

Lysates/proteins at 50 µg per lane.

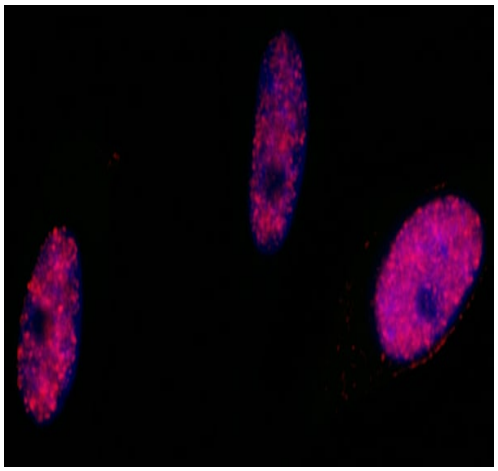
Predicted band size: 143 kDa

Exposure time: 3 minutes



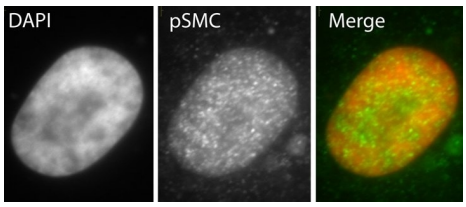
Immunoprecipitation - Anti-SMC1A (phospho S966) antibody (ab1276)

SMC1A was immunoprecipitated from 1mg of Jurkat (Human T cell leukemia cell line from peripheral blood) whole cell lysate treated with 100 µM etoposide (+) or mock treated (-) with ab1276 at 1 µg/ml. Western blot was performed from the immunoprecipitate using ab1276 at 1/1000 dilution.



Immunocytochemistry - Anti-SMC1A (phospho S966) antibody (ab1276)

Immunocytochemistry analysis of neocarzinostatin treated asynchronous HeLa cells labelling SMC1A (phospho S966) with ab1276 at 1/5000 (0.2µg/ml). A DyLight® 594-conjugated anti-rabbit IgG (1/100) was used as the secondary antibody.



Immunocytochemistry - Anti-SMC1A (phospho S966) antibody (ab1276)

This image was submitted as part of a review by Kirk McManus, University of British Columbia

ICC of SKN cells cultured on coverslips were fixed in 4% paraformaldehyde and then stained with Rabbit polyclonal to SMC1A (phospho S966), ab1276 (green) at a working dilution of 1/200. The DNA stained with DAPI is shown in red. (100x magnification).

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