abcam

Product datasheet

Anti-SMC1A antibody ab9262

6 Abreviews 40 References 4 Images

Overview

Product name	Anti-SMC1A antibody
Description	Rabbit polyclonal to SMC1A
Host species	Rabbit
Tested applications	**Suitable for:** IHC-P, IP, WB
Species reactivity	**Reacts with:** Mouse, Human **Predicted to work with:** Rat, Cow
Immunogen	Synthetic peptide within Human SMC1A aa 1133-1233 conjugated to keyhole limpet haemocyanin. The exact sequence is proprietary. Database link: **Q14683**
Positive control	WB: HeLa, 293T and NIH3T3 whole cell lysate. IHC-P: Human ovarian cancer tissue, mouse colon cancer tissue CT26. IP: HeLa whole cell lysate.
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. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C. Avoid freeze / thaw cycle.
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 were affinity purified using the peptide immobilized on solid support. Antibody concentration was determined by extinction coefficient: absorbance at 280nm of 1.4 equals 1.0 mg of IgG.

Clonality	Polyclonal
Isotype	IgG

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab9262 in the following tested applications.

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

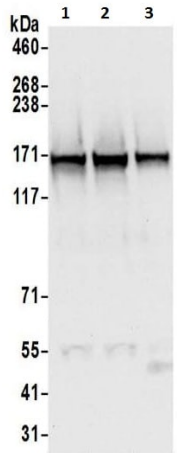
Application	Abreviews	Notes
IHC-P		1/500 - 1/2000. Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.
IP		Use at 1-4 µg/mg of lysate.
WB	★★★★☆ **(5)**	1/1000 - 1/10000. Detects a band of approximately 160 kDa (predicted molecular weight: 143 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 antibody (ab9262)

All lanes : Anti-SMC1A antibody (ab9262) at 0.1 µg/ml

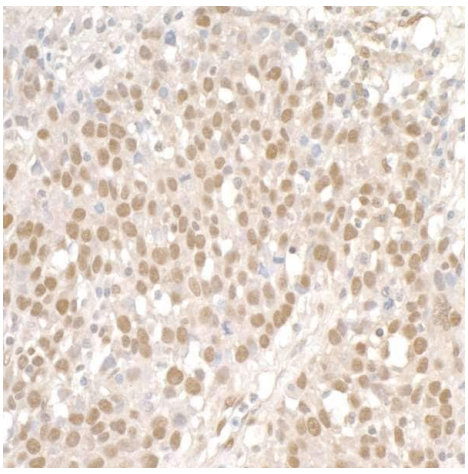
Lane 1 : HeLa whole cell lysate
Lane 2 : 293T whole cell lysate
Lane 3 : NIH3T3 whole cell lysate

Lysates/proteins at 50 µg per lane.

Predicted band size: 143 kDa

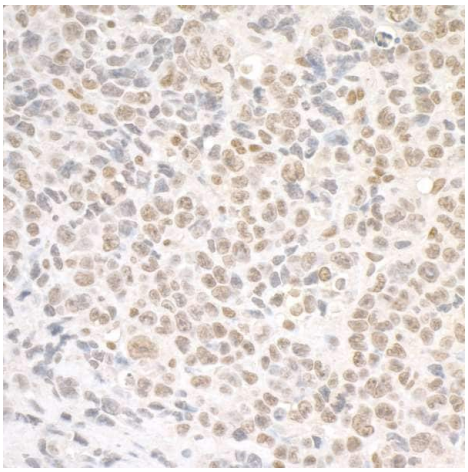
Exposure time: 3 seconds

Detection: Chemiluminescence.



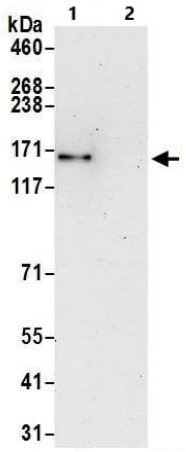
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SMC1A antibody (ab9262)

Immunohistochemical analysis of formalin-fixed, paraffin-embedded human ovarian cancer tissue, labeling SMC1 with ab9262 at 0.2 µg/mL. Detection: DAB.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SMC1A antibody (ab9262)

Immunohistochemical analysis of formalin-fixed, paraffin-embedded mouse colon cancer tissue CT26, labeling SMC1 with ab9262 at 0.2 µg/mL. Detection: DAB.



Immunoprecipitation - Anti-SMC1A antibody (ab9262)

SMC1A was immunoprecipitated from 1 mg HeLa whole cell lysate with ab9262 at 6 µg per reaction. Western blot was performed on the immunoprecipitate using **ab243875** at 1/1000 dilution.

Lysates prepared using NETN lysis buffer.

Lane 1: ab9262 IP in HeLa whole cell lysate.

Lane 2: Contol IgG in HeLa whole cell lysate.

Detection: Chemiluminescence.

Exposure time: 10 seconds.

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