abcam

ab243875

Anti-SMC1A antibody [BL-205-2G8]

Recombinant

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.8 - 8.6 Preservative: 0.09% Sodium azide Constituents: 98% Borate buffered saline, 0.1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Synthetic Peptide within Human SMC1A aa 1200 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link Q14683
Clone number	BL-205-2G8
Concentration	0.2 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Recombinant antibody was purified from cell culture supernatant.

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/100 - 1/500
Notes	-

Species	Mouse
Dilution info	1/100 - 1/500
Notes	-

ICC

Tested

Species	Human
Dilution info	1/100 - 1/500
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

IP

Tested

Species	Human
Dilution info	-
Notes	Use 20µl/mg lysate.

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Mouse

Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1 µL for 10^6 Cells
Notes	-

Species	Mouse
Dilution info	1 µL for 10^6 Cells
Notes	-

Target data

See full target information SMC1A

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.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks

Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

REACH authorisation
Abcam has not and does not intend to apply for the REACH Authorisation of customers' uses of products that contain European Authorisation list (Annex XIV) substances.
It is the responsibility of our customers to check the necessity of application of REACH Authorisation, and any other relevant authorisations, for their intended uses.

This product is sold under License from Bethyl Laboratories, Inc.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	SMC1A also known as structural maintenance of chromosomes 1A is an essential component of the cohesin complex. This complex regulates the cohesion of sister chromatids ensuring accurate chromosome segregation during cell division. With a molecular mass of around 143 kDa SMC1A is expressed ubiquitously with higher levels in proliferating cells. It is a member of the SMC protein family possessing distinct N-terminal and C-terminal domains connected by a flexible coiled-coil region.
Biological function summary	SMC1A forms a complex with other proteins most notably SMC3 RAD21 and STAG2. This complex is necessary for maintaining chromatid cohesion during the cell cycle's S and G2 phases. Furthermore SMC1A influences DNA repair specifically homologous recombination by maintaining genome stability. Through its associations SMC1A contributes to regulation of gene expression further illustrating its multifunctional role in cellular processes.
Pathways	SMC1A integrates into DNA damage response and repair pathways. The ATR and ATM signaling pathways interact with SMC1A modulating its function during DNA repair mechanisms. SMC1A associates with proteins like PDS5 and WAPL which influence cohesin dynamics. These interactions stress SMC1A’s role in preserving genomic integrity and controlling cell cycle progression.
Associated diseases and disorders	Mutations or deregulation of SMC1A links to Cornelia de Lange Syndrome and certain cancers. This role is particularly significant in Cornelia de Lange Syndrome where SMC1A mutations disrupt normal chromosomal condensation and separation. Within oncogenesis SMC1A's interaction with TP53 indicates a broader

influence on tumorigenesis emphasizing its involvement in maintaining cellular homeostasis and preventing cancer progression.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

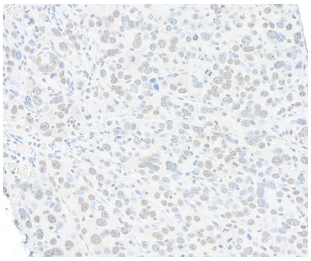
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

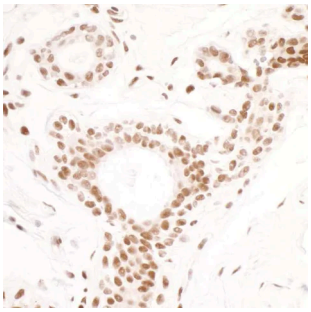
Full details and terms and conditions can be found here:
Terms & Conditions.

10 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SMC1A antibody [BL-205-2G8] (ab243875)

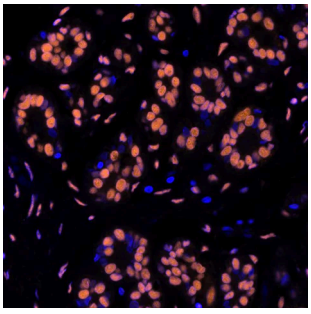
Immunohistochemical analysis of Formalin-Fixed Paraffin-Embedded mouse renal cell carcinoma labeling mouse SMC1 with ab243875, followed by a HRP-conjugated goat anti-rabbit IgG as secondary. Substrate: DAB. Nuclear staining on mouse renal cell carcinoma is observed. Counter stained with hematoxylin. Epitope retrieval with citrate buffer pH 6.0 for 20 minutes is recommended.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SMC1A antibody [BL-205-2G8] (ab243875)

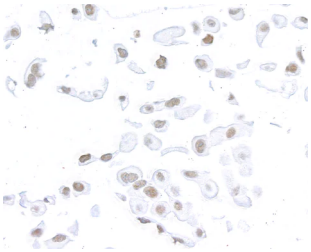
SMC1A Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-SMC1A antibody

Formalin-fixed, paraffin-embedded human Breast carcinoma tissue stained for SMC1A using ab243875 at 1/250 dilution in immunohistochemical analysis. A HRP-conjugated goat anti-rabbit IgG was used as the secondary. DAB staining.



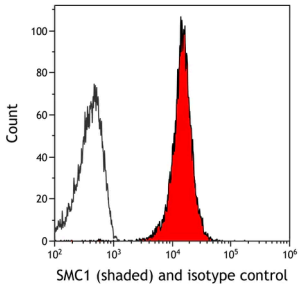
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SMC1A antibody [BL-205-2G8] (ab243875)

Immunohistochemical analysis of Formalin-Fixed Paraffin-Embedded human breast carcinoma tissue labeling human SMC1 (Red) with ab243875 followed by a HRP-conjugated goat anti-rabbit IgG as secondary. Substrate: Opal™. Nuclear staining on human breast carcinoma tissue is observed. Counter stained with DAPI (Blue). Epitope retrieval with citrate buffer pH 6.0 for 20 minutes is recommended.



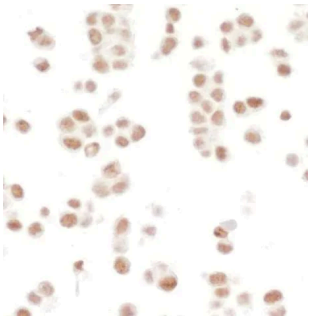
Immunocytochemistry - Anti-SMC1A antibody [BL-205-2G8] (ab243875)

Immunocytochemical analysis of Formalin-Fixed Paraffin-Embedded NCI-H226 cells labeling human SMC1 with ab243875 followed by a HRP-conjugated goat anti-rabbit IgG as secondary. Substrate: DAB. Nuclear staining on NCI-H226 cells is observed. Counter stained with hematoxylin. Epitope retrieval with citrate buffer pH 6.0 for 20 minutes is recommended.



Flow Cytometry - Anti-SMC1A antibody [BL-205-2G8] (ab243875)

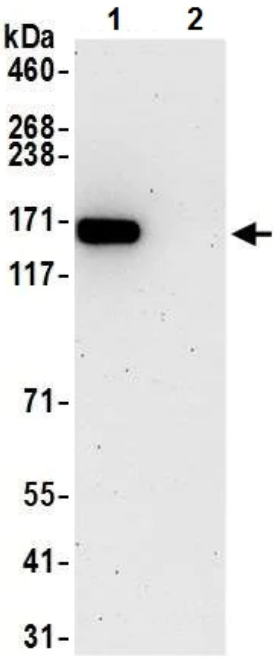
Flow cytometry overlay histogram of 4% formaldehyde fixed HT-29 cells permeabilized with 90% methanol labeling human SMC1 with ab243875 at 1 µl per 1 x 10^6 cells. (shaded) compared with a Isotype control (unshaded). Secondary antibody details: Goat Anti-Rabbit IgG H&L (DyLight® 650) (ab96886).



Immunocytochemistry - Anti-SMC1A antibody [BL-205-2G8] (ab243875)

SMC1A Immunocytochemistry staining using rabbit Anti-SMC1A antibody

Formaldehyde-fixed HCT-116 (human colorectal carcinoma cell line) cells labeling SMC1A using ab243875 at 1/250 dilution in ICC analysis. A HRP-conjugated goat anti-rabbit IgG was used as the secondary antibody. DAB staining



Immunoprecipitation - Anti-SMC1A antibody [BL-205-2G8] (ab243875)

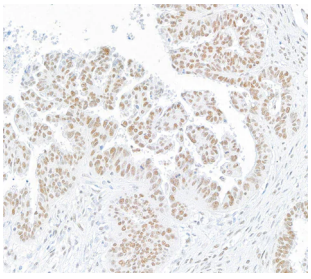
SMC1A was immunoprecipitated from 1 mg HEK-293T whole cell lysate with ab243875 at 20 µl per reaction Western blot was performed on the immunoprecipitate using ab243875 at 1/1000 dilution.
Lane 1: ab243875 IP in HEK-293T whole cell lysate.

Lane 2: Contol IgG in HEK-293T whole cell lysate.

Detection: Chemiluminescence with an exposure time of 10 seconds.

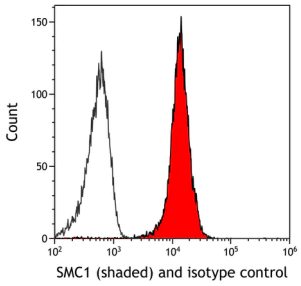
All lanes:
Immunoprecipitation - Anti-SMC1A antibody [BL-205-2G8] (ab243875)

Predicted band size: 143 kDa



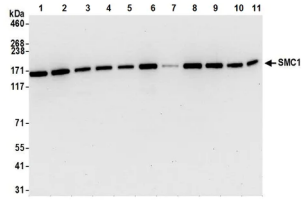
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SMC1A antibody [BL-205-2G8] (ab243875)

Immunohistochemical analysis of Formalin-Fixed Paraffin-Embedded human ovarian carcinoma tissue labeling mouse SMC1 with ab243875, followed by a HRP-conjugated goat anti-rabbit IgG as secondary. Substrate: DAB. Nuclear staining on human ovarian carcinoma is observed. Counter stained with hematoxylin. Epitope retrieval with citrate buffer pH 6.0 for 20 minutes is recommended.



Flow Cytometry - Anti-SMC1A antibody [BL-205-2G8] (ab243875)

Flow cytometry overlay histogram of 4% formaldehyde fixed NIH3T3 cells permeabilized with 90% methanol labeling human SMC1 with ab243875 at 1 µl per 1 x 10^6 cells etoposide treated (shaded) compared with a Isotype control (unshaded). Secondary antibody details: Goat Anti-Rabbit IgG H&L (DyLight® 650) (ab96886).



Western blot - Anti-SMC1A antibody [BL-205-2G8] (ab243875)

SMC1A Western blot staining using rabbit Anti-SMC1A antibody

Western blot analysis using ab243875 at 1/1000 dilution.
Lane 1: HeLa whole cell lysate (15 µg).

Lane 2: HEK-293T whole cell lysate (15 µg).

Lane3: MCF7 whole cell lysate (15 µg).

Lane 4: HepG2 whole cell lysate (15 µg).

Lane 5: A549 whole cell lysate (15 µg).

Lane 6: SW620 whole cell lysate (15 µg).

Lane 7: SK whole cell lysate (15µg).

Lane 8: Jurkat whole cell lysate (15 µg).

Lane 9: TCMK-1 whole cell lysate (15 µg).

Lane 10: NIH/3T3 whole cell lysate (15 µg).

Lane 11: CT26 whole cell lysate (15 µg)

A HRP-conjugated goat anti-rabbit IgG antibody was used as the secondary. Detection: chemiluminescence with an exposure time of 10 seconds
All lanes:
Western blot - Anti-SMC1A antibody [BL-205-2G8] (ab243875)

Predicted band size: 143 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.