abcam

Product datasheet

Anti-SMC1A antibody ab21583

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概述

产品名称	Anti-SMC1A抗体
描述	**兔多克隆抗体**to SMC1A
宿主	Rabbit
经测试应用	**适用于:** ICC/IF, WB, IP, IHC-P
种属反应性	**与反应:** Human **预测可用于:** Mouse, Rat, Chicken, Xenopus laevis
免疫原	Synthetic peptide corresponding to Human SMC1A aa 1200 to the C-terminus (C terminal) conjugated to keyhole limpet haemocyanin. (Peptide available as **ab23863**)
阳性对照	HeLa and Jurkat whole cell lysate
常规说明	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

性能

形式	Liquid
存放说明	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C or -80°C. Avoid freeze / thaw cycle.
存储溶液	pH: 7.40 Preservative: 0.02% Sodium azide Constituent: PBS Batches of this product that have a concentration < 1mg/ml may have BSA added as a stabilising agent. If you would like information about the formulation of a specific lot, please contact our scientific support team who will be happy to help.
纯度	Immunogen affinity purified

克隆	**多克隆**
同种型	IgG

应用

The Abpromise guarantee **Abpromise™承诺保证使用ab21583于以下的经测试应用**

"应用说明"部分 下显示的仅为推荐的起始稀释度;实际最佳的稀释度/浓度应由使用者检定。

应用	Ab评论	说明
ICC/IF	★★★★☆ (2)	Use a concentration of 1 µg/ml.
WB		Use a concentration of 1 µg/ml. Detects a band of approximately 150 kDa (predicted molecular weight: 143 kDa).
IP		Use at an assay dependent concentration.
IHC-P		Use a concentration of 1 µg/ml. Perform heat mediated antigen retrieval before commencing with IHC staining protocol.

靶标

功能 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.

疾病相关 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.

序列相似性 Belongs to the SMC family. SMC1 subfamily.

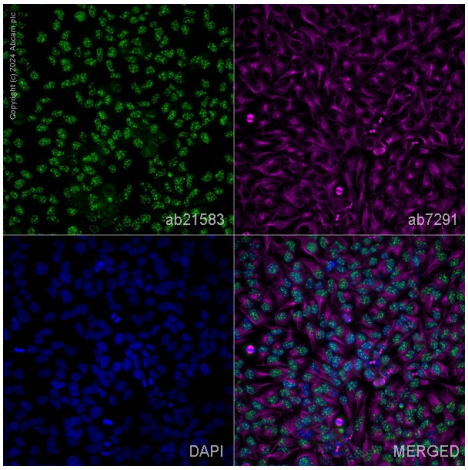
结构域 The flexible hinge domain, which separates the large intramolecular coiled coil regions, allows the heterotypic interaction with the corresponding domain of SMC3, forming a V-shaped heterodimer. The two heads of the heterodimer are then connected by different ends of the cleavable RAD21 protein,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

翻译后修饰 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.

细胞定位 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

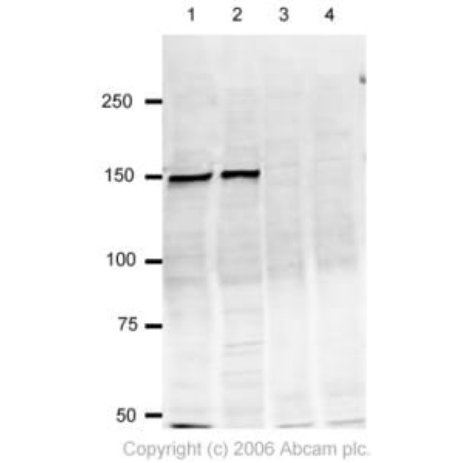
complex is cleaved, leading to the dissociation of the complex from chromosomes, allowing chromosome separation. In germ cells, cohesin complex dissociates from chromatin at prophase I, and may be replaced by a meiosis-specific cohesin complex. The phosphorylated form on Ser-957 and Ser-966 associates 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.

图片



Immunocytochemistry/ Immunofluorescence - Anti-SMC1A antibody (ab21583)

ab21583 staining SMC1A in HeLa cells. The cells were fixed with 100% methanol (5 min), permeabilized with 0.1% PBS-Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1%PBS-Tween for 1h. The cells were then incubated overnight at 4°C with ab21583 at 1µg/ml and **ab7291**, Mouse monoclonal [DM1A] to alpha Tubulin - Loading Control. Cells were then incubated with **ab150081**, Goat polyclonal Secondary Antibody to Rabbit IgG - H&L (Alexa Fluor® 488), pre-adsorbed at 1/1000 dilution (shown in green) and **ab150120**, Goat polyclonal Secondary Antibody to Mouse IgG - H&L (Alexa Fluor® 594), pre-adsorbed at 1/1000 dilution (shown in pseudocolour magenta). Nuclear DNA was labelled with DAPI (shown in blue). Also suitable in cells fixed with 4% paraformaldehyde (10 min).Image was acquired with a high-content analyser (Operetta CLS, Perkin Elmer) and a maximum intensity projection of confocal sections is shown.



Western blot - Anti-SMC1A antibody (ab21583)

All lanes : Anti-SMC1A antibody (ab21583) at 1 µg/ml

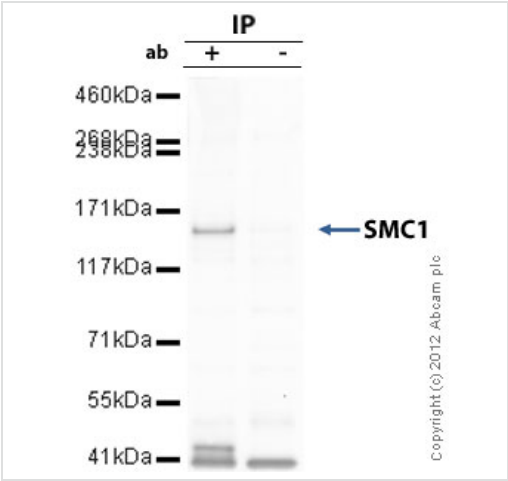
Lane 1 : 20ug HeLa (Human epithelial carcinoma cell line) Whole Cell Lysate
Lane 2 : Jurkat whole cell lysate (**ab7899**) at 20 µg
Lane 3 : 20ug HeLa (Human epithelial carcinoma cell line) Whole Cell Lysate with Human SMC1A peptide (**ab23863**) at 1 µg/ml
Lane 4 : Jurkat whole cell lysate (**ab7899**) at 20 µg with Human SMC1A peptide (**ab23863**) at 1 µg/ml

Secondary
All lanes : Goat polyclonal to Rabbit IgG (Alexa Fluor® 680) (**ab28446**) at 1/10000 dilution

Performed under reducing conditions.

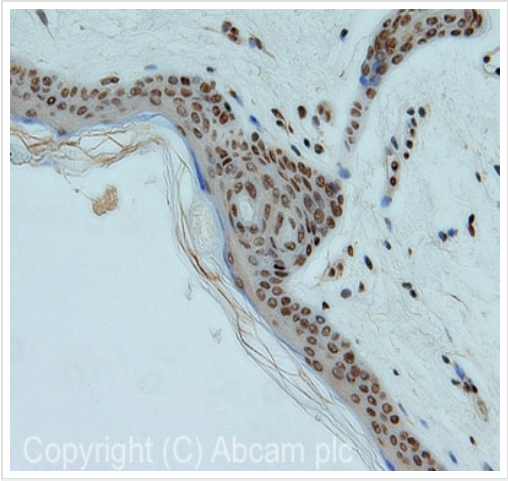
Predicted band size: 143 kDa
Observed band size: 150 kDa

ab21583 detects a band of 150 kDa, corresponding to the size of SMC1A. This band is competed away by the addition of the immunizing peptide, showing that it is a specific interaction.



Immunoprecipitation - Anti-SMC1A antibody (ab21583)

SMC1A was immunoprecipitated using 0.5mg Hela whole cell extract, 5µg of Rabbit polyclonal to SMC1A and 50µl of protein G magnetic beads (+). No antibody was added to the control (-).
The antibody was incubated under agitation with Protein G beads for 10min, Hela whole cell extract lysate diluted in RIPA buffer was added to each sample and incubated for a further 10min under agitation.
Proteins were eluted by addition of 40µl SDS loading buffer and incubated for 10min at 70^{o}C; 10µl of each sample was separated on a SDS PAGE gel, transferred to a nitrocellulose membrane, blocked with 5% BSA and probed with ab21583.
Secondary: Goat polyclonal to mouse IgG light chain specific (HRP) at 1/5000 dilution.
Band: 150kDa: SMC1A; Non specific - 41 and 42kDa: We are unsure as to the identity of this extra band.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SMC1A antibody (ab21583)

IHC image of SMC1A staining in human skin FFPE section, performed on a Leica Bond^{TM} system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH6, epitope retrieval solution 1) for 20 mins. The section was then incubated with ab21583, 1µg/ml, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

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