Rabbit anti-Human, Mouse SMC1 Polyclonal Antibody | anti-SMC1 antibody

SMC1 Antibody

CATALOG #	HOST	REACTIVITY	APPLICATIONS
AAA322419	**Rabbit**	**Human, Mouse**	**ELISA, Immunocytochemistry, Immunofluorescence, Immunohistochemistry, Western Blot**

PRODUCT SYNONYMS

SMC1; Polyclonal Antibody; SMC1 Antibody; Chromosome segregation protein SmcB; DXS423E; KIAA0178; MGC138332; Sb1.8; Segregation of mitotic chromosomes 1; SMC protein 1A; SMC-1-alpha; SMC-1A; SMC1 (structural maintenance of chromosomes 1 yeast) like 1; SMC1 structural maintenance of chromosomes 1 like 1; SMC1A; SMC1A_HUMAN; SMC1alpha; SMC1L1; SMCB; Structural maintenance of chromosomes 1A; Structural maintenance of chromosomes protein 1A; anti-SMC1 antibody

PRODUCT SPECIFICATIONS

Host	Rabbit
Reactivity	Human, Mouse
Clonality	Polyclonal
Isotype	IgG
Specificity	SMC1 antibody detects endogenous levels of total SMC1
Purity/Purification	The antiserum was purified by peptide affinity chromatography using SulfoLink Coupling Resin.
Form/Format	Liquid Phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Concentration	1mg/ml (varies by lot)
Sequence Length	1233
Applicable Applications for anti-SMC1 antibody	ELISA, ICC (Immunocytochemistry), IF (Immunofluorescence), IHC (Immunohistochemistry), WB (Western Blot)
Immunogen	A synthesized peptide derived from human SMC1
Subcellular Location	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.
Predicted Cross Reactivity	**Pig, Bovine, Sheep, Dog, Xenopus**
Similarity	Pig (100%), Bovine (100%), Sheep (100%), Dog (100%), Xenopus (91%)
Conjugation	Unconjugated
Preparation and Storage	Store at -20 degree C. Stable for 12 months from date of receipt.

IMAGES

WB (Western Blot)
Western blot analysis of SMC1 expression in UV treated 293 whole cell lysates, The lane on the left is treated with the antigen-specific peptide.

IHC (Immunohiostchemistry)
AAA322419 at 1/100 staining Human breast cancer tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the antibody for 1.5 hours at 22 degree C. An HRP conjugated goat anti-rabbit antibody was used as the secondary.

IF (Immunofluorescence)
AAA322419 staining HuvEc by IF/ICC. The sample were fixed with PFA and permeabilized in 0.1% Triton X-100, then blocked in 10% serum for 45 minutes at 25 degree C. The primary antibody was diluted at 1/200 and incubated with the sample for 1 hour at 37 degree C. An Alexa Fluor 594 conjugated goat anti-rabbit IgG (H+L) Ab, diluted at 1/600, was used as the secondary antibody.

ADDITIONAL INFORMATION

Related Product Information for anti-SMC1 antibody	Description: Smc1 ia a component of the cohesin multiprotein complex that is required for sister chromatid cohesion. Most of the cohesin complexes dissociate from the chromosomes before mitosis, although those complexes at the kinetochore remain. Thought to be an important part of functional kinetochores. 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. Subunit Structure: Forms a heterodimer with SMC3 in cohesin complexes (PubMed:22628566). Cohesin complexes are composed of the SMC1 (SMC1A or SMC1B) and SMC3 heterodimer attached via their hinge domain, RAD21 which link them, and one STAG protein (STAG1, STAG2 or STAG3), which interacts with RAD21 (PubMed:11076961). In germ cell cohesin complexes, SMC1A is mutually exclusive with SMC1B (By similarity). Interacts with BRCA1 (PubMed:11877377). Found in a complex with CDCA5, SMC3 and RAD21, PDS5A/SCC-112 and PDS5B/APRIN (PubMed:15837422). Interacts with NDC80 (PubMed:9295362, PubMed:10409732,). Interacts with BRAT1 (PubMed:22977523). Found in a complex containing POLE and SMC3. Interacts with RPGR, STAG3 and SYCP2 (By similarity). Found in a cohesin complex with SMC3, STAG1 and RAD21 (PubMed:22628566). The SMC1A-SMC3 heterodimer interacts with the NIPBL-MAU2 heterodimer (PubMed:22628566). 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. Similarity: 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 (By similarity). Belongs to the SMC family. SMC1 subfamily.

NCBI AND UNIPROT INFORMATION

NCBI GI #	30581135
NCBI GeneID	8243
NCBI Accession #	NP_006297.2
NCBI GenBank Nucleotide #	NM_006306.3
UniProt Accession #	Q14683; O14995; Q16351; Q2M228

Molecular Weight	Observed: 145 kDa Predicted: 144 kDa
NCBI Official Full Name	structural maintenance of chromosomes protein 1A isoform 1
NCBI Official Synonym Full Names	structural maintenance of chromosomes 1A
NCBI Official Symbol	SMC1A
NCBI Official Synonym Symbols	SMC1; SMCB; CDLS2; SB1.8; SMC1L1; DXS423E; SMC1alpha
NCBI Protein Information	structural maintenance of chromosomes protein 1A
UniProt Protein Name	Structural maintenance of chromosomes protein 1A
UniProt Gene Name	**SMC1A**
UniProt Synonym Gene Names	DXS423E; KIAA0178; SB1.8; SMC1; SMC1L1; SMC protein 1A; SMC-1-alpha; SMC-1A

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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