

## SMC1 Mouse mAb

CatalogNo: YM1095

### | Key Features

#### Host Species

- Mouse

#### Reactivity

- Human, Mouse, Rat, Pig

#### Applications

- WB, IHC, IF, FC

#### MW

- 143kD (Calculated)

### | Recommended Dilution Ratios

**WB 1:1000-1:2000**

**IHC 1:500-1:1000**

**Flow Cyt 1:100-1:200**

**IF 1:50-200**

### | Storage

**Storage\*** -15°C to -25°C/1 year (Do not lower than -25°C)

**Formulation** Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.02% sodium azide.

### | Basic Information

**Clonality** Monoclonal

### | Immunogen Information

**Immunogen** Purified recombinant human SMC1 (N-terminus) protein fragments expressed in E.coli.

**Specificity** SMC1 Monoclonal Antibody detects endogenous levels of SMC1 protein.

### | Target Information

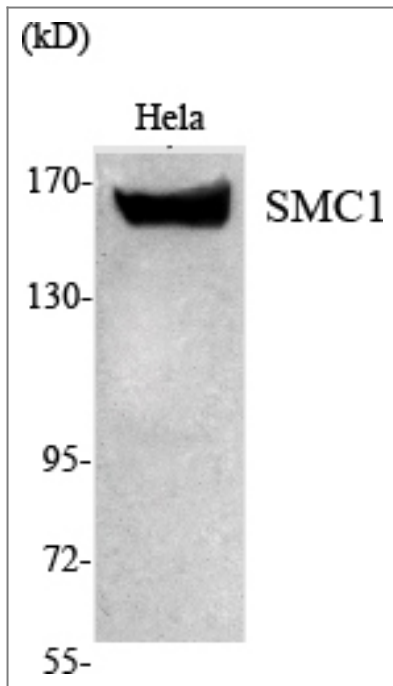
Gene name	SMC1A		
Protein Name	Structural maintenance of chromosomes protein 1A		
	Organism	Gene ID	UniProt ID
	Human	<a href="#">8243</a> ;	<a href="#">Q14683</a> ;
	Mouse	<a href="#">24061</a> ;	<a href="#">Q9CU62</a> ;
	Rat	<a href="#">63996</a> ;	<a href="#">Q9Z1M9</a> ;
Cellular Localization	<p>Nucleus . 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.</p>		
Tissue specificity	Aorta,Bone marrow,Brain,Epithelium,Fibroblast,Testis,Uterus endothe		

## Function

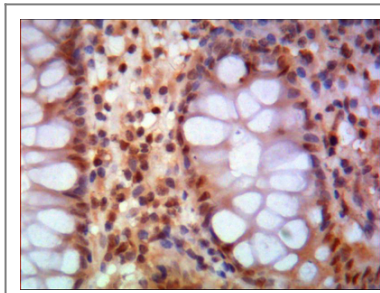
Disease: Defects in SMC1A are the cause of Cornelia de Lange syndrome type 2 (CDLS2) [MIM:300590]; also known as Cornelia de Lange syndrome X-linked. CDLS is a clinically heterogeneous developmental disorder associated with malformations affecting multiple systems. CDLS is characterized by facial dysmorphisms, abnormal hands and feet, growth delay, cognitive retardation and various other malformations including gastroesophageal dysfunction and cardiac, ophthalmologic and genitourinary anomalies. 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. 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. PTM: 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: Belongs to the SMC family. SMC1 subfamily. subcellular location: 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. subunit: Interacts with POLE. Interacts with SYCP2. Interacts with BRCA1. Found in a complex with CDCA5, SMC3 and RAD21, PDS5A/APRIN and PDS5B/SCC-112 (By similarity). Forms a heterodimer with SMC3 in cohesin complexes. 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. In germ cell cohesin complexes, SMC1A is mutually exclusive with SMC1B. Interacts with BRCA1. Interacts with NDC80.

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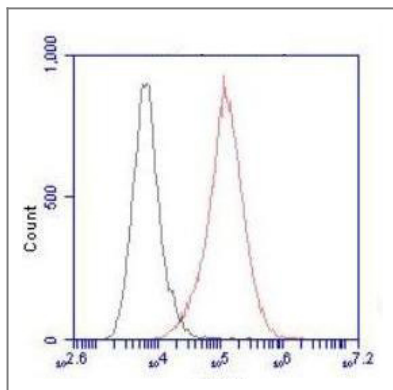
## | Validation Data



Western Blot analysis using SMC1 Monoclonal Antibody against HeLa nuclear extract.



Immunohistochemistry analysis of paraffin-embedded human colon using SMC1 Monoclonal Antibody.



Flow cytometric analysis of HeLa cells stained with SMC1 Monoclonal Antibody (red), followed by FITC-conjugated goat anti-mouse IgG. Black line histogram represents the isotype control, normal mouse IgG.

## Contact information

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Please scan the QR code to access additional product information:  
**SMC1 Mouse mAb**

