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SMC1A(C-term) Antibody

Purified Mouse Monoclonal Antibody (Mab)
Catalog # AP52668

Product Information

Application	WB, ICC
Primary Accession	Q14683
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Isotype	IgG1
Calculated MW	143233

Additional Information

Gene ID	8243
Other Names	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;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.
Dilution	WB~~1:1000 ICC~~1:100
Format	Purified mouse monoclonal antibody in PBS(pH 7.4) containing with 0.09% (W/V) sodium azide and 50% glycerol.
Storage	Store at -20 °C.Stable for 12 months from date of receipt

Protein Information

Name	SMC1A
Synonyms	DXS423E, KIAA0178, SB1.8, SMC1, SMC1L1
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.

Cellular Location

Nucleus. Chromosome. Chromosome, centromere, kinetochore. Note=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

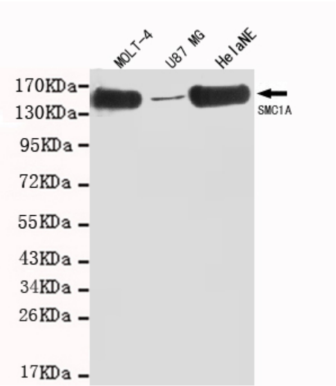
Background

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.

References

Rocques P.J.,et al.Hum. Mol. Genet. 4:243-249(1995).
Nagase T.,et al.DNA Res. 3:17-24(1996).
Nakajima D.,et al.DNA Res. 9:99-106(2002).
Ross M.T.,et al.Nature 434:325-337(2005).
Yazdi P.T.,et al.Genes Dev. 16:571-582(2002).

Images



Western blot detection of SMC1A(C-term) in MOLT-4,U87 MG and HelaNE cell lysates using SMC1A (N-terminus) mouse mAb (1:1000 diluted).Predicted band size: 143KDa.Observed band size: 143KDa.

Immunocytochemistry staining of HeLa cells fixed with 4% Paraformaldehyde and using anti-SMC1A mouse mAb(dilution 1:100).