

#5696 Store at -20C

SMC3 (D47B5) Rabbit mAb


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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB, IP, IF-IC	H M R Mk	Endogenous	140	Rabbit IgG	#Q9UQE7	9126

Product Usage Information

Application

Western Blotting
Immunoprecipitation
Immunofluorescence (Immunocytochemistry)

Dilution

1:2000
1:200
1:100

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

Specificity / Sensitivity

SMC3 (D47B5) Rabbit mAb recognizes endogenous levels of total SMC protein. In immunofluorescent analysis, this antibody shows nuclear staining as expected; however, it also shows weak cytoplasmic staining that is presumed to be background.

Species predicted to react based on 100% sequence homology:

Chicken, Xenopus, Zebrafish, Bovine

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Arg132 of human SMC3 protein.

Background

The cohesin complex consists of a heterodimer between SMC1 (SMC1A or B) and SMC3, bound by additional RAD21 and STAG proteins (STAG1, 2, or 3) (1,2). These proteins form a ring-like structure that mediates the cohesion of two sister chromatids after DNA replication in S phase (1,2). RAD21 and STAG2 are phosphorylated by Polo-like kinase (PLK) during prophase, which leads to the dissociation of cohesin complexes from the chromosome arms; however, cohesin remains bound to centromeres until anaphase (3,4). RAD21 is cleaved by separin/ESPL1 in anaphase, which leads to dissociation of the remaining cohesin from centromeres, enabling sister chromatids to segregate during mitosis (5). RAD21 is also cleaved by caspase-3 and caspase-7 during apoptosis, resulting in a 64 kDa carboxy-terminal cleavage product that translocates to the cytoplasm and may help to trigger apoptosis (6,7). In addition to mediating cohesion of sister chromatids, the cohesin complex plays important roles in gene regulation and DNA repair, as SMC1 and SMC3 are both phosphorylated by ATM and ATR kinases upon DNA damage (1,2).

Background References

1. Peters, J.M. et al. (2008) *Genes Dev* 22, 3089-114.
2. Barbero, J.L. (2009) *Cell Mol Life Sci* 66, 2025-35.
3. Hoque, M.T. and Ishikawa, F. (2001) *J Biol Chem* 276, 5059-67.
4. Hauf, S. et al. (2005) *PLoS Biol* 3, e69.
5. Hauf, S. et al. (2001) *Science* 293, 1320-3.
6. Pati, D. et al. (2002) *Mol Cell Biol* 22, 8267-77.
7. Chen, F. et al. (2002) *J Biol Chem* 277, 16775-81.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting **IP:** Immunoprecipitation **IF-IC:** Immunofluorescence (Immunocytochemistry)

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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