



Orders: 877-616-CELL (2355)
orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

Store at -20C
#5696

SMC3 (D47B5) Rabbit mAb

For Research Use Only. Not for Use in Diagnostic Procedures.

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

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

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

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat **Mk:** Monkey

Trademarks and Patents

Cell Signaling Technology is a trademark of Cell Signaling Technology, Inc.

All other trademarks are the property of their respective owners. Visit cellsignal.com/trademarks for more information.

Limited Uses

Except as otherwise expressly agreed in a writing signed by a legally authorized representative of CST, the following terms apply to Products provided by CST, its affiliates or its distributors. Any Customer's terms and conditions that are in addition to, or different from, those contained herein, unless separately accepted in writing by a legally authorized representative of CST, are rejected and are of no force or effect.

Products are labeled with For Research Use Only or a similar labeling statement and have not been approved, cleared, or licensed by the FDA or other regulatory foreign or domestic entity, for any purpose. Customer shall not use any Product for any diagnostic or therapeutic purpose, or otherwise in any manner that conflicts with its labeling statement. Products sold or licensed by CST are provided for Customer as the end-user and solely for research and development uses. Any use of Product for diagnostic, prophylactic or therapeutic purposes, or any purchase of Product for resale (alone or as a component) or other commercial purpose, requires a separate license from CST. Customer shall (a) not sell, license, loan, donate or otherwise transfer or make available any Product to any third party, whether alone or in combination with other materials, or use the Products to manufacture any commercial products, (b) not copy, modify, reverse engineer, decompile, disassemble or otherwise attempt to discover the underlying structure or technology of the Products, or use the Products for the purpose of developing any products or services that would compete with CST products or services, (c) not alter or remove from the Products any trademarks, trade names, logos, patent or copyright notices or markings, (d) use the Products solely in accordance with CST Product Terms of Sale and any applicable documentation, and (e) comply with any license, terms of service or similar agreement with respect to any third party products or services used by Customer in connection with the Products.