Revision 1

Store at -20C

#4449

RAD21 (L611) Antibody

Cell Signaling TECHNOLOGY®

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

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP	H M R Mk	Endogenous	130	Rabbit	#O60216	5885

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:25

Storage

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

Specificity/Sensitivity

RAD21 (L611) Antibody detects endogenous levels of total RAD21 protein.

Species predicted to react based on 100% sequence homology

Chicken, Xenopus, Bovine, Horse

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to the carboxy terminus of the human RAD21 protein. Antibodies are purified by protein A and peptide affinity chromatography.

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

W: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

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

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Limited Uses

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