Revision 1

Store at -20C

#44717

SMARCAL1 (D3P5I) Rabbit mAb

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	Endogenous	105	Rabbit IgG	#Q9NZC9	50485

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50

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

SMARCAL1 (D3P5I) Rabbit mAb recognizes endogenous levels of total SMARCAL1 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ala933 of human SMARCAL1 protein.

Background

SMARCAL1 was first identified as a ubiquitously expressed member of the SNF2 family with homology to the *E. coli* protein HepA (1). Mutations in the gene encoding SMARCAL1 were subsequently shown to be the cause of Schimke immuno-osseous dysplasia (SIOD), an autosomal recessive disorder characterized by phenotypes in multiple systems, including spondyloepiphyseal dysplasia, renal dysfunction, immunodeficiency, and impaired neurological function (2). Researchers have also associated SMARCAL1 deficiency with predisposition to non-Hodgkin's lymphoma (3). The array of phenotypes associated with SMARCAL1 is likely due to its role as an annealing helicase in the DNA damage response. During DNA replication stress, SMARCAL1 is phosphorylated by DNA repair kinases (ATM, ATR, DNA-PK) (4). SMARCAL1 deficiency sensitizes cells to replication stress agents, and appears to increase the frequency of replication fork breakdown (4,5). SMARCAL1 is also required for efficient DNA double strand break repair via the nonhomologous end joining (NHEJ) DNA repair pathway (6). Researchers have suggested that inhibitors targeting SMARCAL1 may be effective in sensitizing cancer cells to chemotherapeutic agents (reviewed in 7).

Background References

1. Coleman, M.A. et al. (2000) *Genomics* 65, 274-82.
2. Boerkoel, C.F. et al. (2002) *Nat Genet* 30, 215-20.
3. Baradaran-Heravi, A. et al. (2012) *Am J Med Genet A* 158A, 2204-13.
4. Bansbach, C.E. et al. (2009) *Genes Dev* 23, 2405-14.
5. Silverberg, M.J. et al. (2009) *AIDS* 23, 2337-45.
6. Keka, I.S. et al. (2015) *Nucleic Acids Res* 43, 6359-72.
7. Zhang, L. et al. (2012) *Biochem Biophys Res Commun* 427, 232-5.

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

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Limited Uses

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