Revision 1

Store at -20C

#12859

SMYD3 (D2Q4V) Rabbit mAb

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Web: info@cellsignal.com
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H Mk	Endogenous	42	Rabbit IgG	#Q9H7B4	64754

Product Usage Information

Application	Dilution
Western Blotting	1:1000

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

SMYD3 (D2Q4V) Rabbit mAb recognizes endogenous levels of total SMYD3 protein. This antibody does not cross-react with other SMYD proteins.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Pro357 of human SMYD3 protein.

Background

SET and MYND domain containing protein 3 (SMYD3) is a member of the SET domain-containing family of protein methyltransferases and is localized to both the nucleus and cytoplasm (1-3). Several histone substrates have been identified for SMYD3; however, the data is controversial. In one study, SMYD3 has been shown to methylate histone H3 Lys4 (both di- and tri-methylation) and interact with RNA polymerase II to activate transcription (1). A second study has shown that SMYD3 preferentially methylates histone H4 Lys20 and interacts with nuclear receptor corepressor complex (NCOR) to repress transcription (2). A third study has shown that SMYD3 preferentially methylates histone H4 Lys5 (mono-, di-, and tri-methylation) (3). In addition, SMYD3 has been shown to methylate the endothelial growth factor receptor 1 (VEGFR1) on Lys831 and stimulate its kinase activity (4). Regardless of the preferred protein substrates, it is clear that SMYD3 functions as an oncogene. Research studies have shown SMYD3 is highly over-expressed in liver, breast, and rectal carcinomas. Over-expression of SMYD3 in multiple cell lines enhances proliferation, adhesion, and migration, while reduced expression results in significant suppression of cell growth (1,5-10). In addition, multiple cancer cell lines express both full length SMYD3 and a cleaved form of SMYD3 lacking the N-terminal 34 amino acids, and the cleaved form shows increased methyltransferase activity toward histone H3 (11).

Background References

1. Hamamoto, R. et al. (2004) *Nat Cell Biol* 6, 731-40.
2. Foreman, K.W. et al. (2011) *PLoS One* 6, e22290.
3. Van Aller, G.S. et al. (2012) *Epigenetics* 7, 340-3.
4. Kunizaki, M. et al. (2007) *Cancer Res* 67, 10759-65.
5. Luo, X.G. et al. (2007) *J Biosci Bioeng* 103, 444-50.
6. Wang, S.Z. et al. (2008) *BMB Rep* 41, 294-9.
7. Zou, J.N. et al. (2009) *Cancer Lett* 280, 78-85.
8. Luo, X.G. et al. (2009) *IUBMB Life* 61, 679-84.
9. Luo, X.G. et al. (2010) *IUBMB Life* 62, 194-9.
10. Ren, T.N. et al. (2011) *Med Oncol* 28 Suppl 1, S91-8.
11. Silva, F.P. et al. (2008) *Oncogene* 27, 2686-92.

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 nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human **Mk:** Monkey

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