#12859 Store at -20°C

SMYD3 (D2Q4V) Rabbit mAb

☑ 100 µl
(10 western blots)

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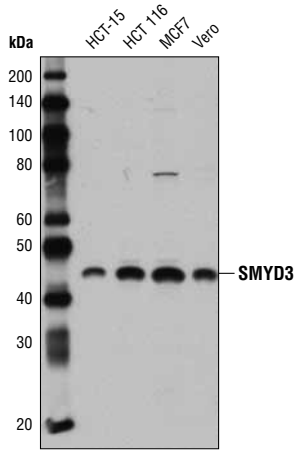
Entrez Gene ID #64754
UniProt ID #Q9H7B4

Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W Endogenous	H, Mk	42 kDa	Rabbit IgG**

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).

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.



Western blot analysis of extracts from various cell lines using SMYD3 (D2Q4V) Rabbit mAb.

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.*

***Species cross-reactivity is determined by western blot.**

****Anti-rabbit secondary antibodies must be used to detect this antibody.**

Recommended Antibody Dilutions:

Western blotting	1:1000

For product specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

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.

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

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Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide
Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **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 **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.