Revision 1

Store at -20C

#18950

TET2 (D6B9Y) 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, ChIP	H	Endogenous	280	Rabbit IgG	#Q6N021	54790

Product Usage Information

For optimal ChIP results, use 20 µl of antibody and 10 µg of chromatin (approximately 4 x 10^6 cells) per IP. This antibody has been validated using SimpleChIP® Enzymatic Chromatin IP Kits.

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:100
Chromatin IP	1:25

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

TET2 (D6B9Y) Rabbit mAb recognizes endogenous levels of total TET2 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with recombinant protein specific to the carboxy terminus of human TET2 protein.

Background

Methylation of DNA at cytosine residues is a heritable, epigenetic modification that is critical for proper regulation of gene expression, genomic imprinting, and mammalian development (1,2). 5-methylcytosine is a repressive epigenetic mark established de novo by two enzymes, DNMT3a and DNMT3b, and is maintained by DNMT1 (3, 4). 5-methylcytosine was originally thought to be passively depleted during DNA replication. However, subsequent studies have shown that Ten-Eleven Translocation (TET) proteins TET1, TET2, and TET3 can catalyze the oxidation of methylated cytosine to 5-hydroxymethylcytosine (5-hmC) (5). Additionally, TET proteins can further oxidize 5-hmC to form 5-formylcytosine (5-fC) and 5-carboxylcytosine (5-caC), both of which are excised by thymine-DNA glycosylase (TDG), effectively linking cytosine oxidation to the base excision repair pathway and supporting active cytosine demethylation (6,7). TET2 is the most frequently mutated gene in myeloid dysplastic syndrome (MDS), a dysplasia of myeloid, megakaryocytic, and/or erythroid cell lineages, of which 30% progress to acute myeloid leukemia (AML) (8, 9). It is also mutated in diffuse large B-cell lymphoma (10). TET2 protein expression is often reduced in solid tumors such as prostate cancer, melanoma, and oral squamous cell carcinoma (11-13).

Background References

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5. Tahiliani, M. et al. (2009) *Science* 324, 930-5.
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7. Ito, S. et al. (2011) *Science* 333, 1300-3.
8. Langemeijer, S.M. et al. (2009) *Nat Genet* 41, 838-42.
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11. Nickerson, M.L. et al. (2013) *Hum Mutat* 34, 1231-41.
12. Lian, C.G. et al. (2012) *Cell* 150, 1135-46.
13. Jäwert, F. et al. (2013) *Anticancer Res* 33, 4325-8.

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 **ChIP:** Chromatin IP

Cross-Reactivity Key

H: Human

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