Revision 5

Store at -20C

#36449

TET2 (D6C7K) 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, IF-IC, FC-FP	M	Endogenous	280	Rabbit IgG	#Q4JK59	214133

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50
Immunofluorescence (Immunocytochemistry)	1:400 - 1:1600
Flow Cytometry (Fixed/Permeabilized)	1:100

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.

For a carrier free (BSA and azide free) version of this product see product #19859.

Specificity/Sensitivity

TET2 (D6C7K) Rabbit mAb recognizes endogenous levels of total TET2 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Val1640 of Mouse 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.
6. He, Y.F. et al. (2011) *Science* 333, 1303-7.
7. Ito, S. et al. (2011) *Science* 333, 1300-3.
8. Langemeijer, S.M. et al. (2009) *Nat Genet* 41, 838-42.
9. Yamazaki, J. et al. (2012) *Epigenetics* 7, 201-7.
10. Asmar, F. et al. (2013) *Haematologica* 98, 1912-20.
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 **IF-IC:** Immunofluorescence (Immunocytochemistry) **FC-FP:** Flow Cytometry (Fixed/Permeabilized)

Cross-Reactivity Key

M: Mouse

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