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TET2 Rabbit pAb

Catalog # AP100125

Product Information

Application	IHC-P, IHC-F, IF
Primary Accession	Q6N021
Other Accession	Q6N021
Reactivity	Rat, Human, Mouse
Predicted	Pig, Chicken, Dog, Horse, Sheep
Host	Rabbit
Clonality	Polyclonal
Calculated MW	223811
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human TET2
Epitope Specificity	1101-1300/2002
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Belongs to the TET family.
DISEASE	Note=TET2 is frequently mutated in myeloproliferative disorders (MPD). These constitute a heterogeneous group of disorders, also known as myeloproliferative diseases or myeloproliferative neoplasms (MPN), characterized by cellular proliferation of one or more hematologic cell lines in the peripheral blood, distinct from acute leukemia. Included diseases are: essential thrombocythemia, polycythemia vera, primary myelofibrosis (chronic idiopathic myelofibrosis). Bone marrow samples from patients display uniformly low levels of hmC in genomic DNA compared to bone marrow samples from healthy controls as well as hypomethylation relative to controls at the majority of differentially methylated CpG sites. Defects in TET2 are a cause of polycythemia vera (PV) [MIM:263300]. A myeloproliferative disorder characterized by abnormal proliferation of all hematopoietic bone marrow elements, erythroid hyperplasia, an absolute increase in total blood volume, but also by myeloid leukocytosis, thrombocytosis and splenomegaly. Note=TET2 is frequently mutated in systemic mastocytosis; also known as systemic mast cell disease. A condition with features in common with myeloproliferative diseases. It is a clonal disorder of the mast cell and its precursor cells. The clinical symptoms and signs of systemic mastocytosis are due to accumulation of clonally derived mast cells in different tissues, including bone marrow, skin, the gastrointestinal tract, the liver, and the spleen. Defects in TET2 are a cause of myelodysplastic syndrome (MDS) [MIM:614286]. A heterogeneous group of closely related clonal hematopoietic disorders. All are characterized by a hypercellular or hypocellular bone marrow with impaired morphology and maturation, dysplasia of the myeloid, megakaryocytic and/or erythroid lineages, and peripheral blood cytopenias resulting from ineffective blood cell production. Included diseases are: refractory anemia (RA), refractory anemia with ringed sideroblasts (RARS), refractory anemia with excess blasts (RAEB), refractory cytopenia with multilineage dysplasia and ringed sideroblasts (RCMD-RS). Chronic myelomonocytic leukemia (CMML) is a myelodysplastic/myeloproliferative

	disease. Myelodysplastic syndromes are considered a premalignant condition in a subgroup of patients that often progresses to acute myeloid leukemia (AML). Note=Bone marrow samples from patients display uniformly low levels of hmC in genomic DNA compared to bone marrow samples from healthy controls as well as hypomethylation relative to controls at the majority of differentially methylated CpG sites.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	TET2 is a 2,002 amino acid protein that is expressed in a variety of tissues, including brain, kidney, heart, lung, muscle and stomach, and exists as three alternatively spliced isoforms. Murine TET2 is also known as protein Ayu17-449 and is thought to play a role in proper kidney development and overall kidney function, as well as in hormone secretion throughout the body. The gene encoding human TET2 maps to chromosome 4 and the gene encoding mouse TET2 maps to chromosome 3. Chromosome 4 encodes nearly 6% of the human genome and has the largest gene deserts (regions of the genome with no protein encoding genes) of all of the human chromosomes. Defects in some of the genes located on chromosome 4 are associated with Huntington's disease, Ellis-van Creveld syndrome, methylmalonic acidemia and polycystic kidney disease. Murine chromosome 3 houses over 1,300 genes, some of which express alcohol dehydrogenases (ADHs), sodium channel modifiers (SCNMs), interleukins (ILs) and Insulin receptor-related (IRR) proteins. Defects in chromosome 3-localized genes are associated with hereditary congenital facial paresis (HCFP), increased susceptibility to spontaneous colitis, HIV-1-associated nephropathy, decreased renal vascular health and malignant sporadic pancreatic endocrine tumors.

Additional Information

Gene ID	54790
Other Names	IMD75; KIAA1546; MDS; Ayu17-449; E130014J05Rik; mKIAA1546; TET2_HUMAN; TET2; 1.14.11.80; TET2_MOUSE; Protein Ayu17-449; tet methylcytosine dioxygenase 2; tet oncogene family member 2; ten-eleven translocation 2
Dilution	IHC-P=1:100-500,IHC-F=1:100-500,ICC/IF=1:100-500,IF=1:50-200,Flow-Cyt=2ug /Test
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	TET2
Synonyms	KIAA1546
Function	Dioxygenase that catalyzes the conversion of the modified genomic base 5-methylcytosine (5mC) into 5-hydroxymethylcytosine (5hmC) and plays a key role in active DNA demethylation. Has a preference for 5-hydroxymethylcytosine in CpG motifs. Also mediates subsequent conversion of 5hmC into 5-formylcytosine (5fC), and conversion of 5fC to 5-carboxylcytosine (5caC). Conversion of 5mC into 5hmC, 5fC and 5caC

	probably constitutes the first step in cytosine demethylation. Methylation at the C5 position of cytosine bases is an epigenetic modification of the mammalian genome which plays an important role in transcriptional regulation. In addition to its role in DNA demethylation, also involved in the recruitment of the O-GlcNAc transferase OGT to CpG-rich transcription start sites of active genes, thereby promoting histone H2B GlcNAcylation by OGT.
Cellular Location	Nucleus. Chromosome. Note=Localization to chromatin depends upon monoubiquitination at Lys-1299.
Tissue Location	Broadly expressed. Highly expressed in hematopoietic cells; highest expression observed in granulocytes Expression is reduced in granulocytes from peripheral blood of patients affected by myelodysplastic syndromes.

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