Recombinant TET2 (1129-2002) protein

Catalog No: 31418, 31818
Expressed In: Baculovirus

Quantity: 10 µg
Concentration: 0.2 µg/µl
Source: Human

Buffer Contents: Recombinant TET2 (1129-2002) protein is supplied at a concentration of 0.2 µg/µl in 25 mM HEPES pH 7.5, 300 mM NaCl, 5% glycerol, 0.04% Triton X-100, 0.2 mM TCEP.

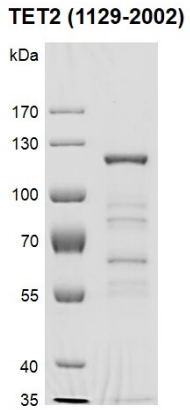
Background: TET (Ten Eleven Translocation) family proteins are cytosine oxygenases that catalyze the conversion of 5-methylcytosine (5mC) into 5-hydroxymethylcytosine (5hmC). 5hmC can be further oxidized into 5-formylcytosine (5fC) and 5-carboxylcytosine (5caC) by TET proteins. Methylation at the C5 position of cytosine is an epigenetic modification of the mammalian genome that plays an important role in transcriptional regulation. TET proteins are responsible for initiating the enzymatic deamination process leading to cytosine demethylation.

TET2 plays an important role in normal myelopoiesis. Somatic loss-of-function mutations in TET2 gene frequently occur in patients with myeloid malignancies. TET2 loss increased hematopoietic stem cell self-renewal and myeloid transformation. TET2 promotes histone O-GlcNAcylation during gene transcription in embryonic stem cells. In addition, TET2 can be recruited to chromatin by CXXC domain protein IDAX. IDAX downregulates TET2 protein by activating caspase pathway.

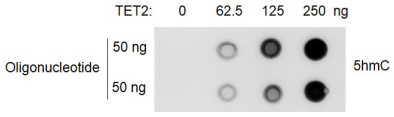
Protein Details: Recombinant TET2 (1129-2002) protein that includes amino acids 1129-2002 of human TET2 proteins (accession number NP_001120680.1) was expressed in Sf9 cells and contains an N-terminal 6×His and FLAG tag with a molecular weight of 102.7 kDa. The purity of the protein is >70% by SDS-PAGE.

Application Notes: Recombinant TET2 (1129-2002) protein is suitable for use in cytosine oxygenase assays, enzyme kinetics, inhibitor screening, and selectivity profiling.
TET Activity Assay Conditions: 250 nM of 30bp DNA oligos (sequence: 5'-CAGTAACTGTGGTC(mC)GGTAACTGACTTGCA-3', contains a 5mCpG site) was incubated with 100 nM recombinant TET2 (1129-2002) protein in buffer containing 50 mM HEPES, pH 8.0, 100 µM Fe(NH4)2(SO4)2, 2 mM ascorbate, 1 mM alpha-ketoglutarate, 1 mM ATP, 1 mM TCEP at 37°C for 1 hr. Activity was detected by Dot-blot.

Storage and Guarantee: Recombinant proteins in solution are temperature sensitive and must be stored at -80°C to prevent degradation. Avoid repeated freeze/thaw cycles and keep on ice when not in storage. This product is guaranteed for 6 months from date of receipt.



Recombinant TET2 (1129-2002) protein gel.
Recombinant TET2 (1129-2002) protein was run on an 8% SDS-PAGE gel and stained with Coomassie Blue.



Recombinant TET2 (1129-2002) protein activity.
250 ng of 30 base oligo (containing 5mCpG) was incubated with 0.3125 µg, 0.625 µg or 1.25 µg TET2 in reaction buffer at 37°C for 1 hour. Sample was concentrated to 5 µl, and 1 µl was spotted onto nylon membrane. Anti -5hmC Ab (Cat#: 39769) was used to detect products.