abcam

ab300521

Anti-KAT5 / Tip60 antibody [EPR23728-112]

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR23728-112
Purification technique	Affinity purification Protein A
Concentration	0.505 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/50
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

ChIP

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information KAT5

Function Catalytic subunit of the NuA4 histone acetyltransferase complex, a multiprotein complex involved in transcriptional activation of select genes principally by acetylation of nucleosomal histones H2A and H4 (PubMed:12776177, PubMed:14966270, PubMed:15042092, PubMed:15121871, PubMed:15310756, PubMed:16387653, PubMed:19909775, PubMed:25865756, PubMed:27153538, PubMed:29174981, PubMed:29335245, PubMed:32822602, PubMed:33076429). Histone acetylation alters nucleosome-DNA interactions and promotes interaction of the modified histones with other proteins which positively regulate transcription (PubMed:12776177, PubMed:14966270, PubMed:15042092, PubMed:15121871, PubMed:15310756). The NuA4 histone acetyltransferase

complex is required for the activation of transcriptional programs associated with proto-oncogene mediated growth induction, tumor suppressor mediated growth arrest and replicative senescence, apoptosis, and DNA repair (PubMed:17709392, PubMed:19783983, PubMed:32832608). The NuA4 complex plays a direct role in repair of DNA double-strand breaks (DSBs) by promoting homologous recombination (HR): the complex inhibits TP53BP1 binding to chromatin via MBTD1, which recognizes and binds histone H4 trimethylated at 'Lys-20' (H4K20me), and KAT5 that catalyzes acetylation of 'Lys-15' of histone H2A (H2AK15ac), thereby blocking the ubiquitination mark required for TP53BP1 localization at DNA breaks (PubMed:27153538, PubMed:32832608). Also involved in DSB repair by mediating acetylation of 'Lys-5' of histone H2AX (H2AXK5ac), promoting NBN/NBS1 assembly at the sites of DNA damage (PubMed:17709392, PubMed:26438602). The NuA4 complex plays a key role in hematopoietic stem cell maintenance and is required to maintain acetylated H2A.Z/H2AZ1 at MYC target genes (By similarity). The NuA4 complex is also required for spermatid development by promoting acetylation of histones: histone hyperacetylation is required for histone replacement during the transition from round to elongating spermatids (By similarity). Component of a SWR1-like complex that specifically mediates the removal of histone H2A.Z/H2AZ1 from the nucleosome (PubMed:24463511). Also acetylates non-histone proteins, such as BMAL1, ATM, AURKB, CHKA, CGAS, ERCC4/XPF, LPIN1, TP53/p53, NDC80/HEC1, NR1D2, RAN, SOX4, FOXP3, SQSTM1, ULK1 and RUBCNL/Pacer (PubMed:16141325, PubMed:17189187, PubMed:17360565, PubMed:17996965, PubMed:24835996, PubMed:26829474, PubMed:29040603, PubMed:30409912, PubMed:30704899, PubMed:31857589, PubMed:32034146, PubMed:32817552, PubMed:34077757). Directly acetylates and activates ATM (PubMed:16141325). Promotes nucleotide excision repair (NER) by mediating acetylation of ERCC4/XPF, thereby promoting formation of the ERCC4-ERCC1 complex (PubMed:32034146). Relieves NR1D2-mediated inhibition of APOC3 expression by acetylating NR1D2 (PubMed:17996965). Acts as a regulator of regulatory T-cells (Treg) by catalyzing FOXP3 acetylation, thereby promoting FOXP3 transcriptional repressor activity (PubMed:17360565, PubMed:24835996). Involved in skeletal myoblast differentiation by mediating acetylation of SOX4 (PubMed:26291311). Catalyzes acetylation of APBB1/FE65, increasing its transcription activator activity (PubMed:33938178). Promotes transcription elongation during the activation phase of the circadian cycle by catalyzing acetylation of BMAL1, promoting elongation of circadian transcripts (By similarity). Together with GSK3 (GSK3A or GSK3B), acts as a regulator of autophagy: phosphorylated at Ser-86 by GSK3 under starvation conditions, leading to activate acetyltransferase activity and promote acetylation of key autophagy regulators, such as ULK1 and RUBCNL/Pacer (PubMed:30704899). Acts as a regulator of the cGAS-STING innate antiviral response by catalyzing acetylation the N-terminus of CGAS, thereby promoting CGAS DNA-binding and activation (PubMed:32817552). Also regulates lipid metabolism by mediating acetylation of CHKA or LPIN1 (PubMed:34077757). Promotes lipolysis of lipid droplets following glucose deprivation by mediating acetylation of isoform 1 of CHKA, thereby promoting monomerization of CHKA and its conversion into a tyrosine-protein kinase (PubMed:34077757). Acts as a regulator of fatty-acid-induced triacylglycerol synthesis by catalyzing acetylation of LPIN1, thereby promoting the synthesis of diacylglycerol (PubMed:29765047). In addition to protein acetyltransferase, can use different acyl-CoA substrates, such as (2E)-butenoyl-CoA (crotonyl-CoA), S-lactoyl-CoA (lactyl-CoA) and 2-hydroxyisobutanoyl-CoA (2-hydroxyisobutyryl-CoA), and is able to mediate protein crotonylation, lactylation and 2-hydroxyisobutyrylation, respectively (PubMed:29192674, PubMed:34608293, PubMed:38961290). Acts as a key

regulator of chromosome segregation and kinetochore-microtubule attachment during mitosis by mediating acetylation or crotonylation of target proteins (PubMed:26829474, PubMed:29040603, PubMed:30409912, PubMed:34608293). Catalyzes acetylation of AURKB at kinetochores, increasing AURKB activity and promoting accurate chromosome segregation in mitosis (PubMed:26829474). Acetylates RAN during mitosis, promoting microtubule assembly at mitotic chromosomes (PubMed:29040603). Acetylates NDC80/HEC1 during mitosis, promoting robust kinetochore-microtubule attachment (PubMed:30409912). Catalyzes crotonylation of MAPRE1/EB1, thereby ensuring accurate spindle positioning in mitosis (PubMed:34608293). Catalyzes lactylation of NBN/NBS1 in response to DNA damage, thereby promoting DNA double-strand breaks (DSBs) via homologous recombination (HR) (PubMed:38961290). (Microbial infection) Catalyzes the acetylation of flavivirus NS3 protein to modulate their RNA-binding and -unwinding activities leading to facilitate viral replication.

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	KAT5 also known as Tip60 is a histone acetyltransferase with a molecular mass of approximately 60 kDa. This enzyme plays an important mechanical role in regulating chromatin dynamics by acetylating lysine residues on histone tails which affects gene expression. It is also involved in non-histone protein acetylation influencing various signaling pathways. KAT5 is expressed across many tissues with higher levels observed in the brain heart and testis.
Biological function summary	KAT5 acetylates histones and participates in the regulation of transcription DNA repair and cell cycle progression. It is a critical component of the NuA4 complex which includes other important proteins like EP400 and TRRAP. Through its acetylation activity KAT5 affects chromatin structure thereby influencing gene expression involved in growth control apoptosis and DNA repair mechanisms.
Pathways	KAT5 is integrally involved in processes such as the DNA damage response and apoptosis. Within these pathways KAT5 interacts with proteins like p53 which plays a significant role in maintaining genomic stability. KAT5-mediated acetylation modulates p53's activation and its ability to engage in apoptotic pathways as well as the cell's response to DNA damage.
Associated diseases and disorders	KAT5 has links to neurodegenerative disorders and cancer. Its dysregulation may contribute to the development of Alzheimer's disease through altered acetylation of tau protein; abnormalities in tau acetylation are implicated in this disorder. Similarly in cancer interactions with proteins like MYC suggest KAT5's involvement in oncogenic pathways. Changes in KAT5 expression or activity have been observed in certain cancers highlighting its potential as a therapeutic target.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

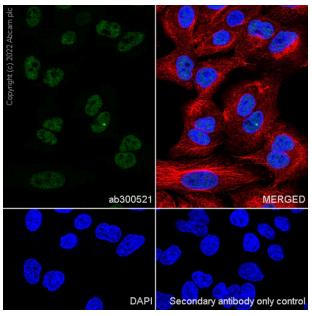
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

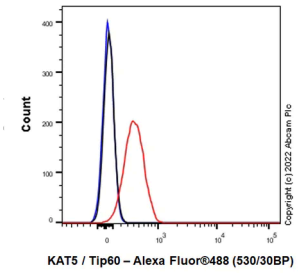
Full details and terms and conditions can be found here:
Terms & Conditions.

6 product images



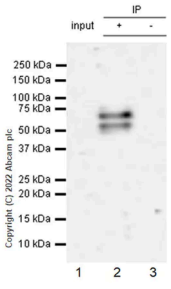
Immunocytochemistry/ Immunofluorescence - Anti-KAT5 / Tip60 antibody [EPR23728-112] (ab300521)

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized HCT 116 (human colorectal carcinoma epithelial cell) cells labelling KAT5 / Tip60 with ab300521 at 1/50 (9.48 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 2 ug/ml dilution (Green). Confocal image showing nuclear staining in HCT 116 cell line is observed. ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 2.5 ug/ml dilution (Red). The Nuclear counterstain was DAPI (Blue). Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 2 ug/ml dilution.



Flow Cytometry (Intracellular) - Anti-KAT5 / Tip60 antibody [EPR23728-112] (ab300521)

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized HCT116 (human colorectal carcinoma epithelial cell) cells labelling KAT5 / Tip60 with ab300521 at 1/50 dilution (1ug) (Red) (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/2000 dilution was used as the secondary antibody.



Immunoprecipitation - Anti-KAT5 / Tip60 antibody [EPR23728-112] (ab300521)

KAT5 / Tip60 was immunoprecipitated from 0.35 mg HCT 116 (human colorectal carcinoma epithelial cell) nuclear fraction 10 ug with ab300521 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab300521 at 1/1000 dilution. VeriBlot for IP secondary antibody (HRP) (ab131366) was used at 1/1000 dilution.
Lane 1: HCT 116 (human colorectal carcinoma epithelial cell) nuclear fraction 10 ug

Lane 2: ab300521 IP in HCT 116 nuclear fraction

Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab300521 in HCT 116 nuclear fraction

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 3 minutes

Lanes 1 - 3:
Immunoprecipitation - Anti-KAT5 / Tip60 antibody [EPR23728-112] (ab300521) at 1/1000 dilution

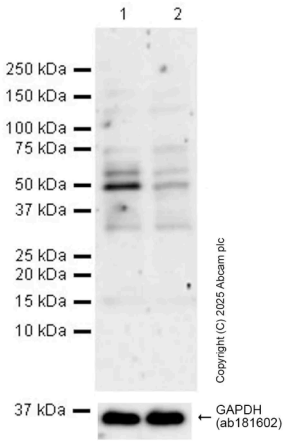
Lanes 1 - 3:
Immunoprecipitation - Anti-KAT5 / Tip60 antibody [EPR23728-112] (BSA and Azide free) (ab300522)

All lanes:
HCT 116 nuclear fraction at 10 µg

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/5000 dilution

Exposure time: 3min



Western blot - Anti-KAT5 / Tip60 antibody [EPR23728-112] (ab300521)

KAT5 / Tip60 Western blot staining using rabbit Anti-KAT5 / Tip60 antibody

In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/1000000 dilution.

All lanes:
Western blot - Anti-KAT5 / Tip60 antibody [EPR23728-112] (ab300521) at 1/1000 dilution

Lane 1:
HeLa (Human cervix adenocarcinoma epithelial cell) + si -scramble whole cell lysate at 20 µg

Lane 2:
HeLa (Human cervix adenocarcinoma epithelial cell) + si - KAT5 whole cell lysate at 20 µg

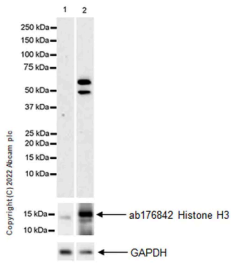
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 50 kDa

Observed band size: 50 kDa

Exposure time: 300s



Western blot - Anti-KAT5 / Tip60 antibody [EPR23728-112] (ab300521)

Blocking and diluting buffer and concentration: 5% NFDM/TBST
All lanes:
Western blot - Anti-KAT5 / Tip60 antibody [EPR23728-112] (ab300521) at 1/1000 dilution

Lane 1:
HCT 116 (human colorectal carcinoma epithelial cell) cytoplasmic fraction

Lane 2:
HCT 116 nuclear fraction

Secondary

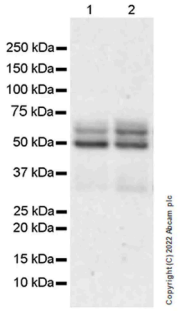
All lanes:

Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Performed under reducing conditions.

Observed band size: 60 kDa, 50 kDa

Exposure time: 3min



Western blot - Anti-KAT5 / Tip60 antibody [EPR23728-112] (ab300521)

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
This blot was developed using a high sensitivity ECL substrate. The high-sensitivity ECL substrate used allows for the detection of proteins in the mid-femtogram range.

All lanes:
Western blot - Anti-KAT5 / Tip60 antibody [EPR23728-112] (ab300521) at 1/1000 dilution

Lane 1:
HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate

Lane 2:
293T (human embryonic kidney epithelial cell) whole cell lysate

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Developed using the ECL technique.

Observed band size: 60 kDa, 50 kDa

Exposure time: 3min

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.