abcam

ab194296

Anti-KAT1 / HAT1 antibody [EPR18775]

Recombinant | RabMAb | KO Validated | 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	EPR18775
Purification technique	Affinity purification Protein A
Concentration	0.747 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Mouse
Dilution info	1/50
Notes	-

Species	Human

Dilution info	1/50
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Species	Human
Dilution info	1/500
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/150
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	1/500
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/500
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/500

Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information HAT1

Function	Histone acetyltransferase that plays a role in different biological processes including cell cycle progression, glucose metabolism, histone production or DNA damage repair (PubMed:20953179, PubMed:23653357, PubMed:31278053, PubMed:32081014). Coordinates histone production and acetylation via H4 promoter binding (PubMed:31278053). Acetylates histone H4 at 'Lys-5' (H4K5ac) and 'Lys-12' (H4K12ac) and, to a lesser extent, histone H2A at 'Lys-5' (H2AK5ac) (PubMed:11585814, PubMed:22615379). Drives H4 production by chromatin binding to support chromatin replication and acetylation. Since transcription of H4 genes is tightly coupled to S-phase, plays an important role in S-phase entry and progression (PubMed:31278053). Promotes homologous recombination in DNA repair by facilitating histone turnover and incorporation of acetylated H3.3 at sites of double-strand breaks (PubMed:23653357). In addition, acetylates other substrates such as chromatin-related proteins (PubMed:32081014). Also acetylates RSAD2 which mediates the interaction of ubiquitin ligase UBE4A with RSAD2 leading to RSAD2 ubiquitination and subsequent degradation (PubMed:31812350). In addition to protein acetyltransferase, can use different acyl-CoA substrates, such as 2-methylpropenoyl-CoA (methacryl-CoA), and is able to mediate histone methacrylation (PubMed:34961760). (Microbial infection) Contributes to hepatitis B virus (HBV) replication by acetylating histone H4 at the sites of 'Lys-5' and 'Lys-12' on the covalently closed circular DNA (cccDNA) minichromosome leading to its accumulation within the host cell.

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	The protein KAT1 also known as HAT1 (Histone Acetyltransferase 1) functions as an enzyme responsible for acetylating newly synthesized histone proteins. It has a mass of approximately 46 kDa. KAT1 is mostly expressed in the nucleus of cells where it modifies histones by adding acetyl groups to the N-terminal lysines a process essential for chromatin modification. The enzyme is important for facilitating transcriptional activation by altering chromatin structure and is widely observed in various eukaryotic organisms.
Biological function summary	KAT1 acts as a part of the histone acetyltransferase complex which plays a major role in regulating gene expression. By acetylating histone proteins it reduces chromatin compaction and allows gene transcription machinery access to DNA. This alteration can significantly influence cellular processes such as cell cycle regulation and DNA repair. As KAT1 interacts with several protein partners including other acetylation enzymes it serves as an important player in managing chromatin dynamics and maintaining genomic integrity.
Pathways	The role of KAT1 extends to involvement in the cell cycle and DNA damage repair pathways. In the cell cycle pathway KAT1 facilitates transcription required for progression through various phases of the cycle. In DNA damage response pathways KAT1 contributes to repairing DNA lesions by modifying chromatin to allow repair machinery access. It interacts with proteins such as p300 and CBP which are also acetyltransferases to modulate these pathways effectively and ensure cellular responses to DNA insults are adequate.
Associated diseases and disorders	KAT1's function connects with cancer and neurodegenerative diseases due to its role in gene regulation and DNA repair. In cancer aberrant acetylation by KAT1 can lead to unregulated cell division and tumor formation while in neurodegenerative disorders impaired KAT1 activity might contribute to neuronal damage and death due to faulty DNA repair. The protein interacts with p53 another key player in both pathways impacting disease progression by modulating tumor suppressor functions and ensuring cellular stability under stress.

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.

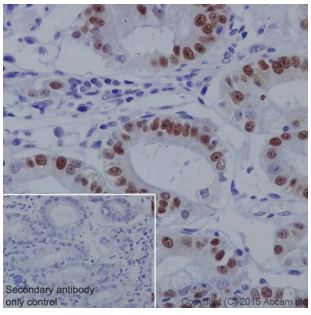
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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13 product images

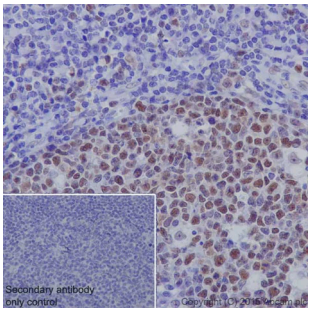


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

KAT1 / HAT1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-KAT1 / HAT1 antibody

Immunohistochemical analysis of paraffin-embedded Human gastric adenocarcinoma tissue labeling KAT1 / HAT1 with ab194296 at 1/500 dilution followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution. Nucleus staining on cancer cells of Human gastric adenocarcinoma is observed. Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

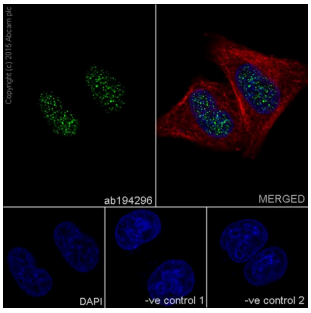


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

KAT1 / HAT1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-KAT1 / HAT1 antibody

Immunohistochemical analysis of paraffin-embedded Human tonsil tissue labeling KAT1 / HAT1 with ab194296 at 1/500 dilution followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution. Nucleus staining on the germinal center of Human tonsil is observed. Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

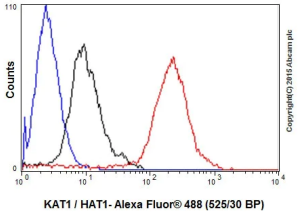
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

KAT1 / HAT1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-KAT1 / HAT1 antibody

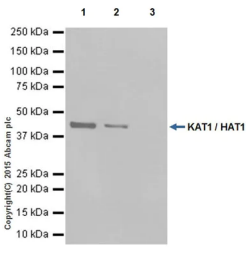
Immunofluorescent analysis of 4% paraformaldehyde-fixed 0.1% Triton X-100 permeabilized HeLa (Human epithelial cells from cervix adenocarcinoma) cells labeling KAT1 / HAT1 with ab194296 at 1/500 dilution followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing nuclear staining on HeLa cell line. The nuclear counter stain is DAPI (blue). Tubulin is detected with ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution and ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/1000 dilution (red).
The negative controls are as follows:
-ve control 1: ab194296 at 1/500 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/1000 dilution.
-ve control 2: ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/1000 dilution.



Flow Cytometry (Intracellular) - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

KAT1 / HAT1 Flow Cytometry (Intracellular) staining using rabbit Anti-KAT1 / HAT1 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed HeLa (Human epithelial cells from cervix adenocarcinoma) cells labeling KAT1 / HAT1 with ab194296 at 1/150 dilution (red) compared with a rabbit monoclonal IgG isotype control (ab172730; black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody; blue). Goat anti rabbit IgG (FITC) at 1/500 dilution was used as the secondary antibody.



Immunoprecipitation - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

KAT1 / HAT1 was immunoprecipitated from 1mg of HeLa (Human epithelial cells from cervix adenocarcinoma) whole cell lysate with ab194296 at 1/50 dilution. Western blot was performed from the immunoprecipitate using ab194296 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10000 dilution.

Lane 1: HeLa whole cell lysate 10ug (Input).

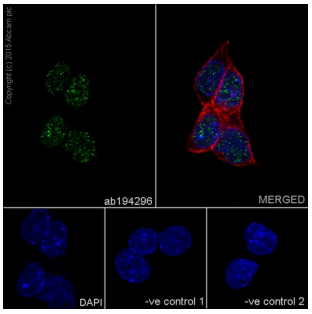
Lane 2: ab194296 IP in HeLa whole cell lysate.

Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab194296 in HeLa whole cell lysate.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.
Exposure time: 30 seconds.
All lanes:
Immunoprecipitation - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

Predicted band size: 49 kDa

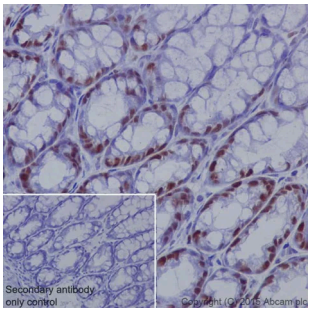
Observed band size: 45 kDa



Immunocytochemistry/ Immunofluorescence - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

KAT1 / HAT1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-KAT1 / HAT1 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed 0.1% Triton X-100 permeabilized F9 (Mouse embyro testicular cancer cell line) cells labeling KAT1 / HAT1 with ab194296 at 1/500 dilution followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing nuclear staining on F9 cell line. The nuclear counter stain is DAPI (blue). Tubulin is detected with ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution and ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/1000 dilution (red).
The negative controls are as follows:
-ve control 1: ab194296 at 1/500 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/1000 dilution.
-ve control 2: ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/1000 dilution.

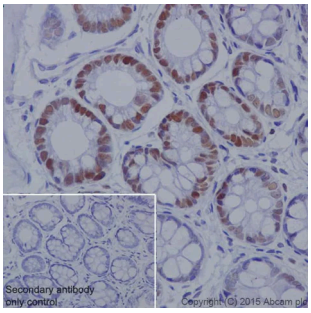


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

KAT1 / HAT1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-KAT1 / HAT1 antibody

Immunohistochemical analysis of paraffin-embedded mouse colon tissue labeling KAT1 / HAT1 with ab194296 at 1/500 dilution followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution. Nucleus staining on epithelial cells of mouse colon is observed. Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

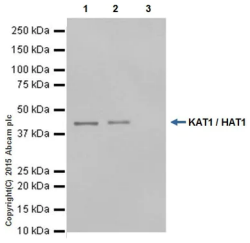


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

KAT1 / HAT1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-KAT1 / HAT1 antibody

Immunohistochemical analysis of paraffin-embedded rat colon tissue labeling KAT1 / HAT1 with ab194296 at 1/500 dilution followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution. Nucleus staining on epithelial cells of rat colon is observed. Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunoprecipitation - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

KAT1 / HAT1 was immunoprecipitated from 1mg of F9 (Mouse embyro testicular cancer cell line) whole cell lysate with ab194296 at 1/50 dilution. Western blot was performed from the immunoprecipitate using ab194296 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10000 dilution.
Lane 1: F9 whole cell lysate 10ug (Input).

Lane 2: ab194296 IP in F9 whole cell lysate.

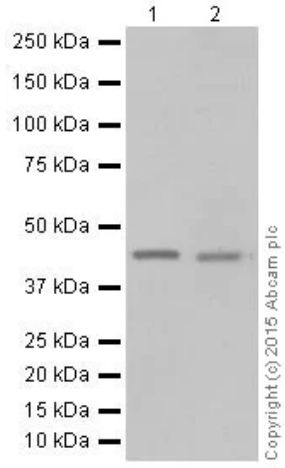
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab194296 in F9 whole cell lysate.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.
Exposure time: 30 seconds.

All lanes:
Immunoprecipitation - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

Predicted band size: 49 kDa

Observed band size: 45 kDa



Western blot - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

KAT1 / HAT1 Western blot staining using rabbit Anti-KAT1 / HAT1 antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296) at 1/1000 dilution

Lane 1:
Human fetal liver lysate at 10 µg

Lane 2:
Human fetal kidney lysate at 10 µg

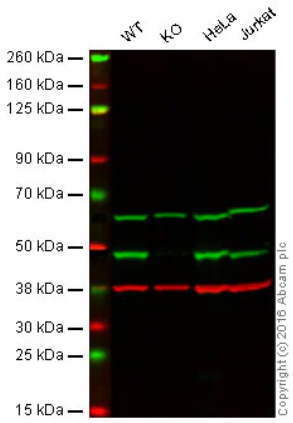
Secondary

All lanes:
Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/10000 dilution

Predicted band size: 49 kDa

Observed band size: 45 kDa

Exposure time: 5s



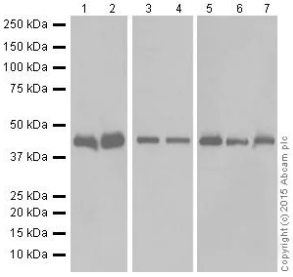
Western blot - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

KAT1 / HAT1 Western blot staining using rabbit Anti-KAT1 / HAT1 antibody

Lane 1: Wild-type HAP1 cell lysate (40 µg)
Lane 2: KAT1/HAT1 knockout HAP1 cell lysate (40 µg)
Lane 3: HeLa cell lysate (20 µg)
Lane 4: Jurkat cell lysate (20 µg)
Lanes 1 - 4: Merged signal (red and green). Green - ab194296 observed at 48 kDa. Red - loading control, ab18058, observed at 37 kDa.
ab194296 was shown to recognize KAT1/HAT1 in wild-type HAP1 cells along with additional cross-reactive bands. No band was observed when KAT1/HAT1 knockout samples were examined. Wild-type and KAT1 / HAT1 knockout samples were subjected to SDS-PAGE. ab194296 and ab18058 (loading control to GAPDH) were diluted at 1/1000 and 1/10,000 dilution respectively and incubated overnight at 4ºC. Blots were developed with IRDye® 800CW Goat anti-Rabbit IgG (H + L) and IRDye® 680 Goat anti-Mouse IgG (H + L) secondary antibodies at 1/10,000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

Predicted band size: 49 kDa



Western blot - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

Blocking/Dilution buffer: 5% NFDM/TBST.
Exposure time: Lane 1 and 2: 3 minutes; Lane 3 and 4: 2 seconds; Lane 5, 6 and 7: 5 seconds

All lanes:
Western blot - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296) at 1/1000 dilution

Lane 1:
Mouse colon lysate at 20 µg

Lane 2:
Rat colon lysate at 20 µg

Lane 3:
HeLa (Human epithelial cells from cervix adenocarcinoma) whole cell lysate at 20 µg

Lane 4:
MCF7 (Human breast adenocarcinoma cell line) whole cell lysate at 20 µg

Lane 5:
F9 (Mouse embryo testicular cancer cell line) whole cell lysate at 20 µg

Lane 6:
LLC1 (Mouse lung carcinoma cell line) whole cell lysate at 20 µg

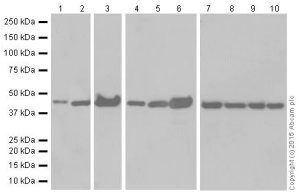
Lane 7:
Mouse thymus lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 49 kDa

Observed band size: 45 kDa



Western blot - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296)

Blocking/Dilution buffer: 5% NFDM/TBST.
Exposure time: Lane 1, 2, 4, 5 and 6: 3 minutes; Lane 3: 1 minute; Lane 7, 8, 9 and 10: 5 seconds.

All lanes:
Western blot - Anti-KAT1 / HAT1 antibody [EPR18775] (ab194296) at 1/1000 dilution

Lane 1:
Mouse brain lysate at 10 µg

Lane 2:
Mouse kidney lysate at 10 µg

Lane 3:
Mouse spleen lysate at 10 µg

Lane 4:
Rat brain lysate at 10 µg

Lane 5:
Rat kidney lysate at 10 µg

Lane 6:
Rat spleen lysate at 10 µg

Lane 7:
C6 (Rat glial tumor cells) whole cell lysate at 10 µg

Lane 8:
RAW 264.7 (Mouse macrophage cells transformed with Abelson murine leukemia virus) whole cell lysate at 10 µg

Lane 9:
PC-12 (Rat adrenal gland pheochromocytoma) whole cell lysate at 10 µg

Lane 10:
NIH/3T3 (Mouse embyro fibroblast cells) whole cell lysate at 10 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 49 kDa

Observed band size: 45 kDa

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