abcam

## ab188470

# Anti-Dnmt3a antibody [EPR18455]

Anti-Dnmt3a antibody [EPR18455] (ab188470) is a rabbit monoclonal antibody detecting Dnmt3a in **Western Blot, Flow Cytometry (Intra), IHC-P, ICC/IF**. Suitable for **Human, Mouse, Rat**.

- KO validated for confirmed specificity
- Biophysical QC for unrivalled batch-batch consistency
- Over 30 publications

Recombinant | RabMAb | Advanced Validation | 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** | EPR18455 |
| **Purification technique** | Affinity purification Protein A |
| **Concentration** | 0.822 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## ChIC/CUT&RUN-seq

**Tested**

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |
| **Notes** | - |

### Expected

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

## WB

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/2000 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/2000 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | 1/2000 |
| **Notes** | - |

## IHC-P

### Tested

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | 1/2000 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/2000 |

| | |
|---|---|
| **Notes** | - |

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/2000 |
| **Notes** | - |

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/1000 |
| **Notes** | - |

### Expected

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

## Flow Cyt (Intra)

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |
| **Notes** | - |

### Expected

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

# Target data

See full target information DNMT3A

| | |
|---|---|
| **Function** | Required for genome-wide de novo methylation and is essential for the establishment of DNA methylation patterns during development (PubMed:12138111, PubMed:16357870, PubMed:30478443). DNA methylation is coordinated with methylation of histones (PubMed:12138111, PubMed:16357870, PubMed:30478443). It modifies DNA in a non-processive manner and also methylates non-CpG sites (PubMed:12138111, PubMed:16357870, PubMed:30478443). May preferentially methylate DNA linker between 2 nucleosomal cores and is inhibited by histone H1 (By similarity). Plays a role in paternal and maternal imprinting (By similarity). Required for methylation of most imprinted loci in germ cells (By similarity). Acts as a transcriptional corepressor for ZBTB18 (By similarity). Recruited to trimethylated 'Lys-36' of histone H3 (H3K36me3) sites (By similarity). Can actively repress transcription through the recruitment of HDAC activity (By similarity). Also has weak auto-methylation activity on Cys-710 in absence of DNA (By similarity). |

## 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

**What is this antibody validated in?**
Anti-Dnmt3a antibody [EPR18455] (ab188470) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Flow Cytometry (Flow Cyt), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, Rat samples.

**What is the molecular weight of Dnmt3a?**
Anti-Dnmt3a [EPR18455] (ab188470) specifically detects a band for Dnmt3a (UniProt: Q9Y6K1) at a molecular weight of 102kDa.

**Trusted by the scientific community**
Anti-Dnmt3a [EPR18455] (ab188470) was first used in a scientific publication in 2015 and has been cited over 30 times in peer-reviewed journals.

**Specificity confirmed**

The specificity of Anti-Dnmt3a antibody [EPR18455] (ab188470) has been confirmed by Western blot testing in DNMT3A Knockout HAP1 cell line, ab261793.

**Other related products**
We have a range of other formats of antibody clone [EPR18455] also available for your convenience: ab188470, Carrier free - ab232391, Carrier free - ab300008, PE - ab305716, APC - ab305717, HRP - ab305718, Alkaline Phosphatase - ab308817, Alexa Fluor® 488 - ab309762, Alexa Fluor® 647 - ab310130, Alexa Fluor® 594 - ab310548, Alexa Fluor® 555 - ab312078, Alexa Fluor® 568 - ab312555, Alexa Fluor® 750 - ab321309

**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.

**Trial sizes available!**
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

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## 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.

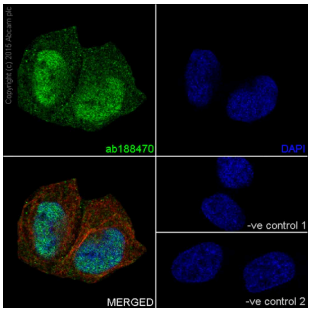
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We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

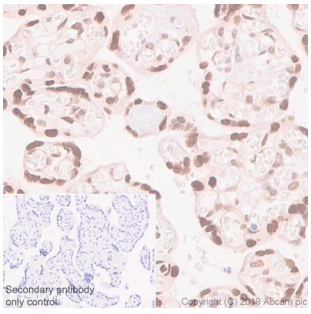
## 13 product images




### Immunocytochemistry/ Immunofluorescence - Anti-Dnmt3a antibody [EPR18455] (ab188470)

Dnmt3a Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Dnmt3a antibody

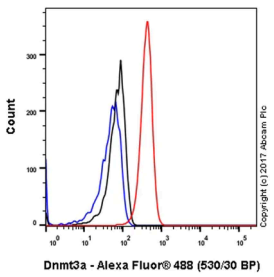
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (Human epithelial cells from cervix adenocarcinoma) cells labeling Dnmt3a with ab188470 at 1/1000 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing nuclear and weakly cytoplasmic 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: ab188470 at 1/1000 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-Dnmt3a antibody [EPR18455] (ab188470)

Dnmt3a Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Dnmt3a antibody

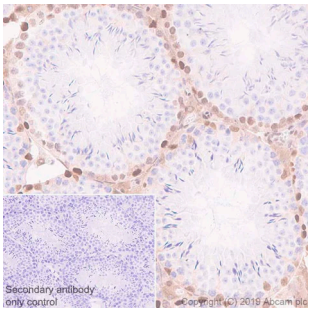
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human placenta tissue sections labeling Dnmt3a with purified ab188470 at 1/2000 (0.409 µg/ml). Antigen retrieval was heat mediated using ab93684 (Tris/EDTA buffer, pH 9.0). Goat Anti-Rabbit IgG H&L (HRP) was used as the secondary antibody. Hematoxylin was used as a counterstain.




### Flow Cytometry (Intracellular) - Anti-Dnmt3a antibody [EPR18455] (ab188470)

Dnmt3a Flow Cytometry (Intracellular) staining using rabbit Anti-Dnmt3a antibody

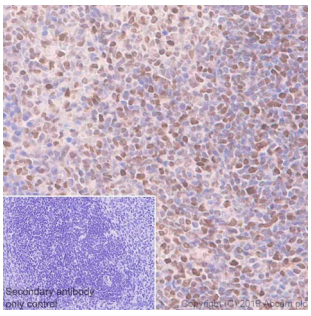
Intracellular Flow Cytometry analysis of HeLa (human cervix adenocarcinoma) cells labeling Dnmt3a with purified ab188470 at 1/80 dilution (10ug/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti rabbit IgG (Alexa Fluorr® 488) (1/2000 dilution) was used as the secondary antibody. Rabbit monoclonal IgG (Black) was used as the isotype control, cells without incubation with primary antibody and secondary antibody (Blue) were used as the unlabeled control.




## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Dnmt3a antibody [EPR18455] (ab188470)

Dnmt3a Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Dnmt3a antibody

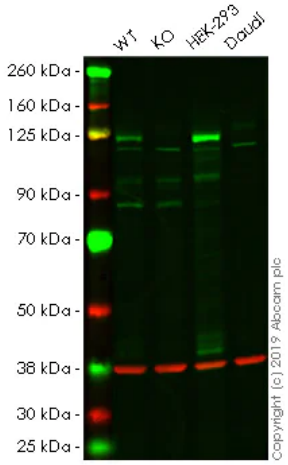
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse testis tissue sections labeling Dnmt3a with purified ab188470 at 1/2000 (0.409 µg/ml). Antigen retrieval was heat mediated using ab93684 (Tris/EDTA buffer, pH 9.0). Goat Anti-Rabbit IgG H&L (HRP) was used as the secondary antibody. Hematoxylin was used as a counterstain.




## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Dnmt3a antibody [EPR18455] (ab188470)

Dnmt3a Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Dnmt3a antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of rat spleen tissue sections labeling Dnmt3 with purified ab188470 at 1/2000 (0.409 µg/ml). Antigen retrieval was heat mediated using ab93684 (Tris/EDTA buffer, pH 9.0). Goat Anti-Rabbit IgG H&L (HRP) was used as the secondary antibody. Hematoxylin was used as a counterstain.




## Western blot - Anti-Dnmt3a antibody [EPR18455] (ab188470)

Dnmt3a Western blot staining using rabbit Anti-Dnmt3a antibody

**Lanes 1-4:** Merged signal (red and green). Green - ab188470 observed at 125 kDa. Red - loading control ab8245 observed at 37 kDa.
ab188470 Anti-Dnmt3a antibody [EPR18455] was shown to specifically react with Dnmt3a in wild-type HeLa cells. Loss of signal was observed when knockout cell line ab261793 (knockout cell lysate ab257128) was used. Wild-type and Dnmt3a knockout samples were subjected to SDS-PAGE. ab188470 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at 1 in 2000 dilution and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Dnmt3a antibody [EPR18455] (ab188470) at 1/2000 dilution

Lane 1:
Wild-type HeLa cell lysate at 20 µg

Lane 2:
Western blot - Human DNMT3A knockout HeLa cell lysate (ab257128) at 20 µg

Lane 3:
HEK-293 cell lysate at 20 µg

Lane 4:
Daudi cell lysate at 20 µg

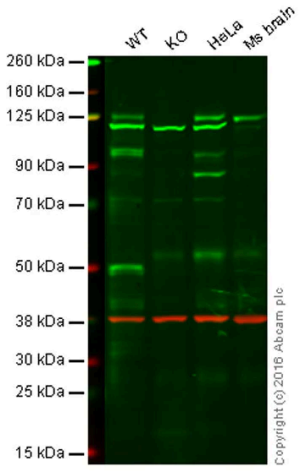
Secondary

All lanes:
Western blot - Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) at 1/20000 dilution

Performed under reducing conditions.

Predicted band size: 102 kDa

Observed band size: 125 kDa




## Western blot - Anti-Dnmt3a antibody [EPR18455] (ab188470)

Dnmt3a Western blot staining using rabbit Anti-Dnmt3a antibody

**Lanes 1 - 4:** Merged signal (red and green). Green - ab188470 observed at 125 kDa. Red - loading control, ab8245, observed at 37 kDa.

ab188470 was shown to recognize Dnmt3a when Dnmt3a knockout samples were used, along with additional cross-reactive bands. Wild-type and Dnmt3a knockout samples were subjected to SDS-PAGE. ab188470 and ab8245 (loading control to GAPDH) were diluted to 1/5000 and 1/10000 respectively and incubated overnight at 4°C. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1/10000 dilution for 1 hour at room temperature before imaging.
All lanes:
Western blot - Anti-Dnmt3a antibody [EPR18455] (ab188470) at 1/5000 dilution

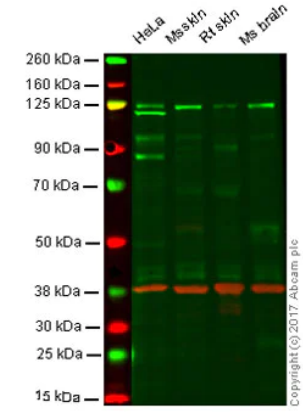
Lane 1:
Wild-type HAP1 cell lysate at 20 µg

Lane 2:
Dnmt3a knockout HAP1 cell lysate at 20 µg

Lane 3:
HeLa cell lysate at 20 µg

Lane 4:
Mouse brain tissue lysate at 20 µg

Predicted band size: 102 kDa




## Western blot - Anti-Dnmt3a antibody [EPR18455] (ab188470)

Lanes 1 - 4: Merged signal (red and green). Green - ab188470 observed at 125 kDa. Red - loading control, ab8245, observed at 37 kDa.

This blot was produced using a 4-12% Bis-tris gel under the MOPS buffer system. The gel was run at 200V for 50 minutes before being transferred onto a Nitrocellulose membrane at 30V for 70 minutes. The membrane was then blocked for an hour using Licor blocking buffer before being incubated with ab188470 and ab8245 (loading control) overnight at 4°C. Antibody binding was detected using Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) at a 1:10000 dilution for 1hr at room temperature and then imaged.

All lanes:
Western blot - Anti-Dnmt3a antibody [EPR18455] (ab188470) at 1/5000 dilution

Lane 1:
HeLa whole cell lysate at 20 µg

Lane 2:

Mouse skin tissue lysate at 20 µg

Lane 3:
Rat skin tissue lysate at 20 µg

Lane 4:
Mouse brain tissue lysate at 20 µg

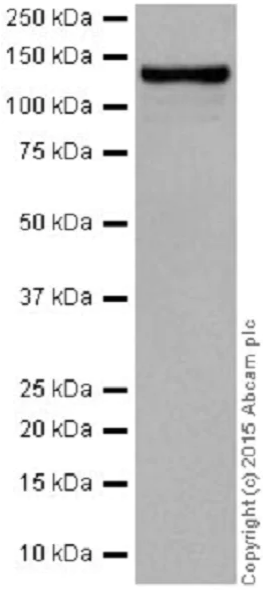
Secondary

All lanes:
Western blot - Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) at 1/10000 dilution

Performed under reducing conditions.

Predicted band size: 102 kDa

Observed band size: 125 kDa




## Western blot - Anti-Dnmt3a antibody [EPR18455] (ab188470)

Dnmt3a Western blot staining of HeLa (Human epithelial cells from cervix adenocarcinoma) cell lysate using rabbit Anti-Dnmt3a antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
The observed MW is consistent with what has been described in the literature (J Biol Chem. 2002. 277, 38746-38754. PMID: 12138111).

All lanes:
Western blot - Anti-Dnmt3a antibody [EPR18455] (ab188470) at 1/10000 dilution

All lanes:
HeLa (Human epithelial cells from cervix adenocarcinoma) cell lysate at 20 µg

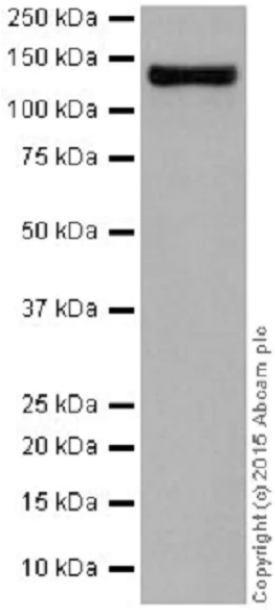
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 102 kDa

Observed band size: 130 kDa

Exposure time: 5s




## Western blot - Anti-Dnmt3a antibody [EPR18455] (ab188470)

Dnmt3a Western blot staining of HEK-293 (Human epithelial cells from embryonic kidney) cell lysate using rabbit Anti-Dnmt3a antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
The observed MW is consistent with what has been described in the literature (J Biol Chem. 2002. 277, 38746-38754. PMID: 12138111).

All lanes:
Western blot - Anti-Dnmt3a antibody [EPR18455] (ab188470) at 1/10000 dilution

All lanes:
HEK-293 (Human epithelial cells from embryonic kidney) cell lysate at 20 µg

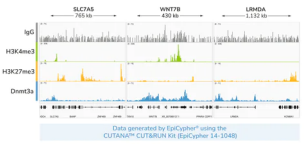
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 102 kDa, 83 kDa

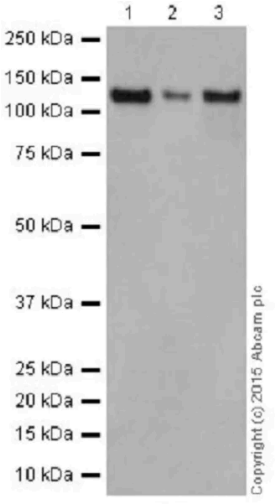
Observed band size: 130 kDa, 74 kDa

Exposure time: 15s



## ChIC/CUT&RUN sequencing - Anti-Dnmt3a antibody [EPR18455] (ab188470)

**CUT&RUN profiling with Dnmt3a antibody reveals the expected genomic enrichment pattern in cells.** Representative genome browser tracks show CUT&RUN data generated using the CUTANA™ CUT&RUN Kit (EpiCypher 14-1048) with Dnmt3a antibody (Abcam ab188470, 0.5 µg). 500,000 HeLa cells were used per reaction. IgG, H3K4me3, and H3K27me3 antibodies were included as controls to assess non-specific background, active promoters, and repressed chromatin, respectively. Libraries were prepared using the CUTANA™ CUT&RUN Library Prep Kit (EpiCypher 14-1001). Sequencing was performed with paired-end 50 bp reads, and data were processed on CUTANA™ Cloud (cloud.epicypher.com) by alignment to the hg38 genome. Images were generated using Integrative Genomics Viewer (IGV, Broad Institute).




## Western blot - Anti-Dnmt3a antibody [EPR18455] (ab188470)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-Dnmt3a antibody [EPR18455] (ab188470) at 1/2000 dilution

Lane 1:
Rat brain lysate at 10 µg

Lane 2:
Rat heart lysate at 10 µg

Lane 3:
C6 (Rat glial tumor cells) cell lysate at 10 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 102 kDa

Observed band size: 130 kDa

Exposure time: 30s

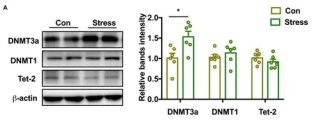



Image collected and cropped by CiteAb under a CC-BY license from the publication

## Western blot - Anti-Dnmt3a antibody [EPR18455] (ab188470)

Dnmt3a Western blot staining using rabbit Anti-Dnmt3a antibody

Dnmt3a western blot using anti-Dnmt3a antibody [EPR18455] ab188470. Publication image and figure legend from Lei, L., Wu, X., et al., 2020, Front Neurosci, PubMed 33192258.

ab188470 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab188470 please see the product overview.

Effect of PS on DNMT and demethylase in adolescence. (A) DNMT3a protein expression was markedly upregulated (*p < 0.05, n = 6) while DNMT1 level was marginally increased in PS females. No significant difference in Tet-2 expression was observed between PS and control females. (B) Tet-2 level was decreased in PS males (*p < 0.05, n = 6), whereas DNMT3a and DNMT1 levels were similar in PS and control males. *p < 0.05, *p < 0.01 vs. corresponding control group. Data represent mean ± SEM.

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