abcam

# ab183498

# Anti-SMYD3 antibody [EPR11106(2)] - N-terminal

Recombinant | RabMAb | KO Validated

## Key facts

| | |
|---|---|
| **Isotype** | IgG |
| **Host species** | Rabbit |
| **Storage buffer** | pH: 7.2 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** | EPR11106(2) |
| **Purification technique** | Affinity purification Protein A |
| **Concentration** | 0.542 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

### IP

#### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/40 - 1/60 |
| **Notes** | - |

### WB

**Tested**

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/1000 - 1/10000 |
| **Notes** | - |

## ICC/IF

**Tested**

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/500 |
| **Notes** | - |

## Flow Cyt (Intra)

**Tested**

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

## IHC-P

**Tested**

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/50 - 1/100 |
| **Notes** | - |

# Target data

See full target information SMYD3

**Function** Histone methyltransferase. Specifically methylates 'Lys-4' of histone H3, inducing di- and tri-methylation, but not monomethylation (PubMed:15235609, PubMed:22419068). Also methylates 'Lys-5' of histone H4 (PubMed:22419068). Plays an important role in transcriptional activation as a member of an RNA

polymerase complex (PubMed:15235609). Binds DNA containing 5'-CCCTCC-3' or 5'-GAGGGG-3' sequences (PubMed:15235609).

## 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** | SMYD3 short for SET and MYND domain containing 3 is a member of the protein lysine methyltransferase family. It mainly functions as a histone methyltransferase adding methyl groups to lysine 4 on histone H3 (H3K4) and lysine 5 on histone H4 (H4K5) influencing chromatin structure and gene expression. SMYD3 has a molecular mass of approximately 56 kDa. It is widely expressed in multiple tissues but levels are higher in skeletal muscle and the heart. This broad expression indicates its potential role in various cellular functions. |

| | |
|---|---|
| **Biological function summary** | This methyltransferase regulates transcriptional activation by methylating histones. It acts as part of transcriptional coactivator complexes interacting with RNA polymerase II. SMYD3 modulates the expression of genes involved in cell proliferation and cancer progression. Additionally it interacts with proteins like Heat Shock Protein 90 (HSP90) and promotes the stabilization of substrate proteins. Its influence extends to non-histone proteins which suggests a wider impact on cellular signaling and structure. |
| **Pathways** | SMYD3 is involved in the MAPK (Mitogen-Activated Protein Kinase) signaling pathway an important regulator of cell differentiation proliferation and survival. It interacts with key proteins in this pathway such as ERK2 (Extracellular signal-regulated kinase 2) influencing cellular outcomes. SMYD3 also plays a role in the Wnt signaling pathway which is important for development and oncogenesis. This interaction with signaling pathways underlines its significant regulatory functions within the cell. |
| **Associated diseases and disorders** | SMYD3 is strongly associated with cancer. Its overexpression contributes to tumorigenesis and metastasis particularly in colorectal and liver cancers. In cancer SMYD3 interacts with proteins like AKT1 promoting cancer cell survival and growth. Additionally SMYD3 has been linked to congenital heart diseases through its role in cardiac development. It interacts with cardiac transcription factors further connecting its function to heart malformations. |

## 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**

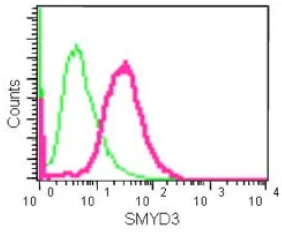
We do not recommend this combination. It is not covered by our product promise.

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.

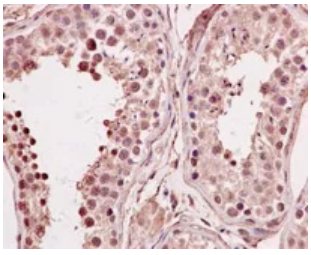
## 8 product images




### Flow Cytometry (Intracellular) - Anti-SMYD3 antibody [EPR11106(2)] - N-terminal (ab183498)

SMYD3 Flow Cytometry (Intracellular) staining using rabbit Anti-SMYD3 antibody

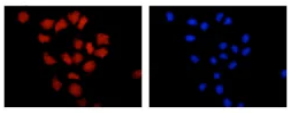
Intracellular flow cytometric analysis of 293 cells fixed in 2% paraformaldehyde labeling SMYD3 with ab183498 at 1/110 dilution andGoat anti rabbit IgG (FITC) at 1/150 dilution. Rabbit Monoclonal IgG was used as an isotype control.



### Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SMYD3 antibody [EPR11106(2)] - N-terminal (ab183498)

SMYD3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-SMYD3 antibody

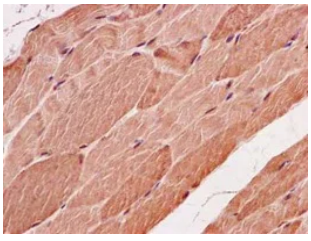
Immunohistochemical analysis of paraffin-embedded Human testis labeling SMYD3 with ab183498 at 1/100 dilution and HRP Polymer for Rabbit IgG. Counterstained with Hematoxylin.
Perform heat mediated antigen retrieval with EDTA buffer pH 9 before commencing with IHC staining protocol.



### Immunocytochemistry/ Immunofluorescence - Anti-SMYD3 antibody [EPR11106(2)] - N-terminal (ab183498)

SMYD3 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-SMYD3 antibody

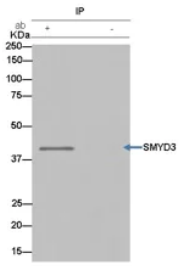
Flow cytometric analysis of HeLa cells fixed in 20 °C acetone labeling SMYD3 at 1/500 dilution and Goat anti rabbit IgG(Alexa Fluor® 555) at 1/200 (red). Counterstained with DAPI (blue)



### Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SMYD3 antibody [EPR11106(2)] - N-terminal (ab183498)

SMYD3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-SMYD3 antibody

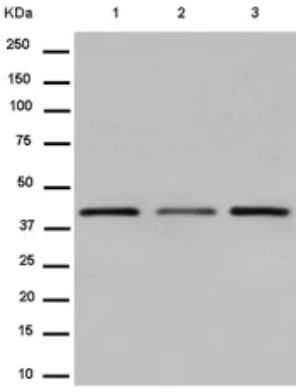
Immunohistochemical analysis of paraffin-embedded Human skeletal muscle labeling SMYD3 at 1/100 dilution and HRP Polymer for Rabbit IgG. Counterstained with Hematoxylin.
Perform heat mediated antigen retrieval with EDTA buffer pH 9 before commencing with IHC staining protocol.




## Immunoprecipitation - Anti-SMYD3 antibody [EPR11106(2)] - N-terminal (ab183498)

Immunoprecipitation of HeLa cells labeling SMYD3 with ab183498 at 1/50 dilution and Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/1500.
All lanes:
Immunoprecipitation - Anti-SMYD3 antibody [EPR11106(2)] - N-terminal (ab183498)

Predicted band size: 49 kDa




## Western blot - Anti-SMYD3 antibody [EPR11106(2)] - N-terminal (ab183498)

All lanes:
Western blot - Anti-SMYD3 antibody [EPR11106(2)] - N-terminal (ab183498) at 1/10000 dilution

Lane 1:
HeLa lysate at 20 µg

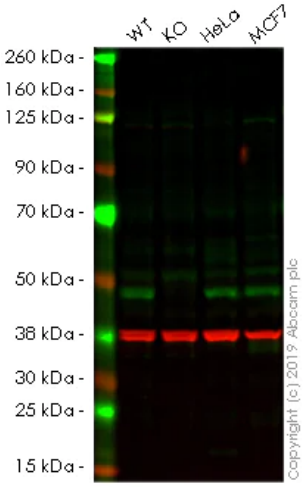
Lane 2:
293 lysate at 20 µg

Lane 3:
T47-D lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size: 49 kDa




## Western blot - Anti-SMYD3 antibody [EPR11106(2)] - N-terminal (ab183498)

SMYD3 Western blot staining using rabbit Anti-SMYD3 antibody

**Lanes 1 - 4:** Merged signal (red and green). Green - ab183498 observed at 49 kDa. Red - loading control, ab8245, observed at 37 kDa.
ab183498 was shown to recognize SMYD3 in wild-type HAP1 cells as signal was lost at the expected MW in SMYD3 knockout cells. Additional cross-reactive bands were observed in the wild-type and knockout cells. Wild-type and SMYD3 knockout samples were subjected to SDS-PAGE. The membrane was blocked with 3% Milk. ab183498 and ab8245 (Mouse anti-GAPDH loading control) were incubated overnight at 4°C at 1/1000 dilution and 1/20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed ab216773 and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed ab216776 secondary antibodies at 1/20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-SMYD3 antibody [EPR11106(2)] - N-terminal (ab183498) at 1/1000 dilution

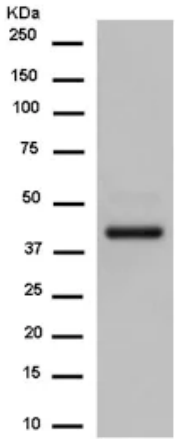
Lane 1:
Wild-type HAP1 whole cell lysate at 20 µg

Lane 2:
SMYD3 knockout HAP1 whole cell lysate at 20 µg

Lane 3:
HeLa whole cell lysate at 20 µg

Lane 4:
MCF7 whole cell lysate at 20 µg

Predicted band size: 49 kDa




## Western blot - Anti-SMYD3 antibody [EPR11106(2)] - N-terminal (ab183498)

SMYD3 Western blot staining of MCF-7 lysate using rabbit Anti-SMYD3 antibody

All lanes:
Western blot - Anti-SMYD3 antibody [EPR11106(2)] - N-terminal (ab183498) at 1/2000 dilution

All lanes:
MCF-7 lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size: 49 kDa

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