abcam

ab271062

# Anti-METTL1 (phospho S27) antibody [EPR24280-9]

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** | EPR24280-9 |
| **Purification technique** | Affinity purification Protein A |
| **Concentration** | 0.547 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## IP

### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/30 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Human |

| | |
|---|---|
| **Dilution info** | 1/30 |
| **Notes** | - |

### Not recommended

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | - |
| **Notes** | - |

## Dot

### Tested

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

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

### Not recommended

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | - |
| **Notes** | - |

## WB

### Tested

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

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

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

### Not recommended

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | - |
| **Notes** | - |

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/50 |
| **Notes** | - |

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

### Not recommended

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | - |
| **Notes** | - |

## Flow Cyt (Intra)

### Tested

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

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

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

### Not recommended

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | - |
| **Notes** | - |

## IHC-P

### Not recommended

| | |
|---|---|
| **Species** | Human, Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## Target data

See full target information METTL1 phospho S27

| | |
|---|---|
| **Function** | Catalytic component of METTL1-WDR4 methyltransferase complex that mediates the formation of N(7)-methylguanine in a subset of RNA species, such as tRNAs, mRNAs and microRNAs (miRNAs) (PubMed:12403464, PubMed:31031083, PubMed:31031084, PubMed:36599982, PubMed:36599985, PubMed:37369656, PubMed:37379838). Catalyzes the formation of N(7)-methylguanine at position 46 (m7G46) in a large subset of tRNAs that contain the 5'-RAGGU-3' motif within the variable loop (PubMed:12403464, PubMed:34352206, PubMed:34352207, PubMed:36599982, PubMed:36599985, PubMed:37369656). M7G46 interacts with C13-G22 in the D-loop to stabilize tRNA tertiary structure and protect tRNAs from decay (PubMed:36599982, PubMed:36599985). Also acts as a methyltransferase for a subset of internal N(7)-methylguanine in mRNAs (PubMed:31031084, PubMed:37379838). Internal N(7)-methylguanine methylation of mRNAs in response to stress promotes their relocalization to stress granules, thereby suppressing their translation (PubMed:31031084, PubMed:37379838). Also methylates a specific subset of miRNAs, such as let-7 (PubMed:31031083). N(7)-methylguanine methylation of let-7 miRNA promotes let-7 miRNA processing by disrupting an inhibitory secondary structure within the primary miRNA transcript (pri-miRNA) (PubMed:31031083). Acts as a regulator of embryonic stem cell self-renewal and differentiation (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

**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** | METTL1 also known as Methyltransferase-Like 1 is an enzyme responsible for catalyzing the methylation of specific substrates. This protein has a molecular mass of approximately 50 kDa. METTL1 is expressed across various tissues but shows higher expression levels in the brain and testes. Its enzymatic activity involves transferring a methyl group through its interaction with S-adenosylmethionine (SAM) to form N7-methylguanosine (m7G) on tRNA molecules which is essential for regulating their stability and function. |
| **Biological function summary** | METTL1 is important in modulating the processes of cellular growth and differentiation. METTL1 forms a complex with WDR4 which assists its function in tRNA modification. This complex is necessary for the precise modification of tRNA ensuring accurate protein synthesis and cellular homeostasis. Investigations reveal METTL1's role in cellular processes such as proliferation and stem cell maintenance highlighting its functional importance in cell cycle control and organismal development. |

| | |
|---|---|
| **Pathways** | METTL1 integrates into significant molecular pathways like mRNA translation and tRNA processing. METTL1 associates with proteins like SAM and FTO within these pathways. The enzyme influences the mTOR signaling pathway which plays a major role in regulating cellular growth and metabolism. Through its methyltransferase activity METTL1 impacts the proper functioning of ribosomes and protein synthesis linking it to the translational control of gene expression. |
| **Associated diseases and disorders** | Research links METTL1 to various cancers including glioblastoma and lung cancer. Aberrant METTL1 expression or activity correlates with tumor progression and malignancy due to its role in altered protein synthesis. METTL1 dysregulation also relates to intellectual disabilities highlighting its importance in brain function. In the context of cancer proteins like mTOR and MYC have been connected to METTL1 by affecting pathways which influence tumor cell survival and proliferation. |

## 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**

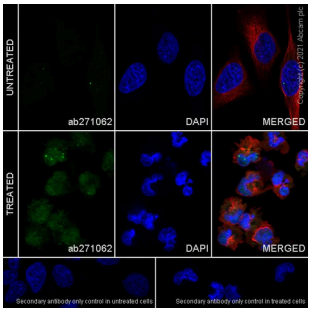
We do not recommend this combination. It is not covered by our product promise.

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.

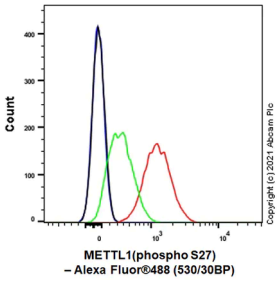
## 10 product images




## Immunocytochemistry/ Immunofluorescence - Anti-METTL1 (phospho S27) antibody [EPR24280-9] (ab271062)

METTL1 (phospho S27) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-METTL1 (phospho S27) antibody

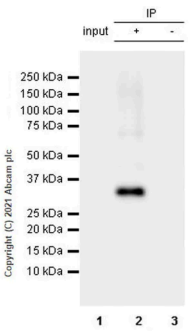
Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized HeLa cells labelling METTL1 (phospho S27) with ab271062 at 1/50 dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 dilution (Green). Confocal image showing increased cytoplasmic and nuclear staining in HeLa cells treated with Calyculin A (100 nM) for 5 min. is observed. ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 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 dilution.




## Flow Cytometry (Intracellular) - Anti-METTL1 (phospho S27) antibody [EPR24280-9] (ab271062)

METTL1 (phospho S27) Flow Cytometry (Intracellular) staining using rabbit Anti-METTL1 (phospho S27) antibody

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized HeLa (human cervix adenocarcinoma epithelial cell) treated with 100nM Calyculin A for 5min (Red) / Untreated control (Green) cells labelling METTL1 (phospho S27) with with ab271062 at 1/500 dilution (0.1ug)/ Red and Green 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-METTL1 (phospho S27) antibody [EPR24280-9] (ab271062)

METTL1 (phospho S27) was immunoprecipitated from 0.35 mg HEK-293T (human embryonic kidney epithelial cell) transfected with an AKT1 expression vector, and treated with 100ng/ml PDGF-AA for 5 minutes then treated with 100 nM Calyculin A for 30 minutes, whole cell lysate with ab271062 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab271062 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP) (ab131366) was used at 1/5000 dilution.
**Lane 1:** HEK-293T (human embryonic kidney epithelial cell) transfected with an AKT1 expression vector, and treated with 100ng/ml PDGF-AA for 5 minutes then treated with 100 nM Calyculin A for 30 minutes, whole cell lysate 10 ug

**Lane 2:** ab271062 IP in HEK-293T transfected with an AKT1 expression vector, and treated with 100ng/ml PDGF-AA for 5 minutes then treated with 100 nM Calyculin A for 30 minutes, whole cell lysate

**Lane 3:** Rabbit monoclonal IgG (ab172730) instead of ab271062 in HEK-293T transfected with an AKT1 expression vector, and treated with 100ng/ml PDGF-AA for 5 minutes then treated with 100 nM Calyculin A for 30 minutes, whole cell lysate

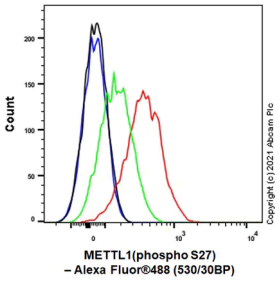
Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 3.25 seconds

All lanes:

Immunoprecipitation - Anti-METTL1 (phospho S27) antibody [EPR24280-9] (ab271062)

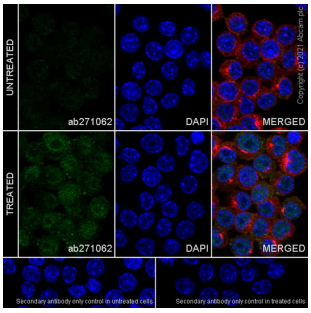
Predicted band size: 31 kDa




## Flow Cytometry (Intracellular) - Anti-METTL1 (phospho S27) antibody [EPR24280-9] (ab271062)

METTL1 (phospho S27) Flow Cytometry (Intracellular) staining using rabbit Anti-METTL1 (phospho S27) antibody

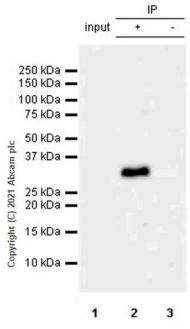
Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized RAW 264.7 (Mouse Abelson murine leukemia virus-induced tumor macrophage) treated with 100nM Calyculin A for 5min (Red) / Untreated control (Green) cells labelling METTL1 (phospho S27) with ab271062 at 1/500 dilution (0.1ug)/ Red and Green 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.




## Immunocytochemistry/ Immunofluorescence - Anti-METTL1 (phospho S27) antibody [EPR24280-9] (ab271062)

METTL1 (phospho S27) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-METTL1 (phospho S27) antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized RAW 264.7 cells labelling METTL1 (phospho S27) with ab271062 at 1/50 dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 dilution (Green). Confocal image showing increased cytoplasmic and nuclear staining in RAW 264.7 cells treated with Calyculin A (100 nM) for 5 min. is observed. ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 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 dilution.




## Immunoprecipitation - Anti-METTL1 (phospho S27) antibody [EPR24280-9] (ab271062)

METTL1 (phospho S27) was immunoprecipitated from 0.35 mg RAW264.7 (mouse Abelson murine leukemia virus-induced tumor macrophage) treated with 100 nM Calyculin A for 30 minutes, whole cell lysate with ab271062 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab271062 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP)(ab131366) was used at 1/5000 dilution.
**Lane 1:** RAW264.7 (mouse Abelson murine leukemia virus-induced tumor macrophage) treated with 100 nM Calyculin A for 30 minutes, whole cell lysate 10 ug

**Lane 2:** ab271062 IP in RAW264.7 treated with 100 nM Calyculin A for 30 minutes, whole cell lysate

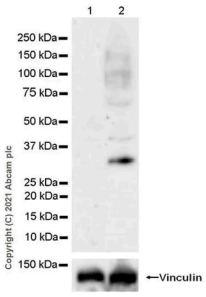
**Lane 3:** Rabbit monoclonal IgG (ab172730) instead of ab271062 in RAW264.7 treated with 100 nM Calyculin A for 30 minutes, whole cell lysate

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

Exposure time: 50 seconds

All lanes:
Immunoprecipitation - Anti-METTL1 (phospho S27) antibody [EPR24280-9] (ab271062)

Predicted band size: 31 kDa




## Western blot - Anti-METTL1 (phospho S27) antibody [EPR24280-9] (ab271062)

METTL1 (phospho S27) Western blot staining using rabbit Anti-METTL1 (phospho S27) antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST
Exposure time: 3 minutes

All lanes:
Western blot - Anti-METTL1 (phospho S27) antibody [EPR24280-9] (ab271062) at 1/1000 dilution

Lane 1:
Untreated HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

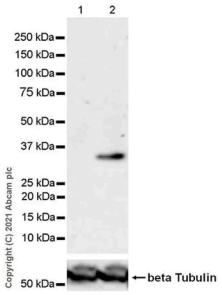
Lane 2:
HeLa treated with 100 nM Calycin A for 30 minutes, whole cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1/20000 dilution

Predicted band size: 31 kDa

Observed band size: 31 kDa




## Western blot - Anti-METTL1 (phospho S27) antibody [EPR24280-9] (ab271062)

METTL1 (phospho S27) Western blot staining using rabbit Anti-METTL1 (phospho S27) antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST
Exposure time: 3 minutes

All lanes:
Western blot - Anti-METTL1 (phospho S27) antibody [EPR24280-9] (ab271062) at 1/1000 dilution

Lane 1:
Untreated RAW264.7 (mouse Abelson murine leukemia virus-induced tumor macrophage) whole cell lysate at 20 µg

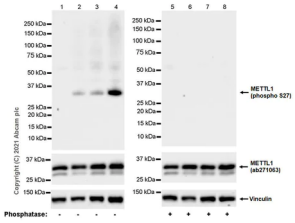
Lane 2:
RAW264.7 treated with 100 nM Calycin A for 30 minutes, whole cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1/20000 dilution

Predicted band size: 31 kDa

Observed band size: 31 kDa




## Western blot - Anti-METTL1 (phospho S27) antibody [EPR24280-9] (ab271062)

Blocking and diluting buffer and concentration: 5% NFDM/TBSTAKT1 in lane 4 and lane 8 act as a kinase to active METTL1 (phospho S27).
Exposure time: 26 seconds

All lanes:
Western blot - Anti-METTL1 (phospho S27) antibody [EPR24280-9] (ab271062) at 1/1000 dilution

Lane 1:
HEK-293T (human embryonic kidney epithelial cell) whole cell lysate (Untreated membrane) at 20 µg

Lane 2:
HEK-293T treated with 100 nM Calycin A for 30 minutes, whole cell lysate (Untreated membrane) at 20 µg

Lane 3:
HEK-293T treated with /ml PDGF-AA for 5 minutes then treated with 100 nM Calyculin A for 30 minutes, whole cell lysate (Untreated membrane) at 20 µg

Lane 4:
HEK-293T transfected with an AKT1 expression vector, and treated with 100 ng/ml PDGF-AA for 5 minutes then treated with 100 nM Calyculin A for 30 minutes, whole cell lysate (Untreated membrane) at 20 µg

Lane 5:
HEK-293T whole cell lysate (phosphatase treated membrane) at 20 µg

Lane 6:

HEK-293T treated with 100 nM Calycin A for 30 minutes, whole cell lysate (phosphatase treated membrane) at 20 µg

Lane 7:
HEK-293T treated with /ml PDGF-AA for 5 minutes then treated with 100 nM Calyculin A for 30 minutes, whole cell lysate (phosphatase treated membrane) at 20 µg

Lane 8:
HEK-293T transfected with an AKT1 expression vector, and treated with /ml PDGF-AA for 5 minutes then treated with 100 nM Calyculin A for 30 minutes, whole cell lysate (phosphatase treated membrane) at 20 µg

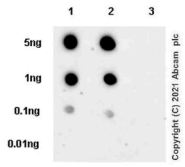
Secondary

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

Predicted band size: 31 kDa

Observed band size: 31 kDa

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## Dot Blot - Anti-METTL1 (phospho S27) antibody [EPR24280-9] (ab271062)

METTL1 (phospho S27) Dot Blot staining using rabbit Anti-METTL1 (phospho S27) antibody

Dot blot analysis of METTL1 (phospho S27) using ab271062 at 1:1000 (0.547 ug/ml) followed by a Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1:100,000 dilution.

Exposure time: 3 minutes

Blocking and diluting buffer and concentration: 5% NFDM/TBST

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