abcam

# ab189891

# Anti-ENO1 + ENO2 + ENO3 antibody [EPR18407]

Recombinant | RabMAb

## 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** | EPR18407 |
| **Purification technique** | Affinity purification Protein A |
| **Concentration** | 0.277 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## WB

### Tested

| | |
|---|---|
| **Species** | Recombinant full length protein - Human |
| **Dilution info** | 1/1000 |
| **Notes** | - |

| | |
|---|---|
| **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** | - |

### Not recommended

| | |
|---|---|
| **Species** | Recombinant full length protein - Human |
| **Dilution info** | - |
| **Notes** | - |

## Flow Cyt (Intra)

### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/70 |
| **Notes** | - |

### Expected

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

### Not recommended

| | |
|---|---|
| **Species** | Recombinant full length protein - Human |
| **Dilution info** | - |
| **Notes** | - |

## Target data

See full target information ENO1

**Function** Enolase that catalyzes the conversion of 2-phosphoglycerate to phosphoenolpyruvate in glycolysis and the reverse reaction in gluconeogenesis (PubMed:1369209, PubMed:29775581). Also involved in various processes such as growth control, hypoxia tolerance and allergic responses (PubMed:10802057, PubMed:12666133, PubMed:2005901, PubMed:29775581). May also function in the intravascular and pericellular fibrinolytic system due to its ability to serve as a receptor and activator of plasminogen on the cell surface of several cell-types such as leukocytes and neurons (PubMed:12666133). Stimulates immunoglobulin production (PubMed:1369209). Isoform MBP-1. Binds to the myc promoter and acts as a transcriptional repressor. May be a tumor suppressor.

## 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** | ENO1 ENO2 and ENO3 also known as alpha gamma and beta enolase are isoenzymes involved in the glycolytic pathway. Each enolase isoenzyme offers specific mechanical functions in this energy-producing process. ENO1 has an approximate mass of 47 kDa and is widely expressed in most tissues. ENO2 similar in size is primarily found in neural and neuroendocrine tissues. ENO3 also roughly 47 kDa predominantly expresses in muscle tissue. These proteins catalyze the reversible conversion of 2-phosphoglycerate to phosphoenolpyruvate playing an important role in glycolysis. |
| **Biological function summary** | The enolase family of isoenzymes acts as multifunctional catalysts and has roles beyond glycolysis. ENO1 serves as a plasminogen receptor on cell surfaces assisting in tissue remodeling and immune response. ENO2 often referred to as neuron-specific enolase (NSE) functions importantly in neural development and tumor cell metabolism. ENO3 or muscle-specific enolase contributes to muscle metabolism and energy turnover. While these proteins individually carry out essential tasks they also form a complex that facilitates efficient energy production and cellular regulation. |
| **Pathways** | The enolase enzymes integrate in the glycolytic and gluconeogenesis pathways central to energy metabolism. Glycolysis involves other key proteins like |

| | |
|---|---|
| | hexokinase and phosphofructokinase cooperating for glucose breakdown and energy release. In gluconeogenesis the enolases help generate glucose from non-carbohydrate sources important during fasting or intense exercise. Their activity along with related proteins impacts the efficiency and regulation of energy metabolism pathways. |
| **Associated diseases and disorders** | Enolase dysregulation associates with conditions like cancer and neuromuscular diseases. Elevated ENO2 levels often serve as a biomarker for neuroendocrine tumors and a target for cancer therapies. ENO3 mutations link to muscle metabolic disorders including glycogen storage diseases. ENO1 interaction with proteins such as plasminogen can influence cancer cell invasion and metastasis highlighting its relevance in disease progression and potential therapeutic interventions. |

## 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**

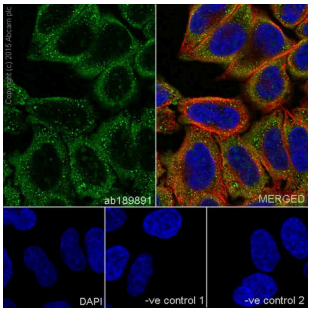
We do not recommend this combination. It is not covered by our product promise.

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.

## 7 product images




## Immunocytochemistry/ Immunofluorescence - Anti-ENO1 + ENO2 + ENO3 antibody [EPR18407] (ab189891)

ENO1 + ENO2 + ENO3 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-ENO1 + ENO2 + ENO3 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed 0.1% Triton X-100 permeabilized HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling ENO1 + ENO2 + ENO3 with ab189891 at 1/500 dilution followed by Goat Anti-Rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green).
Confocal image showing mostly cytoplasmic staining on Hela cells.

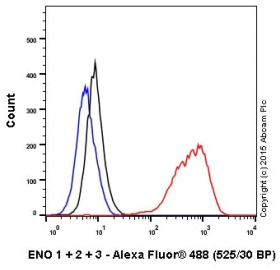
The nuclear counterstain is DAPI (blue).

Tubulin is detected with Anti-alpha Tubulin - Loading Control (ab7291) at 1/1000 dilution and Goat Anti-Mouse IgG (AlexaFluor®594) preadsorbed (ab150120) at 1/1000 dilution (red).

The negative controls are as follows:-

-ve control 1: ab189891 at 1/500 dilution followed by ab150120 at 1/1000 dilution.

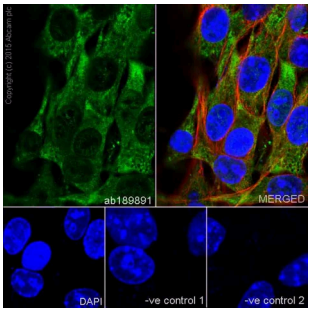
-ve control 2: ab7291 at 1/1000 dilution followed by ab150077 at 1/1000 dilution.




## Flow Cytometry (Intracellular) - Anti-ENO1 + ENO2 + ENO3 antibody [EPR18407] (ab189891)

ENO1 + ENO2 + ENO3 Flow Cytometry (Intracellular) staining using rabbit Anti-ENO1 + ENO2 + ENO3 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed NIH/3T3 (Mouse embryonic fibroblast cell line) labeling ENO1 + ENO2 + ENO3 with ab189891 at 1/70 dilution (red) compared with a Rabbit IgG,monoclonal- Isotype control (ab172730) (black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat anti Rabbit IgG (Alexa Fluor® 488) at 1/500 dilution was used as the secondary antibody.




## Immunocytochemistry/ Immunofluorescence - Anti-ENO1 + ENO2 + ENO3 antibody [EPR18407] (ab189891)

ENO1 + ENO2 + ENO3 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-ENO1 + ENO2 + ENO3 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed 0.1% Triton X-100 permeabilized NIH/3T3 (Mouse embryonic fibroblast cell line) cells labeling ENO1 + ENO2 + ENO3 with ab189891 at 1/500 dilution followed by Goat Anti-Rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green).
Confocal image showing mostly cytoplasmic staining on NIH/3T3 cells.

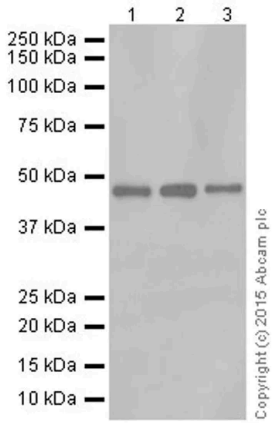
The nuclear counterstain is DAPI (blue).

Tubulin is detected with Anti-alpha Tubulin antibody -Loading Control (ab7291) at 1/1000 dilution and Goat Anti-Mouse IgG (AlexaFluor®594) preadsorbed (ab150120) at 1/1000 dilution (red).

The negative controls are as follows:-

-ve control 1: ab189891 at 1/500 dilution followed by ab150120 at 1/1000 dilution.

-ve control 2: ab7291 at 1/1000 dilution followed by ab150077 at 1/1000 dilution.




## Western blot - Anti-ENO1 + ENO2 + ENO3 antibody [EPR18407] (ab189891)

ENO1 + ENO2 + ENO3 Western blot staining using rabbit Anti-ENO1 + ENO2 + ENO3 antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
Human ENO1 full length recombinant protein (Cat#:ab89248) contains aa1-434. Human ENO2 full length recombinant protein contains aa1-434 with a His-Tag®. Human ENO3 full length recombinant protein(Cat#:ab113127) contains aa1-434 with a His-Tag®. Human ENO2 full length recombinant protein was made in-house.

All lanes:
Western blot - Anti-ENO1 + ENO2 + ENO3 antibody [EPR18407] (ab189891) at 1/1000 dilution

Lane 1:
Human ENO1 full length recombinant protein at 0.02 µg

Lane 2:
Human ENO2 full length recombinant protein at 0.02 µg

Lane 3:
Human ENO3 full length recombinant protein at 0.02 µg

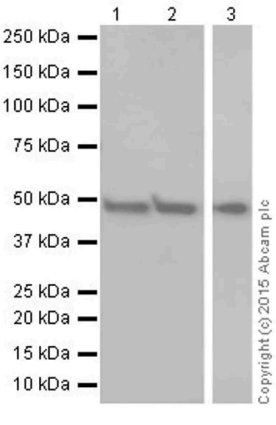
Secondary

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

Predicted band size: 47 kDa

Observed band size: 47 kDa

Exposure time: 5s




## Western blot - Anti-ENO1 + ENO2 + ENO3 antibody [EPR18407] (ab189891)

ENO1 + ENO2 + ENO3 Western blot staining using rabbit Anti-ENO1 + ENO2 + ENO3 antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
**Exposure time :** Lane 1 and 2: 5 seconds; Lane 3: 15 seconds.

All lanes:
Western blot - Anti-ENO1 + ENO2 + ENO3 antibody [EPR18407] (ab189891) at 1/1000 dilution

Lane 1:
Human fetal heart lysate at 10 µg

Lane 2:
Human fetal kidney lysate at 10 µg

Lane 3:
Human fetal spleen lysate at 10 µg

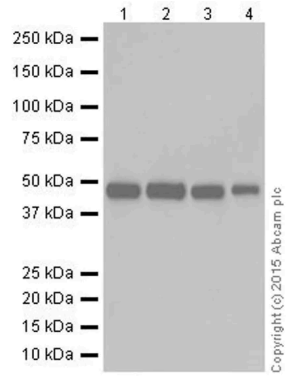
Secondary

All lanes:

Goat Anti-Rabbit IgG Peroxidase Conjugate, specific to the non-reduced form of IgG at 1/10000 dilution

Predicted band size: 47 kDa

Observed band size: 47 kDa




## Western blot - Anti-ENO1 + ENO2 + ENO3 antibody [EPR18407] (ab189891)

ENO1 + ENO2 + ENO3 Western blot staining using rabbit Anti-ENO1 + ENO2 + ENO3 antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-ENO1 + ENO2 + ENO3 antibody [EPR18407] (ab189891) at 1/5000 dilution

Lane 1:
HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate at 20 µg

Lane 2:
Jurkat (Human T cell leukemia cell line from peripheral blood) whole cell lysate at 20 µg

Lane 3:
MCF7 (Human breast adenocarcinoma cell line) whole cell lysate at 20 µg

Lane 4:
A431 (Human epidermoid carcinoma cell line) whole cell lysate at 20 µg

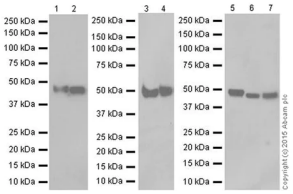
Secondary

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

Predicted band size: 47 kDa

Observed band size: 47 kDa

Exposure time: 3s




## Western blot - Anti-ENO1 + ENO2 + ENO3 antibody [EPR18407] (ab189891)

ENO1 + ENO2 + ENO3 Western blot staining using rabbit Anti-ENO1 + ENO2 + ENO3 antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
**Exposure time :** Lane 1-4: 5 seconds; Lane 5-7: 1 second.

Lanes 1 - 4:
Western blot - Anti-ENO1 + ENO2 + ENO3 antibody [EPR18407] (ab189891) at 1/1000 dilution

Lanes 5 - 7:
Western blot - Anti-ENO1 + ENO2 + ENO3 antibody [EPR18407] (ab189891) at 1/5000 dilution

Lane 1:
Mouse brain tissue lysate at 10 µg

Lane 2:
Mouse heart tissue lysate at 10 µg

Lane 3:
Rat brain tissue lysate at 10 µg

Lane 4:
Rat heart tissue lysate at 10 µg

Lane 5:
C6 (Rat glial tumor cell line) whole cell lysate at 10 µg

Lane 6:
RAW 264.7 (Mouse macrophage cell line transformed with Abelson murine leukemia virus) whole cell lysate at 10 µg

Lane 7:
NIH/3T3 (Mouse embryonic fibroblast cell line) whole cell lysate at 10 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/10000 dilution

Predicted band size: 47 kDa

Observed band size: 47 kDa

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