abcam

ab76228

# Anti-Estrogen Related Receptor alpha antibody [EPR46Y]

Anti-Estrogen Related Receptor alpha antibody [EPR46Y] (ab76228) is a rabbit monoclonal antibody detecting Estrogen Related Receptor alpha in **Western Blot, Flow Cytometry, IP**. Suitable for **Human, Mouse, Rat**.

- KO validated for confirmed specificity
- Biophysical QC for unrivalled batch-batch consistency
- Over 40 publications
- Trusted since 2009

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** | EPR46Y |
| **Purification technique** | Affinity purification Protein A |
| **Concentration** | 0.115 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

### IP

**Tested**

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/20 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/20 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | 1/20 |
| **Notes** | - |

## Flow Cyt

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/20 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/20 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | 1/20 |
| **Notes** | - |

## WB

### Tested

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

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

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

## Target data

See full target information ESRRA

| | |
|---|---|
| **Function** | Binds to an ERR-alpha response element (ERRE) containing a single consensus half-site, 5'-TNAAGGTCA-3'. Can bind to the medium-chain acyl coenzyme A dehydrogenase (MCAD) response element NRRE-1 and may act as an important regulator of MCAD promoter. Binds to the C1 region of the lactoferrin gene promoter. Requires dimerization and the coactivator, PGC-1A, for full activity. The ERRalpha/PGC1alpha complex is a regulator of energy metabolism. Induces the expression of PERM1 in the skeletal muscle. |

## Storage

| | |
|---|---|
| **Shipped at conditions** | Conditional Ambient |
| **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-Estrogen Related Receptor alpha antibody [EPR46Y] (ab76228) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunoprecipitation (IP) in Human, Mouse, Rat samples.

**What is the molecular weight of Estrogen Related Receptor alpha?**
Anti-Estrogen Related Receptor alpha [EPR46Y] (ab76228) specifically detects a band for Estrogen Related Receptor

alpha (UniProt: P11474) at a molecular weight of 55kDa.

**Trusted by the scientific community**
Anti-Estrogen Related Receptor alpha [EPR46Y] (ab76228) was first used in a scientific publication in 2009 and has been cited over 40 times in peer-reviewed journals.

**Specificity confirmed**
The specificity of Anti-Estrogen Related Receptor alpha antibody [EPR46Y] (ab76228) has been confirmed by Western blot testing in ESRRA Knockout HAP1 cells.

**Other related products**
We have a range of other formats of antibody clone [EPR46Y] also available for your convenience: ab76228, Carrier free - ab239879, Alexa Fluor® 488 - ab320364, Alexa Fluor® 647 - ab320365, PE - ab320366, APC - ab320367

**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.

## Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

| | |
|---|---|
| **Activity summary** | Estrogen Related Receptor Alpha (ERRα) also known as NR3B1 is an orphan nuclear receptor with a molecular mass of approximately 51 kDa. It acts as a transcription factor and influences the expression of genes involved in energy metabolism. ERRα is expressed in numerous tissues such as the liver heart kidney and skeletal muscles. It binds to DNA as a monomer and alters specific gene expression activities. This protein lacks an identified ligand which classifies it as an orphan receptor but it shares structural similarities with estrogen receptors allowing the regulation of gene transcription in several physiological contexts. |
| **Biological function summary** | Estrogen Related Receptor Alpha regulates cellular energy production processes including mitochondrial biogenesis and oxidative phosphorylation. It plays a role in the biological function of energy homeostasis and increases the expression of genes related to metabolic processes. ERRα operates as part of a transcriptional regulatory network and interacts with other nuclear receptors and coactivators to modulate its activity. It often forms complexes with coactivators such as |

| | |
|---|---|
| | peroxisome proliferator-activated receptor gamma coactivator 1-alpha (PGC-1α) to exert its effects on mitochondrial function. |
| **Pathways** | ERRα is integral to the PGC-1α signaling pathway and the AMPK (AMP-activated protein kinase) signaling pathway. These pathways are important in regulating energy metabolism and adaptive thermogenesis. ERRα interacts with PGC-1α to enhance mitochondrial function and energy expenditure while AMPK activation affects ERRα transcriptional activity and facilitates cellular energy balance. Additionally ERRα cross-talks with other nuclear receptors like PPAR (peroxisome proliferator-activated receptor) family members which are involved in lipid metabolism and glucose homeostasis. |
| **Associated diseases and disorders** | ERRα has implications in metabolic conditions such as diabetes and obesity. The protein links to diabetes through its role in mitochondrial dysfunction and insulin resistance. Obesity-related studies point out how ERRα affects adaptive thermogenesis and lipid metabolism contributing to energy imbalance. ERRα-PPAR interactions highlight its association in metabolic disorders influencing various aspects of metabolism and disease progression. Understanding ERRα function offers therapeutic potential for targeting metabolic diseases. |

## 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**

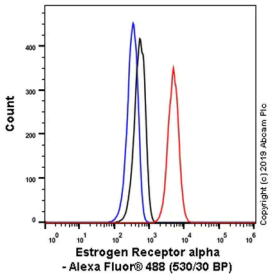
We do not recommend this combination. It is not covered by our product promise.

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.

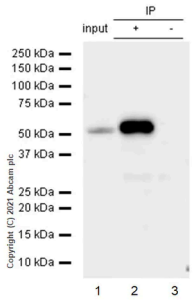
## 6 product images




## Flow Cytometry - Anti-Estrogen Related Receptor alpha antibody [EPR46Y] (ab76228)

Estrogen Related Receptor alpha Flow Cytometry staining using rabbit Anti-Estrogen Related Receptor alpha antibody

Flow cytometric analysis of 4% Paraformaldehyde fixed 90% Methanol permeabilized HeLa (Human cervix adenocarcinoma epithelial cell) cells labelling Estrogen Receptor alpha with ab76228 at 1/20 dilution (10 µg/ml) compared with a Rabbit monoclonal IgG (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, ab150077) at 1/2000 was used as the secondary antibody.

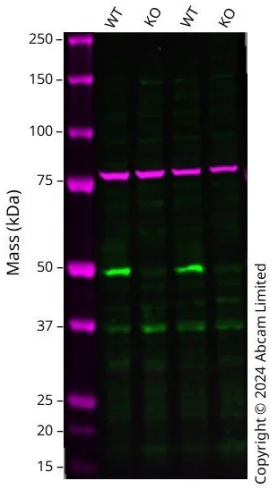



## Immunoprecipitation - Anti-Estrogen Related Receptor alpha antibody [EPR46Y] (ab76228)

ab76228 used at 1:20 dilution (2µg) immunoprecipitating Estrogen Related Receptor alpha in Hela whole cell lysates.
Lane 1 (input): HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate 10µg.
Lane 2 (+): HeLa whole cell lysate.
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab190685 in HeLa whole cell lysate.
For western blotting, ab227648 and VeriBlot for IP Detection Reagent (HRP)(ab131366) at 1/1000 dilution were used.

All lanes:
Immunoprecipitation - Anti-Estrogen Related Receptor alpha antibody [EPR46Y] (ab76228)

Predicted band size: 46 kDa




## Western blot - Anti-Estrogen Related Receptor alpha antibody [EPR46Y] (ab76228)

Estrogen Related Receptor alpha Western blot staining using rabbit Anti-Estrogen Related Receptor alpha antibody

Western blot: Anti-ESRRA antibody [EPR46Y] (ab76228) staining at 1/2000 dilution, shown in green; Mouse anti-CANX [CANX/1543] (ab238078) loading control staining at 1/20000 dilution, shown in magenta. In Western blot, ab76228 was shown to bind specifically to ESRRA. A band was observed at 46 kDa in wild-type MCF7 cell lysates with no signal observed at this size in ESRRA knockout cell line. To generate this image, wild-type and ESRRA knockout MCF7 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3 % milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution.
All lanes:
Western blot - Anti-Estrogen Related Receptor alpha antibody [EPR46Y] (ab76228) at 1/2000 dilution

Lane 1:
Wild-type MCF7 cell lysate at 20 µg

Lane 2:
ESRRA knockout MCF7 cell lysate at 20 µg

Lane 3:
Wild-type HAP1 cell lysate at 20 µg

Lane 4:
ESRRA knockout HAP1 cell lysate at 20 µg

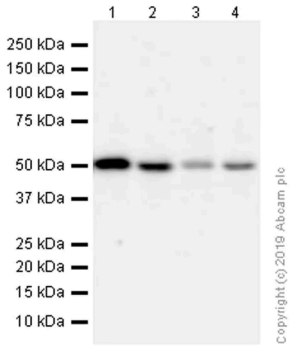
Secondary

Lanes 1 - 4:
Goat anti-Rabbit IgG H&L 800CW at 1/20000 dilution

Lanes 1 - 4:
Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution

Performed under reducing conditions.

Observed band size: 46 kDa




## Western blot - Anti-Estrogen Related Receptor alpha antibody [EPR46Y] (ab76228)

Estrogen Related Receptor alpha Western blot staining using rabbit Anti-Estrogen Related Receptor alpha antibody

All lanes:
Western blot - Anti-Estrogen Related Receptor alpha antibody [EPR46Y] (ab76228) at 1/1000 dilution

Lane 1:
MCF7 (Human breast adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
Mouse brain lysate at 20 µg

Lane 3:
Mouse kidney lysate at 20 µg

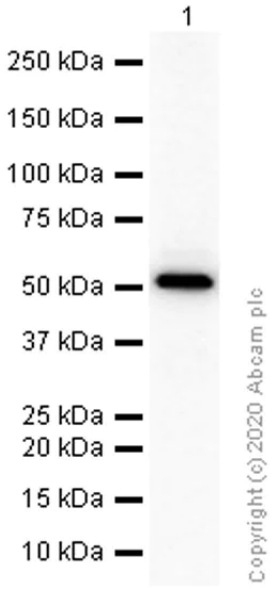
Lane 4:
Rat brain lysate at 20 µg

Secondary

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

Predicted band size: 46 kDa

Observed band size: 55 kDa




## Western blot - Anti-Estrogen Related Receptor alpha antibody [EPR46Y] (ab76228)

Estrogen Related Receptor alpha Western blot staining of HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate using rabbit Anti-Estrogen Related Receptor alpha antibody

All lanes:
Western blot - Anti-Estrogen Related Receptor alpha antibody [EPR46Y] (ab76228) at 1/1000 dilution

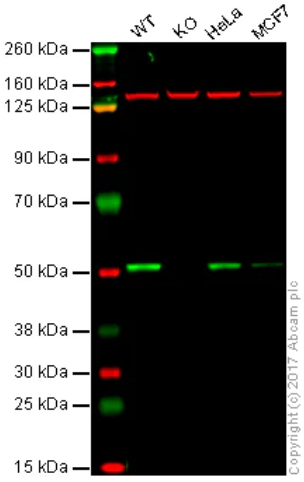
All lanes:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate at 15 µg

Secondary

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

Predicted band size: 46 kDa

Observed band size: 55 kDa




## Western blot - Anti-Estrogen Related Receptor alpha antibody [EPR46Y] (ab76228)

Estrogen Related Receptor alpha Western blot staining using rabbit Anti-Estrogen Related Receptor alpha antibody

**Lane 1:** Wild-type HAP1 whole cell lysate (20 µg)
**Lane 2:** Estrogen Related Receptor alpha knockout HAP1 whole cell lysate (20 µg)
**Lane 3:** HeLa whole cell lysate (20 µg)
**Lane 4:** MCF7 whole cell lysate (20 µg)
**Lanes 1 - 4:** Merged signal (red and green). Green - ab76228 observed at 55 kDa. Red - loading control, ab18058, observed at 130 kDa.

ab76228 was shown to specifically react with Estrogen Related Receptor alpha in wild-type HAP1 cells as signal was lost in Estrogen Related Receptor alpha knockout cells. Wild-type and Estrogen Related Receptor alpha knockout samples were subjected to SDS-PAGE. ab76228 and ab18058 (Mouse anti-Vinculin 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 1/10000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Estrogen Related Receptor alpha antibody [EPR46Y] (ab76228)

Predicted band size: 46 kDa

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