abcam

ab108398

Anti-Estrogen Receptor alpha antibody [EPR4097]

Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398) is a rabbit monoclonal antibody detecting Estrogen Receptor alpha in **Western Blot, Flow Cytometry (Intra), IHC-P, IHC-Fr, ICC/IF**. Suitable for **Human**.

- Biophysical QC for unrivalled batch-batch consistency
- Over 40 publications

Lab Essentials | Recombinant | RabMAb | Advanced Validation | 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	EPR4097
Purification technique	Affinity purification Protein A
Specificity	Expression levels of ER alpha protein vary with sample type.
Concentration	1.174 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/1000 - 1/10000
Notes	**For unpurified use at 1/200 - 1/1000.**

ChIC/CUT&RUN-seq

Tested

Species	Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/250
Notes	**For unpurified use at 1/30.**

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

IHC-Fr

Tested

Species	Human
Dilution info	5 µg/mL
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/250
Notes	**For unpurified use at 1/30.** Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information ESR1

Function	Nuclear hormone receptor. The steroid hormones and their receptors are involved in the regulation of eukaryotic gene expression and affect cellular proliferation and differentiation in target tissues. Ligand-dependent nuclear transactivation involves either direct homodimer binding to a palindromic estrogen response element (ERE) sequence or association with other DNA-binding transcription factors, such as AP-1/c-Jun, c-Fos, ATF-2, Sp1 and Sp3, to mediate ERE-independent signaling. Ligand binding induces a conformational change allowing subsequent or combinatorial association with multiprotein coactivator complexes through LXXLL motifs of their respective components. Mutual transrepression occurs between the estrogen receptor (ER) and NF-kappa-B in a cell-type specific manner. Decreases NF-kappa-B DNA-binding activity and inhibits NF-kappa-B-mediated transcription from the IL6 promoter and displace RELA/p65 and associated coregulators from the promoter. Recruited to the NF-kappa-B response element of the CCL2 and IL8 promoters and can displace CREBBP. Present with NF-kappa-B components RELA/p65 and NFKB1/p50 on ERE sequences. Can also act synergistically with NF-kappa-B to activate transcription involving respective recruitment adjacent response elements; the function involves CREBBP. Can activate the transcriptional activity of TFF1. Also mediates membrane-initiated estrogen signaling involving various kinase cascades. Essential for MTA1-mediated transcriptional regulation of BRCA1 and BCAS3 (PubMed:17922032). Maintains neuronal survival in response to ischemic reperfusion injury when in the presence of circulating estradiol (17-beta-estradiol/E2) (By similarity). Isoform 3. Involved in activation of NOS3 and endothelial nitric oxide production (PubMed:21937726). Isoforms lacking one or several functional domains are thought to modulate transcriptional activity by competitive ligand or DNA binding and/or heterodimerization with the full-length receptor (PubMed:10970861). Binds to ERE and inhibits isoform 1 (PubMed:10970861).

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	Stable for 12 months at -20°C

Notes

What is this antibody validated in?
Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunohistochemistry (IHC-P), Immunohistochemistry (IHC-Fr), Immunocytochemistry/immunofluorescence (ICC/IF) in Human samples.

What is the molecular weight of Estrogen Receptor alpha?
Anti-Estrogen Receptor alpha [EPR4097] (ab108398) specifically detects a band for Estrogen Receptor alpha (UniProt: P03372) at a molecular weight of 66kDa.

Trusted by the scientific community
Anti-Estrogen Receptor alpha [EPR4097] (ab108398) was first used in a scientific publication in 2011 and has been cited over 40 times in peer-reviewed journals.

Reviewed by scientists
Anti-Estrogen Receptor alpha [EPR4097] (ab108398) has over 10 independent reviews from customers.

Other related products
We have a range of other formats of antibody clone [EPR4097] also available for your convenience: ab108398, Carrier free - ab167610, Alexa Fluor® 647 - ab205851, Alexa Fluor® 594 - ab207046, Alexa Fluor® 555 - ab279333

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 Receptor alpha also known as ERα or ESR1 is a nuclear receptor that acts as a transcription factor when activated by its ligand estrogen. Its molecular weight is approximately 66 kDa. ERα is expressed in various tissues such as breast tissue endometrium and ovarian cells as well as some areas of the central nervous system. The ERα protein binds to specific DNA sequences called estrogen response elements to regulate the transcription of target genes. Tools like ER alpha ELISA and assays using alpha peptides help to study this receptor.
Biological function summary	ERα plays a significant role in the regulation of estrogen signaling. Estrogens binding to ERα activate the receptor which can form a homodimer or heterodimer complex with other proteins like coactivators or corepressors. This complex then modulates the transcription of genes involved in cell growth proliferation and differentiation. ERα is closely linked with processes like reproductive tissue development and maintenance.
Pathways	ERα is involved in the estrogen signaling pathway and the cell cycle regulation pathway. In the estrogen signaling pathway ERα works together with proteins such as coactivators which enhance gene transcription and corepressors which can inhibit transcription. In the context of cell cycle regulation ERα's interactions with other cell cycle proteins help control cell division and proliferation linking ERα activity to the progression through different stages of the cell cycle.
Associated diseases and disorders	ERα's dysregulation has been implicated in breast cancer and osteoporosis. ERα overexpression or mutations can lead to oncogenic effects in breast cancer making it a prominent therapeutic target. Drugs that modulate ERα activity like selective estrogen receptor modulators (SERMs) are used in breast cancer treatment. In osteoporosis ERα is related to bone density regulation with its activity affecting bone resorption and formation. Relationships between ERα and other proteins such as those involved in hormone signaling pathways impact these disease mechanisms.

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

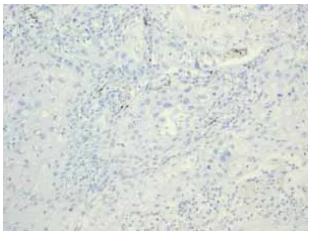
We do not recommend this combination. It is not covered by our product promise.

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.

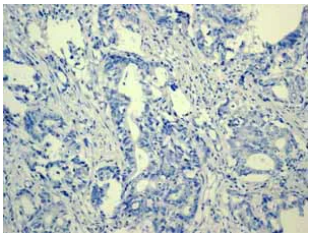
17 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398)

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

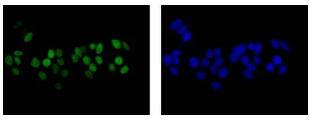
Immunohistochemistry (Formalin/PFA-fixed parffin-embedded sections) analysis of human lung adenocarcinoma tissue. Unpurified ab108398 shows negative staining.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398)

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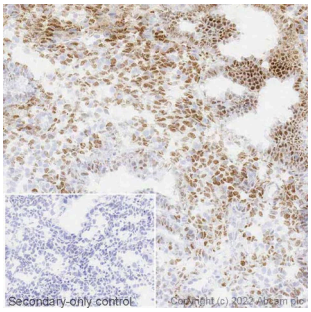
Immunohistochemistry (Formalin/PFA-fixed parffin-embedded sections) analysis of human colonic adenocarcinoma tissue. Unpurified ab108398 shows negative staining.



Immunocytochemistry/ Immunofluorescence - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398)

Estrogen Receptor alpha Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Estrogen Receptor alpha antibody

Immunocytochemsitry/Immunofluorescence analysis of MCF-7 cells labelling Estrogen Receptor alpha (green) with purified ab108398 at 1/200. Cells were fixed with 4% paraformaldehyde. An Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/200) was used as the secondary antibody. Counterstained with DAPI (blue).

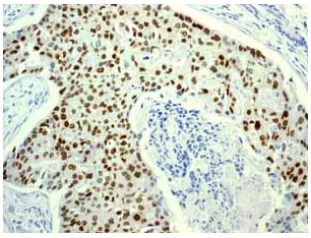


Immunohistochemistry (Frozen sections) - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398)

Estrogen Receptor alpha Immunohistochemistry (Frozen sections) staining using rabbit Anti-Estrogen Receptor alpha antibody

IHC image of Estrogen Receptor alpha staining in a section of frozen human uterus* performed on a Leica Biosystems BOND® RX instrument using the standard protocol. The section was fixed in 10% paraformaldehyde (10 min) prior to staining. The section was incubated with ab108398, 5 ug/ml, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX. The inset secondary-only control image is taken from an identical assay without primary antibody.
For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.

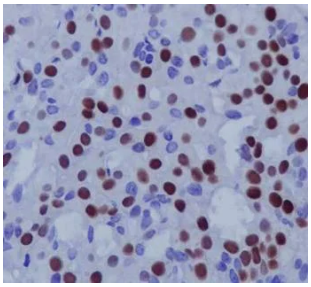
*Tissue obtained from the Human Research Tissue Bank, supported by the NIHR Cambridge Biomedical Research Centre.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398)

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

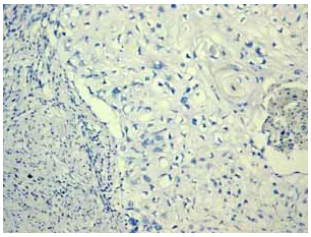
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human breast ductal infiltrating carcinoma tissue labelling Estrogen Receptor alpha with unpurified ab108398.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398)

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

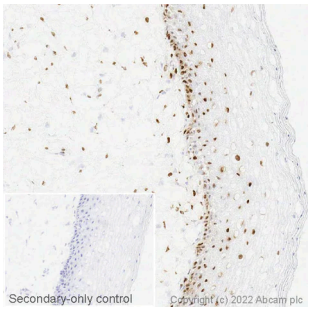
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human breast tissue labelling Estrogen Receptor alpha with purified ab108398 at 1/250. Heat mediated antigen retrieval was performed using Tris/EDTA buffer pH 9. A prediluted HRP-polymer conjugated anti-rabbit IgG was used as the secondary antibody. Counterstained with Hematoxylin.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398)

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

Immunohistochemistry (Formalin/PFA-fixed parffin-embedded sections) analysis of human cervical carcinoma tissue. Unpurified ab108398 shows negative staining.

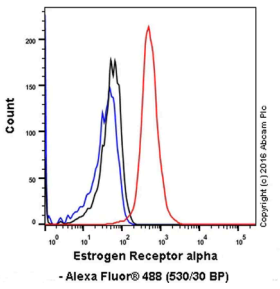


Immunohistochemistry (Frozen sections) - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398)

Estrogen Receptor alpha Immunohistochemistry (Frozen sections) staining using rabbit Anti-Estrogen Receptor alpha antibody

IHC image of Estrogen Receptor alpha staining in a section of frozen human cervix* performed on a Leica Biosystems BOND® RX instrumen using the standard protocol. The section was fixed in 10% paraformaldehyde (10 min) prior to staining. The section was incubated with ab108398, 5 ug/ml, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX. The inset secondary-only control image is taken from an identical assay without primary antibody.
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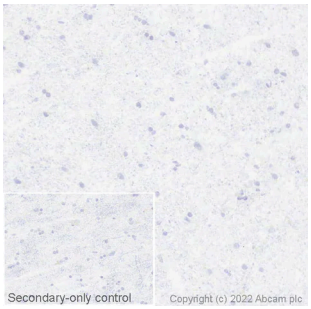


Flow Cytometry (Intracellular) - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398)

Estrogen Receptor alpha Flow Cytometry (Intracellular) staining using rabbit Anti-Estrogen Receptor alpha antibody

ab108398 staining Estrogen Receptor alphain the human cell line MCF-7 (human breast carcinoma) by intracellular flow cytometry. Cells were fixed with 4% paraformaldehyde, permeabilized with 90% methanol and the sample was incubated with the primary antibody at a dilution of 1/20. A goat anti rabbit IgG (Alexa Fluorr® 488) at a dilution of 1/2000 was used as the secondary antibody. Isoytype control: Rabbit monoclonal IgG (Black)

Unlabelled control: Cell without incubation with primary antibody and secondary antibody (Blue)

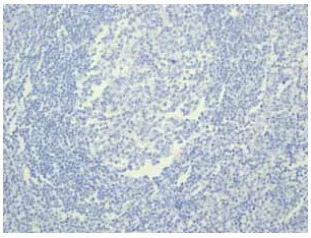


Immunohistochemistry (Frozen sections) - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398)

Estrogen Receptor alpha Immunohistochemistry (Frozen sections) staining using rabbit Anti-Estrogen Receptor alpha antibody

Negative control image: IHC image of Estrogen Receptor alpha staining in a section of frozen human hippocampus* performed on a Leica Biosystems BOND® RX instrumen using the standard protocol. The section was fixed in 10% paraformaldehyde (10 min) prior to staining. The section was incubated with ab108398, 5 ug/ml, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX. The inset secondary-only control image is taken from an identical assay without primary antibody.
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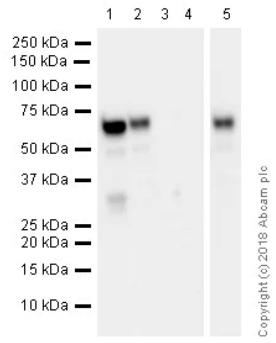
*Tissue obtained from the Human Research Tissue Bank, supported by the NIHR Cambridge Biomedical Research Centre.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398)

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

Immunohistochemistry (Formalin/PFA-fixed parffin-embedded sections) analysis of human normal tonsil tissue. Unpurified ab108398 shows negative staining.



Western blot - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398)

Blocking and diluting buffer: 5% NFDM/TBST
All lanes:
Western blot - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398) at 1/2000 dilution

Lane 1:
MCF7 (Human breast adenocarcinoma epithelial cell). Whole cell lysates at 20 µg

Lane 2:
T-47D (human mammary gland ductal carcinoma epithelial cell). Whole cell lysates at 20 µg

Lane 3:
MDA-MB231 (Human breast adenocarcinoma epithelial cell) Whole cell lysates (Negative control) at 20 µg

Lane 4:
HepG2 (Human hepatocellular carcinoma epithelial cell) Whole cell lysates (Negative control) at 20 µg

Lane 5:
Human uterus whole tissue lysate at 20 µg

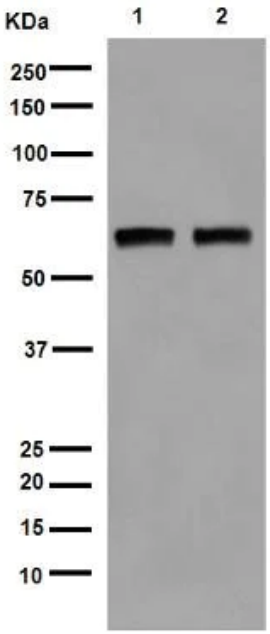
Secondary

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

Predicted band size: 66 kDa

Observed band size: 68 kDa

Exposure time: 10s



Western blot - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398)

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

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

All lanes:
purified at 1/2000 dilution

Lane 1:
MCF-7 cell lysate at 20 µg

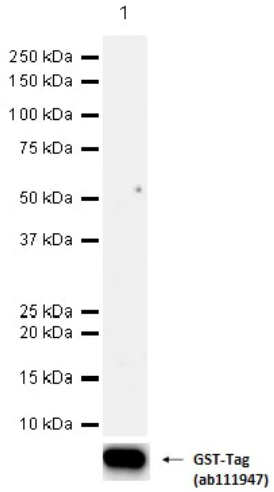
Lane 2:
T47-D cell lysate at 20 µg

Secondary

All lanes:
Peroxidase-conjugated goat anti-rabbit IgG (H+L) at 1/1000 dilution

Predicted band size: 66 kDa

Observed band size: 67 kDa



Western blot - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398)

Estrogen Receptor alpha Western blot staining of GST-Tagged Recombinant Human Estrogen Receptor beta (aa 1 to 323) protein 100ng using rabbit Anti-Estrogen Receptor alpha antibody

Blocking/Diluting buffer and concentration: 5% NFDM/TBST
Lane 1: Recombinant Human Estrogen Receptor beta (aa 1 to 323) protein, (Cat#: ab158385)
There is no cross-reactivity between ab108398 and ER beta protein.

All lanes:
Western blot - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398) at 1/1000 dilution

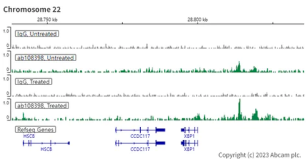
All lanes:
GST-Tagged Recombinant Human Estrogen Receptor beta (aa 1 to 323) protein 100ng

Secondary

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

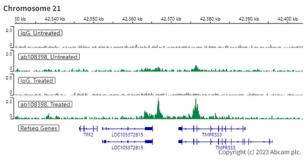
Predicted band size: 66 kDa

Exposure time: 180s



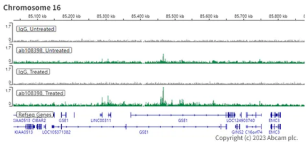
ChIC/CUT&RUN sequencing - Anti-Estrogen Receptor alpha antibody [EPR4097] (ab108398)

ChIC/CUT&RUN was performed using a pAG-MNase at a final concentration of 700 ng/mL, 2.5 x 10^5 MCF7 (Human breast adenocarcinoma epithelial cell) cells treated with phenol red free medium and 5% charcoal stripped FBS for 3 days than treated with β-estradiol (10 nM 45 min) and 5 µg of ab108398 [EPR4097]. The resulting DNA was sequenced on the Illumina NovaSeq 6000 to a depth of 10 million reads. The negative IgG control ab172730 is also shown. The University of Geneva owns patents relevant to ChIC (Chromatin Immuno-Cleavage) methods."



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