abcam

ab13506

Anti-ERp57 antibody [MaP.Erp57]

KO Validated

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.09% Sodium azide Constituents: PBS, 50% Glycerol (glycerin, glycerine)
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Full Length Protein corresponding to Human PDIA3. Database link P30101
Clone number	Map.ERP57
Purification technique	Affinity purification Protein G
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	This antibody is affinity purified.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1-2 µg for 10^6 Cells

Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Human
Dilution info	1/2000
Notes	This concentration is sufficient for the detection of ERp57 in 20µg of HeLa heat shocked cell lysate by colorimetric analysis.

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	1/100
Notes	-

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information PDIA3

Function Protein disulfide isomerase that catalyzes the formation, isomerization, and reduction or oxidation of disulfide bonds in client proteins and functions as a protein folding chaperone (PubMed:11825568, PubMed:16193070, PubMed:27897272, PubMed:36104323, PubMed:7487104). Core component of the major histocompatibility complex class I (MHC I) peptide loading complex where it functions as an essential folding chaperone for TAPBP. Through TAPBP, assists the dynamic assembly of the MHC I complex with high affinity antigens in the endoplasmic reticulum. Therefore, plays a crucial role in the presentation of antigens to cytotoxic T cells in adaptive immunity (PubMed:35948544, PubMed:36104323).

Storage

Shipped at conditions	Blue Ice
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

Supplementary info

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

Activity summary	ERp57 also known as 4f9 is a protein responsible for catalyzing disulfide bond formations and isomerizations in the endoplasmic reticulum. ERp57 has a molecular mass of approximately 57 kDa and belongs to the protein disulfide isomerase (PDI) family. Its main expression occurs in the endoplasmic reticulum of cells where it plays a role in ensuring proper protein folding and quality control.
Biological function summary	ERp57 interacts with calnexin and calreticulin to form a complex involved in glycoprotein folding. This complex assists in the proper assembly and maturation of nascent glycoproteins by ensuring correct folding pathways within the cell. ERp57 has a specialized role in managing oxidative protein folding which makes it essential for cell function and homeostasis.
Pathways	ERp57 participates in the calnexin/calreticulin cycle which is critical for protein triage in the endoplasmic reticulum. This cycle ensures that only properly folded proteins progress to their final destinations. ERp57 also interacts with ERp72 another member of the PDI family to facilitate thiol-disulfide exchange reactions. These interactions position ERp57 as a central player in the maintenance of cellular redox balance and protein homeostasis.
Associated diseases and disorders	Alterations in ERp57 function can relate to neurodegenerative diseases such as Alzheimer's and certain types of cancer. Misfolded proteins often accumulate in these conditions highlighting ERp57's role in preventing cellular stress. Moreover ERp57 associates with the protein tau in Alzheimer's disease where it assists in tau’s proper folding and diminishes its aggregation tendency. Additionally disruptions in the ERp57 pathway may interact with cancer-related proteins like p53 modulating apoptosis and cell cycle regulation.

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

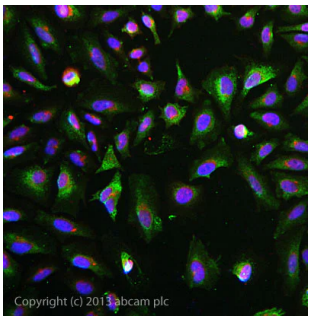
We do not recommend this combination. It is not covered by our product promise.

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.

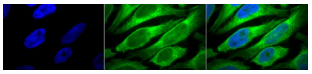
7 product images



Immunocytochemistry/ Immunofluorescence - Anti-ERp57 antibody [MaP.Erp57] (ab13506)

ERp57 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-ERp57 antibody

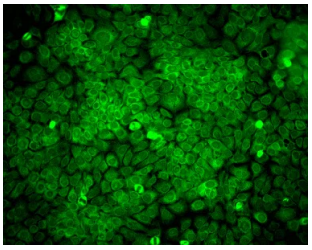
ICC/IF image of ab13506 stained HeLa cells. The cells were 4% formaldehyde fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody ab13506 at 5µg/ml overnight at +4°C. The secondary antibody (green) was DyLight® 488 goat anti- mouse (ab96879) IgG (H+L) used at a 1/250 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.



Immunocytochemistry/ Immunofluorescence - Anti-ERp57 antibody [MaP.Erp57] (ab13506)

ERp57 Immunocytochemistry/ Immunofluorescence staining of Heat Shocked cervical cancer cells (HeLa) using mouse Anti-ERp57 antibody

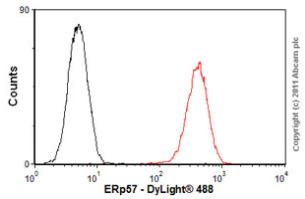
Immunocytochemistry/Immunofluorescence analysis of Heat Shocked cervical cancer cells (HeLa) using ab13506. Fixation: 2% Formaldehyde for 20 min at RT. ab13506 was used as the primary Antibody at 1:100 for 12 hours at 4°C. Secondary Antibody: FITC Goat Anti-Mouse (green) at 1:200 for 2 hours at RT. Counterstain: DAPI (blue) nuclear stain at 1:40000 for 2 hours at RT. Localization: Endoplasmic reticulum lumen. Melanosome. Magnification: 100x. (Left) DAPI (blue) nuclear stain. (Middle) Anti-Erp57 (Grp58) Antibody. (Right) Composite. Heat Shocked at 42°C for 1h.



Immunocytochemistry/ Immunofluorescence - Anti-ERp57 antibody [MaP.Erp57] (ab13506)

ERp57 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-ERp57 antibody

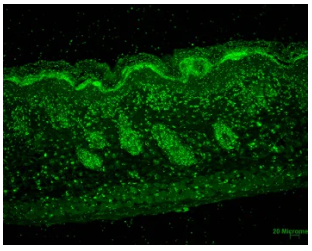
HaCaT (Human keratinocyte cell line) cells labeling ERp57 using ab13506 at 1/100 dilution in ICC.IF. Cells were fixed using 100% methanol for 10 minutes at -20°C and incubated with primary antibody for 1 hour at room temperature. Secondary antibody is a FITC-conjugated goat anti-mouse (green) incubated at 1/50 dilution for 1 hour at room temperature.



Flow Cytometry - Anti-ERp57 antibody [MaP.Erp57] (ab13506)

ERp57 Flow Cytometry staining using mouse Anti-ERp57 antibody

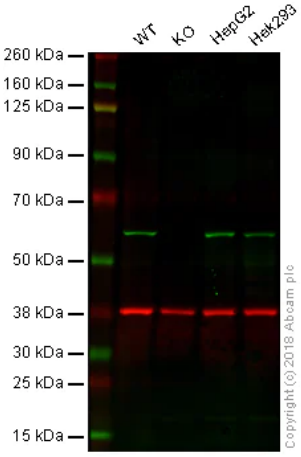
Overlay histogram showing HeLa cells stained with ab13506 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab13506, 2µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in HeLa cells fixed with 4% paraformaldehyde (10 min)/permeabilized in 0.1% PBS-Tween used under the same conditions.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ERp57 antibody [MaP.Erp57] (ab13506)

ERp57 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-ERp57 antibody

Paraffin-embedded mouse backskin tissue ficed with Bouin's fixative, stained for ERp57 using ab13506 at 1/100 dilution in ICC/IF. Primary antibody was incubated for 1 hour at room temperature. Secondary antibody is a FITC-conjugated goat anti-mouse (green) incubated at 1/50 dilution for 1 hour at room temperature.



Western blot - Anti-ERp57 antibody [MaP.Erp57] (ab13506)

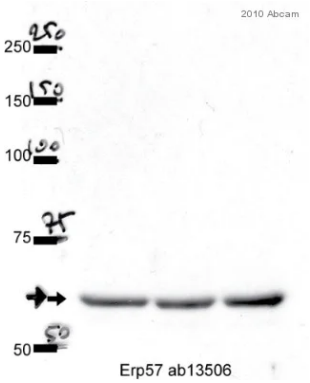
ERp57 Western blot staining using mouse Anti-ERp57 antibody

Lane 1: Wild-type HAP1 whole cell lysate (20 µg)
Lane 2: ERp57 knockout HAP1 whole cell lysate (20 µg)
Lane 3: HepG2 whole cell lysate (20 µg)
Lane 4: HEK293 whole cell lysate (20 µg)
Lanes 1 - 4: Merged signal (red and green). Green - ab13506 observed at 57 kDa. Red - loading control, ab181602, observed at 37 kDa.

ab13506 was shown to specifically react with ERp57 in wild-type HAP1 cells as signal was lost in ERp57 knockout cells. Wild-type and ERp57 knockout samples were subjected to SDS-PAGE. ab13506 and ab181602 (Rabbit anti-GAPDH loading control) were incubated overnight at 4°C at 0.5 µg/ml and 1/20000 dilution respectively. Blots were developed with Goat anti-Mouse IgG H&L (IRDye® 800CW) preabsorbed ab216772 and Goat anti-Rabbit IgG H&L (IRDye® 680RD) preabsorbed ab216777 secondary antibodies at 1/20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-ERp57 antibody [MaP.Erp57] (ab13506)

Predicted band size: 57 kDa



This image is courtesy of a customer review submitted by Pawel Mazur

Western blot - Anti-ERp57 antibody [MaP.Erp57] (ab13506)

ERp57 Western blot staining using mouse Anti-ERp57 antibody

ERp57 antibody (ab13506) at 1/1000 dilution (in PBST) for 8 hours at 4°C + lysate of mouse of pancreatic cancer cell line at 25 µg.

Secondary
An HRP conjugated Sheep anti-mouse IgG polyclonal at 1/5000 dilution
developed using the ECL technique

Performed under non-reducing conditions.

Exposure time: 1 minute

Blocking Step: 10% Milk for 1 hour at room temperature.
All lanes:
Western blot - Anti-ERp57 antibody [MaP.Erp57] (ab13506)

Predicted band size: 57 kDa

Observed band size: 61 kDa

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