abcam

ab62352

Anti-Nrf2 antibody [EP1808Y]

Anti-Nrf2 antibody [EP1808Y] (ab62352) is a rabbit monoclonal antibody detecting Nrf2 in **Western Blot, Flow Cytometry (Intra), ICC/IF**. Suitable for **Human**.

- Clone EP1808Y is the most cited clone to Nrf2
- KO validated for confirmed specificity
- Biophysical QC for unrivalled batch-batch consistency
- Over 580 publications

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	EP1808Y
Purification technique	Affinity purification Protein A
Specificity	**The expression of Nrf2 is stimulated by oxidative stress, electrophiles and chemical activators (PMID: 25761198, PMID: 27638861 and PMID: 28587109). Nrf2 antibody (ab62352) detects no signal in most untreated samples in WB. Stimuli treated samples are recommended. We do not recommend using this product in western blot with tissue lysates, however some customers have used this antibody successfully using concentrated samples (see submitted abreviews).**
Concentration	0.727 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Not recommended

Species	Human
Dilution info	-
Notes	-

ChIP

Not recommended

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/200 - 1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/1000 - 1/5000
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/40
Notes	We recommend to optimize the antibody concentration according to the different sample type.

IHC-P

Not recommended

Species	Human
Dilution info	-
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information NFE2L2

Function

Transcription factor that plays a key role in the response to oxidative stress: binds to antioxidant response (ARE) elements present in the promoter region of many cytoprotective genes, such as phase 2 detoxifying enzymes, and promotes their expression, thereby neutralizing reactive electrophiles (PubMed:11035812, PubMed:19489739, PubMed:29018201, PubMed:31398338). In normal conditions, ubiquitinated and degraded in the cytoplasm by the BCR(KEAP1) complex (PubMed:11035812, PubMed:15601839, PubMed:29018201). In response to oxidative stress, electrophile metabolites inhibit activity of the BCR(KEAP1) complex, promoting nuclear accumulation of NFE2L2/NRF2, heterodimerization with one of the small Maf proteins and binding to ARE elements of cytoprotective target genes (PubMed:19489739, PubMed:29590092). The NFE2L2/NRF2 pathway is also activated in response to selective autophagy: autophagy promotes interaction between KEAP1 and SQSTM1/p62 and subsequent inactivation of the BCR(KEAP1) complex, leading to NFE2L2/NRF2 nuclear accumulation and expression of cytoprotective genes (PubMed:20452972). The NFE2L2/NRF2 pathway is also activated during the unfolded protein response (UPR), contributing to redox homeostasis and cell survival following endoplasmic reticulum stress (By similarity). May also be involved in the transcriptional activation of genes of the beta-globin cluster by mediating enhancer activity of hypersensitive site 2 of the beta-globin locus control region (PubMed:7937919). Also plays an important role in the regulation of the innate immune response and antiviral cytosolic DNA sensing. It is a critical regulator of the innate immune response and survival during sepsis by maintaining redox homeostasis and restraint of the dysregulation of pro-inflammatory signaling pathways like MyD88-dependent and -independent and TNF signaling (By similarity). Suppresses macrophage inflammatory response by blocking pro-inflammatory cytokine transcription and the induction of IL6 (By similarity). Binds to the proximity of pro-inflammatory genes in macrophages and

inhibits RNA Pol II recruitment. The inhibition is independent of the NRF2-binding motif and reactive oxygen species level (By similarity). Represses antiviral cytosolic DNA sensing by suppressing the expression of the adapter protein STING1 and decreasing responsiveness to STING1 agonists while increasing susceptibility to infection with DNA viruses (PubMed:30158636). Once activated, limits the release of pro-inflammatory cytokines in response to human coronavirus SARS-CoV-2 infection and to virus-derived ligands through a mechanism that involves inhibition of IRF3 dimerization. Also inhibits both SARS-CoV-2 replication, as well as the replication of several other pathogenic viruses including Herpes Simplex Virus-1 and-2, Vaccinia virus, and Zika virus through a type I interferon (IFN)-independent mechanism (PubMed:33009401).

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

Anti-Nrf2 antibody [EP1808Y] (ab62352) was developed by Abcam using patented rabbit monoclonal antibody technology and is validated for use in Flow Cyt (Intra), ICC/IF and WB.

Anti-Nrf2 antibody [EP1808Y] (ab62352) was first used in a scientific publication in 2009 and has been cited over 584 times in peer reviewed journals. It's performance in Western Blot in human samples is trusted by the scientific community.

Abcam's high quality manufacturing and validation processes ensure Anti-Nrf2 antibody [EP1808Y] (ab62352) has high sensitivity and specificity alongside high lot-to-lot consistency and reproducibility.

The specificity of Anti-Nrf2 antibody [EP1808Y] (ab62352) has been confirmed by Western Blot testing in Nrf2 knockout HeLa cells (ab262507).

Anti-Nrf2 antibody [EP1808Y] (ab62352) has 28 independent reviews from customers.

Anti-Nrf2 antibody [EP1808Y] (ab62352) specifically detects Nrf2 (UniProt ID: Q16236; Molecular weight: 68kDa) and is sold in 100 µL and 1 mL selling sizes.

Conjugation-ready, carrier free format available for antibody clone EP1808Y - ab180845.

Antibody clone EP1808Y is also available pre-conjugated to a variety of labels for your convenience - Alexa Fluor® 488, Alexa Fluor® 647, Alexa Fluor® 594, PE, APC (ab194984, ab194985, ab206890, ab223926, ab223927).

NRF2 is a pivotal transcription factor in neuro research, known for regulating cellular defense mechanisms. It supports mitochondrial function and protects against oxidative damage, which is crucial for brain health. NRF2 also modulates glial inflammatory responses, playing a significant role in preventing neuroinflammation. Researchers use NRF2 to study oxidative stress, inflammation and neuroprotection, making it essential for understanding and potentially treating neurodegenerative diseases.

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.

Species reactivity
Rat: We have preliminary internal testing data to indicate this antibody may not react with this species.
Please contact us for more information.

Supplementary info

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

Activity summary	Nrf2 also known as nuclear factor erythroid 2-related factor 2 is a transcription factor with a molecular weight of approximately 66 kDa. It plays a mechanical role in regulating the expression of antioxidant proteins that protect against oxidative damage triggered by injury and inflammation. Nrf2 is ubiquitously expressed in various tissues including the liver lungs and skin. Nrf2 activation occurs when it translocates from the cytoplasm to the nucleus to bind the antioxidant response element (ARE) in the DNA starting transcription of target genes.
Biological function summary	Nrf2 acts as an important regulator of the cellular antioxidant response. It works in conjunction with its partner protein Keap1 forming a complex that controls its stability and degradation. Under normal conditions Keap1 keeps Nrf2 in the cytoplasm where it is targeted for ubiquitination and degradation. Once activated by oxidative stress or electrophiles Nrf2 dissociates from Keap1 thereby avoiding degradation and relocates to the nucleus to activate the transcription of ARE-dependent genes. This activity boosts the cellular response to oxidative stress by inducing genes involved in detoxification and cellular defense.
Pathways	

	Nrf2 plays a significant role in the oxidative stress response and detoxification pathways. Nrf2 activation is linked closely to the PI3K/Akt signaling pathway which influences cell survival growth and metabolism. This pathway also interacts with other important proteins like GSK-3β which can modulate Nrf2 activity and stability. Through these pathways Nrf2 orchestrates a defense mechanism against reactive oxygen species (ROS) by boosting the expression of antioxidant enzymes and detoxifying proteins.
Associated diseases and disorders	Nrf2 has been associated with conditions like cancer and neurodegenerative diseases. In cancer aberrant Nrf2 activation may lead to enhanced tumor survival by increasing expression of cytoprotective genes which makes cancer cells resistant to chemotherapy. Nrf2 also interacts with proteins such as p53 which play roles in tumor suppression and cellular stress responses. In neurodegenerative disorders reduced Nrf2 activity can contribute to oxidative stress leading to neuron damage and disease progression with proteins like amyloid-beta also being linked with oxidative processes affected by Nrf2 functionality.

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

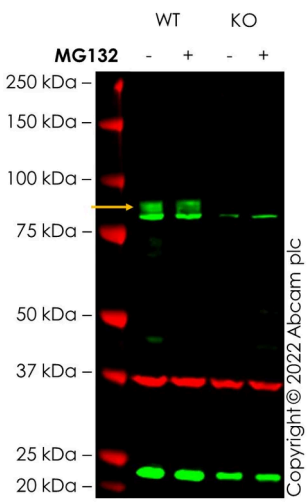
We do not recommend this combination. It is not covered by our product promise.

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.

11 product images



Western blot - Anti-Nrf2 antibody [EP1808Y] (ab62352)

Nrf2 Western blot staining using rabbit Anti-Nrf2 antibody

False colour image of Western blot: Anti-Nrf2 antibody [EP1808Y] - ChIP Grade staining at 1/1000 dilution, shown in green; Mouse anti-GAPDH antibody [6C5] (ab8245) loading control staining at 1/20000 dilution, shown in red. In Western blot, ab62352 was shown to bind specifically to Nrf2. Target band (indicated by arrow) was observed at 85-90 kDa in wild-type A549 cell lysates with no signal observed at this size in NFE2L2 knockout cell line ab285359 (knockout cell lysate ab289682). A band lower than the target was present on both WT and KO. According to the literature (PMID: 40043449), the lower band is calmegin.

To generate this image, wild-type and NFE2L2 knockout A549 cell lysates were analysed. Please note that MG132 treatment does not affect expression levels of Nrf2. 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-Nrf2 antibody [EP1808Y] (ab62352) at 1/1000 dilution

Lane 1:
Wild-type A549 Vehicle control MG132 (0 uM, 18 h) cell lysate at 20 µg

Lane 2:
Wild-type A549 Treated MG132 (2 uM, 18 h) cell lysate at 20 µg

Lane 3:
NFE2L2 [21] knockout A549 Vehicle control MG132 (0 uM, 18 h) cell lysate at 20 µg

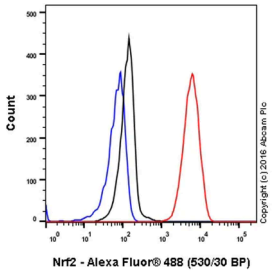
Lane 4:
NFE2L2 [21] knockout A549 Treated MG132 (2 uM, 18 h) cell lysate at 20 µg

Secondary

All lanes:
Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution

Performed under reducing conditions.

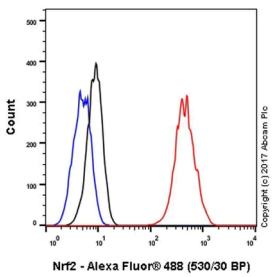
Predicted band size: 68 kDa



Flow Cytometry (Intracellular) - Anti-Nrf2 antibody [EP1808Y] (ab62352)

Nrf2 Flow Cytometry (Intracellular) staining using rabbit Anti-Nrf2 antibody

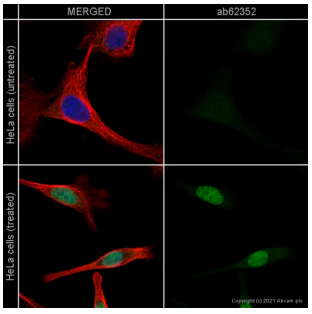
Intracellular Flow Cytometry analysis of HeLa (human cervix adenocarcinoma) cells labelling Nrf2 with ab62352 at 1/40 (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. An Alexa Fluorr®488-conjugated goat anti-rabbit IgG (1/2000) was used as the secondary antibody. Black - Isotype control, rabbit monoclonal IgG. Blue - Unlabelled control, cells without incubation with primary and secondary antibodies.



Flow Cytometry (Intracellular) - Anti-Nrf2 antibody [EP1808Y] (ab62352)

Nrf2 Flow Cytometry (Intracellular) staining using rabbit Anti-Nrf2 antibody

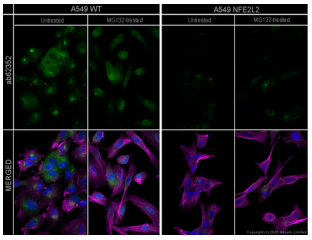
Intracellular Flow Cytometry analysis of HeLa cells labelling Nrf2 with purified ab62352 at a dilution of 1/60 (red). Cells were fixed with 4% paraformaldehyde. Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody (1/2000) was used as the secondary antibody. Black - Isotype control, rabbit monoclonal IgG (ab172730). Blue - Unlabelled control, cells without incubation with primary and secondary antibodies.



Immunocytochemistry/ Immunofluorescence - Anti-Nrf2 antibody [EP1808Y] (ab62352)

Nrf2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Nrf2 antibody

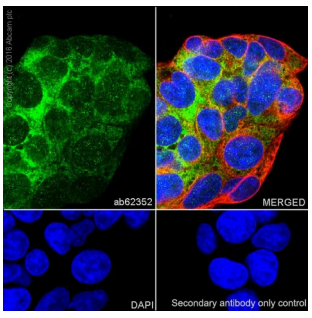
ab62352 staining Nrf2 in untreated HeLa cells (top panel) and treated HeLa cells (bottom panel). Cells were treated with 2µM of MG-132 for 18 hours (ab141003). The cells were fixed with 4% paraformaldehyde (10 min) then permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with ab62352 at 1µg/ml concentration and ab7291 (Mouse monoclonal to alpha Tubulin) at 1/1000 dilution overnight at 4°C followed by a further incubation at room temperature for 1h with a goat secondary antibody to rabbit IgG (Alexa Fluor® 488) (ab150081) at 2µg/ml (shown in green) and a goat secondary antibody to mouse IgG (Alexa Fluor® 594) (ab150120) at 2µg/ml (shown in red). Nuclear DNA was labelled in blue with DAPI.
Image was taken with a confocal microscope (Leica-Microsystems TCS SP8).



Immunocytochemistry/ Immunofluorescence - Anti-Nrf2 antibody [EP1808Y] (ab62352)

Nrf2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Nrf2 antibody

ab62352 staining Nrf2 in untreated wild type A549 cells (first panel), treated wild type A549 cells (second panel), untreated NFE2L2 knockout A549 cells (third panel) and treated NFE2L2 knockout A549 cells (fourth panel). Cells were treated with 2µM of MG-132 for 18 hours (ab141003). The cells were fixed with 4% paraformaldehyde (10 min) then permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with ab62352 at 0.2 µg/ml concentration and ab7291 (Mouse monoclonal to alpha Tubulin) at 1/1000 dilution overnight at 4°C followed by a further incubation at room temperature for 1h with a goat secondary antibody to rabbit IgG (Alexa Fluor® 488) (ab150081) at 2µg/ml (shown in green) and a goat secondary antibody to mouse IgG (Alexa Fluor® 594) (ab150120) at 2µg/ml (shown in magenta). Nuclear DNA was labelled in blue with DAPI.
Image was taken with a confocal microscope (Leica-Microsystems TCS SP8).

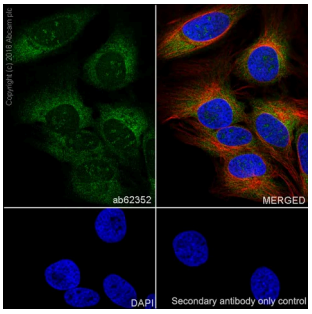


Immunocytochemistry/ Immunofluorescence - Anti-Nrf2 antibody [EP1808Y] (ab62352)

Nrf2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Nrf2 antibody

Immunocytochemistry/Immunofluorescence analysis of HepG2 cells labelling Nrf2 with purified ab62352 at 1/500. Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. ab150077, an Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/500) was used as the

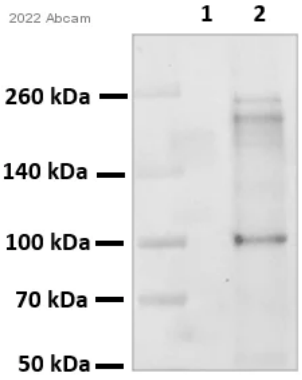
secondary antibody. The cells were co-stained with ab195889, an Alexa Fluor® 594-conjugated mouse anti-alpha tubulin antibody (1/200). Nuclei counterstained with DAPI (blue).
Secondary antibody only control: PBS was used instead of the primary antibody as the negative control.



Immunocytochemistry/ Immunofluorescence - Anti-Nrf2 antibody [EP1808Y] (ab62352)

Nrf2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Nrf2 antibody

Immunocytochemistry/Immunofluorescence analysis of HeLa cells labelling Nrf2 with purified ab62352 at 1/500. Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody (1/1000) was used as the secondary antibody. Cells were counterstained with ab195889, anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594). DAPI was used to stain the nuclei blue.
Secondary antibody only control: PBS was used instead of the primary antibody as the negative control.



Western blot - Anti-Nrf2 antibody [EP1808Y] (ab62352)

Nrf2 Western blot staining using rabbit Anti-Nrf2 antibody

Western blot analysis using ab62352 at 1:1000 on Human iPSC-cardiomyocytes. Blocking agent and dilution buffer was 5% Skim Milk in TBS-Tween.

A cellular fractionation in Human iPSC-cardiomyocyte cells was performed to separate the nucleus from the cytoplasm (Lane 2).

All lanes:
Western blot - Anti-Nrf2 antibody [EP1808Y] (ab62352) at 1/1000 dilution

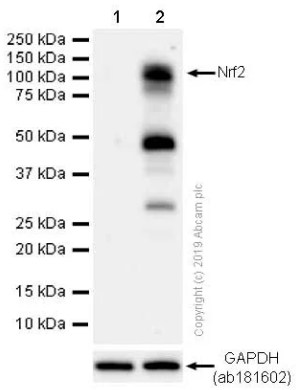
Lane 1:
Human iPSC-cardiomyocytes cytoplasmatic fraction, at 20 µg

Lane 2:
Human iPSC-cardiomyocytes nuclear fraction at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab6721) at 1/2000 dilution

Observed band size: 100 kDa



Western blot - Anti-Nrf2 antibody [EP1808Y] (ab62352)

Nrf2 Western blot staining using rabbit Anti-Nrf2 antibody

The expression of Nrf2 is stimulated by oxidative stress, electrophiles and chemical activators (PMID: 25761198, PMID: 27638861 and PMID: 28587109). ab62352 detects no signal in most of the untreated samples in WB. Stimuli treated samples are recommended.
Blocking and diluting buffer and concentration: 5% NFDM/TBST.

All lanes:
Western blot - Anti-Nrf2 antibody [EP1808Y] (ab62352) at 1/200 dilution

Lane 1:
HCT 116 (Human colorectal carcinoma epithelial cell) whole cell lysates at 20 µg

Lane 2:
HCT 116 (Human colorectal carcinoma epithelial cell) treated with 25uM MG-132 for 4 hours whole cell lysates at 20 µg

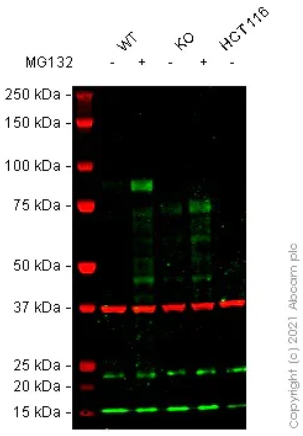
Secondary

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

Predicted band size: 68 kDa

Observed band size: 100 kDa

Exposure time: 60s



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Western blot - Anti-Nrf2 antibody [EP1808Y] (ab62352)

Nrf2 Western blot staining using rabbit Anti-Nrf2 antibody

False colour image of Western blot: Anti-Nrf2 antibody [EP1808Y] - ChIP Grade staining at 1/500 dilution, shown in green; Mouse anti-GAPDH antibody [6C5] (ab8245) loading control staining at 1/20000 dilution, shown in red. In Western blot, ab62352 was shown to bind specifically to Nrf2. A band was observed at 85 kDa in wild-type HeLa cell lysates with no signal observed at this size in NFE2L2 knockout cell line ab262507 (knockout cell lysate ab263934). The band observed in the knockout lysate lane below 85 kDa is likely to represent a truncated form of Nrf2. This has not been investigated further and the functional properties of the gene product have not been determined. To generate this image, wild-type and NFE2L2 knockout HeLa 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 (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) at 1/20000 dilution.
All lanes:
Western blot - Anti-Nrf2 antibody [EP1808Y] (ab62352) at 1/500 dilution

Lane 1:
Western blot - Human NFE2L2 (Nrf2) knockout HeLa cell lysate (ab263934)

Lane 1:
Wild-type HeLa control MG132 (0 uM, 18 h) cell lysate

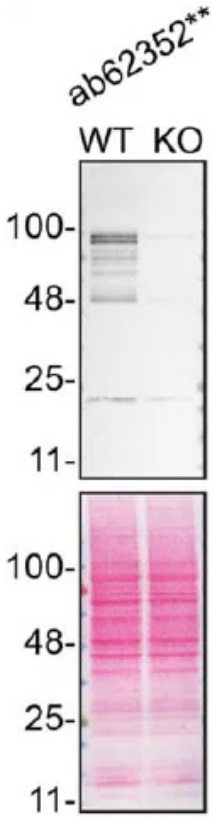
Lane 2:
Wild-type HeLa treated MG132 (2 uM, 18 h) cell lysate

Lane 2:
Western blot - Human NFE2L2 (Nrf2) knockout HeLa cell line (ab262507)

Lane 3:
NFE2L2 knockout HeLa control MG132 (0 uM, 18 h) cell lysate

Lane 4:
NFE2L2 knockout HeLa treated MG132 (2 uM, 18 h) cell lysate

Lane 5:
HCT 116 cell lysate



Western blot - Anti-Nrf2 antibody [EP1808Y] (ab62352)

Nrf2 Western blot staining using rabbit Anti-Nrf2 antibody

ab62352 was shown to react with NFE2L2 in MG-132-treated wild-type HCT 116 cells in Western blot with loss of signal observed in MG-132-treated NFE2L2 knockout cell line ab287647. Wild-type HCT 116 and NFE2L2 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 5% milk in TBST for 1 hr before incubation with ab62352 overnight at 4 °C at a 1/1000 dilution. Blots were incubated with secondary antibodies at 0.2 µg/mL before imaging.

This data was provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.

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