abcam

ab180844

Anti-Nrf2 (phospho S40) antibody [EP1809Y] - BSA and Azide free

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EP1809Y
Purification technique	Affinity purification Protein A
Concentration	1.03 - 1.037 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	-

Notes	-

Not recommended

Species	Synthetic peptide
Dilution info	-
Notes	-

IP

Not recommended

Species	Human, Synthetic peptide
Dilution info	-
Notes	-

Dot

Tested

Species	Synthetic peptide
Dilution info	-
Notes	-

Expected

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

WB

Expected

Species	Human
Dilution info	-
Notes	Can be blocked with Nrf2 (phospho S40) peptide (ab133404).

Not recommended

Species	Synthetic peptide
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Not recommended

Species	Synthetic peptide
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Not recommended

Species	Synthetic peptide
Dilution info	-
Notes	-

Target data

See full target information NFE2L2 pS40

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	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab180844 is the carrier-free version of ab76026.

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.

Conjugation ready

Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility

This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

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

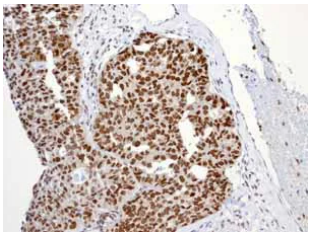
We do not recommend this combination. It is not covered by our product promise.

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.

10 product images



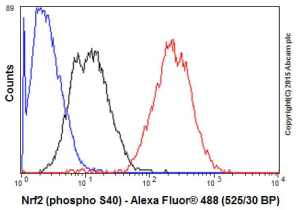
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Nrf2 (phospho S40) antibody [EP1809Y] - BSA and Azide free (ab180844)

Nrf2 (phospho S40) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Nrf2 (phospho S40) antibody

Unpurified ab76026 showing positive staining in Ovarian carcinoma tissue.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab76026).

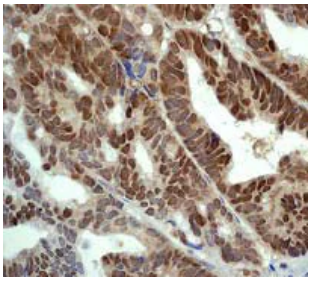
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-Nrf2 (phospho S40) antibody [EP1809Y] - BSA and Azide free (ab180844)

Nrf2 (phospho S40) Flow Cytometry (Intracellular) staining using rabbit Anti-Nrf2 (phospho S40) antibody

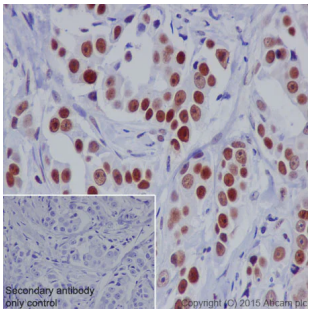
Overlay histogram showing Jurkat cells fixed in 4% PFA and stained with purified ab76026 at a dilution of 1 in 80 (red line). The secondary antibody used was FITC goat anti-rabbit at a dilution of 1 in 500. Rabbit monoclonal IgG was used as an isotype control (black line) and cells incubated in the absence of both primary and secondary antibody were used as a negative control (blue line). This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab76026).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Nrf2 (phospho S40) antibody [EP1809Y] - BSA and Azide free (ab180844)

Nrf2 (phospho S40) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Nrf2 (phospho S40) antibody

Immunohistochemical analysis of paraffin-embedded human breast carcinoma using unpurified ab76026 at 1/100 dilution. Perform heat mediated antigen retrieval before commencing with IHC staining protocol.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab76026).

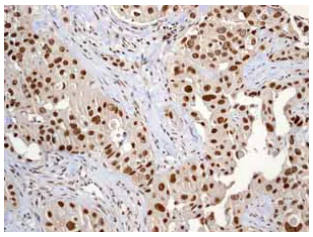


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Nrf2 (phospho S40) antibody [EP1809Y] - BSA and Azide free (ab180844)

Nrf2 (phospho S40) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Nrf2 (phospho S40) antibody

Immunohistochemical staining of paraffin embedded human breast carcinoma with purified ab76026 at a working dilution of 1/500. The secondary antibody used is HRP goat anti-rabbit IgG H&L (ab97051) at 1/500. The sample is counter-stained with hematoxylin. Antigen retrieval was perfomed using Tris-EDTA buffer, pH 9.0. PBS was used instead of the primary antibody as the

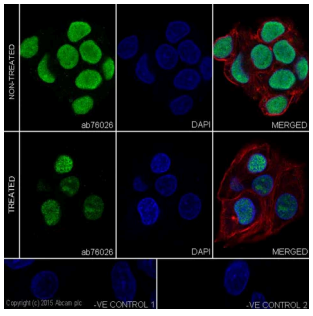
negative control, and is shown in the inset.This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab76026).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Nrf2 (phospho S40) antibody [EP1809Y] - BSA and Azide free (ab180844)

Nrf2 (phospho S40) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Nrf2 (phospho S40) antibody

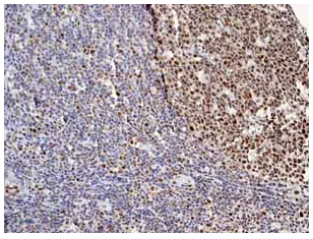
Unpurified ab76026 showing positive staining in Breast carcinoma tissue. Perform heat mediated antigen retrieval before commencing with IHC staining protocol.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab76026).



Immunocytochemistry/ Immunofluorescence - Anti-Nrf2 (phospho S40) antibody [EP1809Y] - BSA and Azide free (ab180844)

Nrf2 (phospho S40) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Nrf2 (phospho S40) antibody

Immunofluorescence staining of HepG2 cells with purified ab76026 at a working dilution of 1/100, counter-stained with DAPI. The treated cells were treated with alkaline phosphatase for 1 h at 37°C. The secondary antibody was Alexa Fluor® 488 goat anti-rabbit (ab150077), used at a dilution of 1/1000. ab7291, a mouse anti-tubulin antibody (1/1000), was used to stain tubulin along with ab150120 (Alexa Fluor® 594 goat anti-mouse, 1/1000), shown in the top right hand panel. The cells were fixed in 4% PFA and permeabilized using 0.1% Triton X 100. The negative controls are shown in bottom middle and right hand panels - for negative control 1, purified ab76026 was used at a dilution of 1/500 followed by an Alexa Fluor® 594 goat anti-mouse antibody (ab150120) at a dilution of 1/500. For negative control 2, ab7291 (mouse anti-tubulin) was used at a dilution of 1/500 followed by an Alexa Fluor® 488 goat anti-rabbit antibody (ab150077) at a dilution of 1/400. This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab76026).



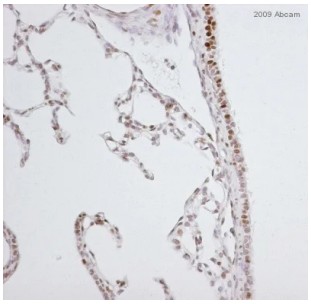
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Nrf2 (phospho S40) antibody [EP1809Y] - BSA and Azide free (ab180844)

Nrf2 (phospho S40) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Nrf2 (phospho S40) antibody

Unpurified ab76026 showing positive staining in Normal tonsil tissue.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab76026).

Perform heat mediated antigen retrieval before commencing with IHC staining protocol.

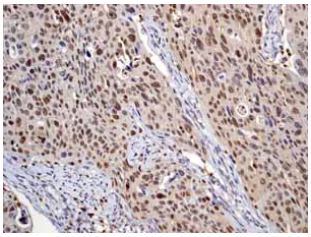


This image is courtesy of an anonymous customer review

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Nrf2 (phospho S40) antibody [EP1809Y] - BSA and Azide free (ab180844)

Nrf2 (phospho S40) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Nrf2 (phospho S40) antibody

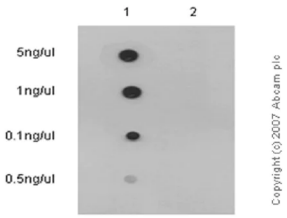
Unpurified ab76026 staining Nrf2 (phospho S40) in Human normal lung tissue sections by IHC-P (Formaldehyde-fixed paraffin-embedded sections). Tissue was fixed with formaldehyde and blocked with 1% casein for 30 minutes at 4°C. Antigen retrieval was by heat mediation. Samples were incubated with primary antibody (1/50) in 1% casein for 24 hours at 4°C. An undiluted HRP-conjugated Goat polyclonal to rabbit IgG was used as the secondary antibody.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab76026).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Nrf2 (phospho S40) antibody [EP1809Y] - BSA and Azide free (ab180844)

Nrf2 (phospho S40) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Nrf2 (phospho S40) antibody

Unpurified ab76026 showing positive staining in Cervical carcinoma tissue. Perform heat mediated antigen retrieval before commencing with IHC staining protocol.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab76026).



Dot Blot - Anti-Nrf2 (phospho S40) antibody [EP1809Y] - BSA and Azide free (ab180844)

Dot blot analysis of Nrf2 peptides using unpurified ab76026 at 1/1000 dilution followed by Goat Anti-Rabbit IgG, (H+L),Peroxidase conjugated secondary antibody at 1/1000 dilution. Blocking and diluting buffer was 5% NFDM/TBST.

Lane 1: Nrf2 (pS40) phospho peptide

Lane 2: Nrf2 non-phospho peptide

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab76026).

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