abcam

ab223927

# APC Anti-Nrf2 antibody [EP1808Y]

Recombinant | RabMAb

## Key facts

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| **Isotype** | IgG |
| **Host species** | Rabbit |
| **Conjugation** | APC |
| **Excitation/Emission** | Ex: 650nm, Em: 660nm |
| **Storage buffer** | pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 1% 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 |
| **Concentration** | 0.5 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## Flow Cyt (Intra)

**Tested**

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| **Species** | Human |
| **Dilution info** | 1/500 |

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| **Notes** | The cellular localisation of this product has been verified in ICC/IF. |

## ICC/IF

### Expected

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

## 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

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| **Shipped at conditions** | Blue Ice |
| **Appropriate short-term storage conditions** | +4°C |
| **Appropriate long-term storage conditions** | +4°C |
| **Aliquoting information** | Upon delivery aliquot |
| **Storage information** | Do Not Freeze, Store in the dark |

## Notes

**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.

## Supplementary info

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

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| **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. |

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| **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**

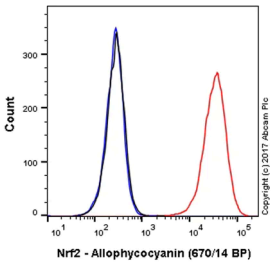
We do not recommend this combination. It is not covered by our product promise.

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.

## 1 product image




### Flow Cytometry (Intracellular) - APC Anti-Nrf2 antibody [EP1808Y] (ab223927)

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

Overlay histogram showing HeLa (human epithelial cell line from cervix adenocarcinoma) cells stained with ab223927 (red line). The cells were fixed with 80% methanol (5 minutes) and then permeabilized with 0.1% PBS-Triton X-100 for 15 minutes. The cells were then incubated in 1x PBS / 10% normal goat serum to block non-specific protein-protein interactions followed by the antibody (ab223927, 1/500 dilution) for 30 minutes at 22°C.
Isotype control antibody (black line) was Rabbit IgG (monoclonal) Allophycocyanin used at the same concentration and conditions as the primary antibody. Unlabeled sample (blue line) was also used as a control.

Acquisition of >5,000 events were collected using a 40 mW Red laser (640nm) and 670/14 bandpass filter.

This antibody gave a positive signal in HeLa cells fixed with 4% formaldehyde (10 minutes)/permeabilized with 0.1% PBS-Triton X-100 for 15 minutes used under the same conditions.

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