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phospho-Nrf2 (Ser40) Rabbit pAb

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Catalog # AP52270

Product Information

Application	WB
Primary Accession	Q16236
Reactivity	Human
Predicted	Mouse, Rat, Chicken, Dog
Host	Rabbit
Clonality	Polyclonal
Calculated MW	67827
Physical State	Liquid
Immunogen	KLH conjugated Synthesised phosphopeptide derived from human Nrf2 around the phosphorylation site of Ser40
Epitope Specificity	DF(p-S)QR
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Cytoplasm, cytosol. Nucleus. Note=Cytosolic under unstressed conditions, translocates into the nucleus upon induction by electrophilic agents.
SIMILARITY	Belongs to the bZIP family. CNC subfamily.Contains 1 bZIP domain.
SUBUNIT	Heterodimer. Forms a ternary complex with PGAM5 and KEAP1. May bind DNA with an unknown protein. Interacts via its leucine-zipper domain with the coiled-coil domain of PMF1.
Post-translational modifications	Phosphorylation of Ser-40 by PKC in response to oxidative stress dissociates NFE2L2 from its cytoplasmic inhibitor KEAP1, promoting its translocation into the nucleus.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	Nuclear factor erythroid 2-related factor 2 (Nrf2) is a transcription factor which regulates the expression of many detoxification and antioxidant enzymes. Nrf2 can potentially play a significant role in adaptive responses to oxidative stress. Nrf2 belongs to the Cap N Collar (CNC-bZIP) subfamily of basic /leucine zipper (bZIP) transcription factors.

Additional Information

Gene ID	4780
Other Names	Nuclear factor erythroid 2-related factor 2, NF-E2-related factor 2, NFE2-related factor 2, Nrf-2, Nuclear factor, erythroid derived 2, like 2, NFE2L2 {ECO:0000303|PubMed:29018201, ECO:0000312|HGNC:HGNC:7782}
Target/Specificity	Widely expressed. Highest expression in adult muscle, kidney, lung, liver and in fetal muscle.

Dilution	WB=1:500-2000,ICC/IF=1:100-500
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	NFE2L2 {ECO:0000303|PubMed:29018201, ECO:0000312|HGNC:HGNC:7782}
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).
Cellular Location	Cytoplasm, cytosol. Nucleus {ECO:0000255|PROSITE-ProRule:PRU00978, ECO:0000269|PubMed:11035812, ECO:0000269|PubMed:15601839, ECO:0000269|PubMed:21196497, ECO:0000269|PubMed:29983246}. Note=Cytosolic under unstressed conditions: ubiquitinated and degraded by the BCR(KEAP1) E3 ubiquitin ligase complex (PubMed:15601839, PubMed:21196497). Translocates into the nucleus upon induction by

	electrophilic agents that inactivate the BCR(KEAP1) E3 ubiquitin ligase complex (PubMed:21196497)
Tissue Location	Widely expressed. Highest expression in adult muscle, kidney, lung, liver and in fetal muscle

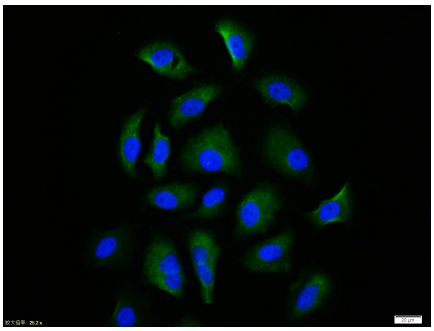
Background

Nuclear factor erythroid 2-related factor 2 (Nrf2) is a transcription
factor which regulates the expression of many detoxification and
antioxidant enzymes. Nrf2 can potentially play a significant role in adaptive responses to oxidative stress. Nrf2 belongs to the Cap N Collar (CNC-bZIP) subfamily of basic /leucine zipper (bZIP) transcription factors.

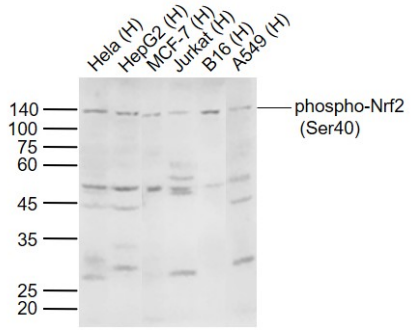
References

Ota T.,et al.Nat. Genet. 36:40-45(2004).
Totoki Y.,et al.Submitted (MAR-2005) to the EMBL/GenBank/DDBJ databases.
Hillier L.W.,et al.Nature 434:724-731(2005).
Mural R.J.,et al.Submitted (SEP-2005) to the EMBL/GenBank/DDBJ databases.
Bechtel S.,et al.BMC Genomics 8:399-399(2007).

Images



HepG2 cell; 4% Paraformaldehyde-fixed; Triton X-100 at room temperature for 20 min; Blocking buffer (normal goat serum, C-0005) at 37°C for 20 min; Antibody incubation with (phospho-Nrf2 (Ser40)) polyclonal Antibody, Unconjugated (AP52270) 1:100, 90 minutes at 37°C; followed by a conjugated Goat Anti-Rabbit IgG antibody at 37°C for 90 minutes, DAPI (blue, C02-04002) was used to stain the cell nuclei.



Sample:
Lane 1: Hela (Human) Cell Lysate at 30 ug
Lane 2: HepG2 (Human) Cell Lysate at 30 ug
Lane 3: MCF-7 (Human) Cell Lysate at 30 ug
Lane 4: Jurkat (Human) Cell Lysate at 30 ug
Lane 5: B16 (Human) Cell Lysate at 30 ug
Lane 6: A549 (Human) Cell Lysate at 30 ug
Primary: Anti-phospho-Nrf2 (Ser40) (AP52270) at 1/1000 dilution
Secondary: IRDye800CW Goat Anti-Rabbit IgG at 1/20000 dilution
Predicted band size: 68 kD
Observed band size: 135 kD

Citations

- Nrf2 Promotes Inflammation in Early Myocardial Ischemia-Reperfusion Recruitment and Activation of Macrophages
- Scutellarin Prevents Nonalcoholic Fatty Liver Disease (NAFLD) and Hyperlipidemia via PI3K/AKT-Dependent Activation of Nuclear Factor (Erythroid-Derived 2)-Like 2 (Nrf2) in Rats.

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