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NFE2L2 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1896a

Product Information

Application	WB, IHC, E
Primary Accession	Q16236
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	1A6G6
Isotype	IgG1
Calculated MW	67827
Description	This gene encodes a transcription factor which is a member of a small family of basic leucine zipper (bZIP) proteins. The encoded transcription factor regulates genes which contain antioxidant response elements (ARE) in their promoters; many of these genes encode proteins involved in response to injury and inflammation which includes the production of free radicals. Multiple transcript variants encoding different isoforms have been found for this gene.
Immunogen	Purified recombinant fragment of human NFE2L2 (AA: 356-589) expressed in E. Coli.
Formulation	Purified antibody in PBS with 0.05% sodium azide.

Additional Information

Gene ID	4780
Other Names	Nuclear factor erythroid 2-related factor 2, NF-E2-related factor 2, NFE2-related factor 2, HEBP1, Nuclear factor, erythroid derived 2, like 2, NFE2L2, NRF2
Dilution	WB~~1/500 - 1/2000 IHC~~1/200 - 1/1000 E~~1/10000
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	NFE2L2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

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

EIF2A is a 65-kD protein that catalyzes the formation of puromycin-sensitive 80S preinitiation complexes.

References

1. J Exp Clin Cancer Res. 2012 Aug 19;31:66. 2. Physiol Genomics. 2012 Aug 1;44(15):754-63.

Images

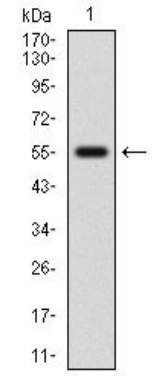

Figure 1: Western blot analysis using NFE2L2 mAb against human NFE2L2 (AA: 356-589) recombinant protein. (Expected MW is 52.1 kDa)

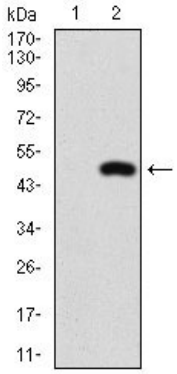

Figure 2: Western blot analysis using NFE2L2 mAb against HEK293 (1) and NFE2L2 (AA: 356-589)-hIgGFc transfected HEK293 (2) cell lysate.

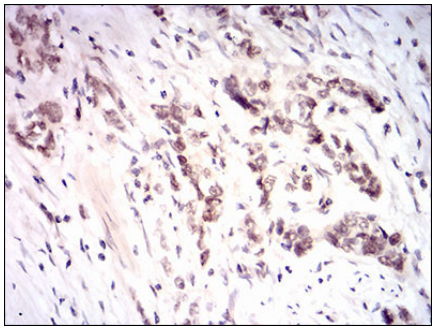

Figure 3: Immunohistochemical analysis of paraffin-embedded stomach cancer tissues using NFE2L2 mouse mAb with DAB staining.