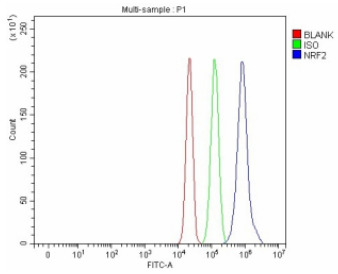
NRF2 Antibody / Nuclear factor erythroid 2-related factor 2 / NFE2L2 (FY13169)

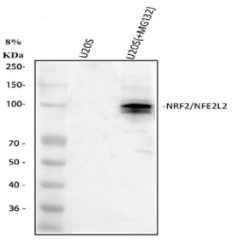
Catalog No.	Formulation	Size
FY13169	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q16236
Applications	ELISA : 0.1-0.5ug/ml Flow Cytometry : 1-3ug/million cells Western Blot : 0.25-0.5ug/ml
Limitations	This NRF2 antibody is available for research use only.



Flow Cytometry analysis of human RT4 cells using anti-NRF2 antibody. Overlay histogram showing RT4 cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-NRF2 antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



Western blot analysis of NRF2/NFE2L2 using anti-NRF2 antibody. Lane 1: human U20S whole cell lysates, Lane 2: human U20S(+) whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-NRF2 antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. NRF2/NFE2L2 antibody detects a doublet at ~90-100 kDa in U2OS cells following MG132 treatment. Although the calculated mass is ~68 kDa, NRF2 typically migrates slower due to phosphorylation and ubiquitination. Proteasome inhibition (MG132) stabilizes NRF2, increasing signal intensity and revealing multiple modified species.

Description

NRF2 antibody detects Nuclear factor erythroid 2-related factor 2, a transcription factor that regulates antioxidant defense and cellular detoxification. The UniProt recommended name is Nuclear factor erythroid 2-related factor 2 (NFE2L2). This basic leucine zipper (bZIP) transcription factor activates expression of antioxidant response element (ARE)-driven genes that protect cells against oxidative and electrophilic stress.

Functionally, NRF2 antibody identifies a 605-amino-acid protein that binds to DNA as a heterodimer with small Maf proteins. Under basal conditions, NRF2 is bound by KEAP1 in the cytoplasm and targeted for proteasomal degradation. Upon oxidative stress, NRF2 escapes KEAP1 repression, translocates to the nucleus, and induces genes encoding detoxification enzymes, antioxidant proteins, and drug-metabolizing enzymes such as NQO1, HO-1, and GCLM.

The NFE2L2 gene is located on chromosome 2q31.2 and is expressed in multiple tissues, with high levels in liver, lung, and kidney. NRF2 acts as a master regulator of cellular defense mechanisms, maintaining redox balance, xenobiotic metabolism, and mitochondrial function.

Pathologically, persistent NRF2 activation contributes to tumorigenesis and drug resistance, while impaired NRF2 signaling increases susceptibility to oxidative injury and chronic diseases such as neurodegeneration and fibrosis. Research using NRF2 antibody supports studies in transcriptional regulation, redox signaling, and cytoprotection.

NRF2 antibody is validated for western blotting, immunohistochemistry, and immunofluorescence to detect transcription factors involved in antioxidant defense. NSJ Bioreagents provides NRF2 antibody reagents optimized for oxidative stress, cancer, and metabolism research.

Structurally, Nuclear factor erythroid 2-related factor 2 contains multiple Neh (Nrf2-ECH homology) domains that mediate DNA binding, KEAP1 interaction, and transcriptional activation. This antibody aids investigation of NRF2's dynamic regulation and its role in cellular adaptation to stress.

Application Notes

Optimal dilution of the NRF2 antibody should be determined by the researcher.

Immunogen

E.coli-derived human NRF2/NFE2L2 recombinant protein (Position: E67-D601) was used as the immunogen for the NRF2 antibody.

Storage

After reconstitution, the NRF2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.