10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

NQO1 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1642a

Product Information

Application	WB, IHC, FC, E
Primary Accession	P15559
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	4D12
Isotype	IgG1
Calculated MW	30868
Description	This gene is a member of the NAD(P)H dehydrogenase (quinone) family and encodes a cytoplasmic 2-electron reductase. This FAD-binding protein forms homodimers and reduces quinones to hydroquinones. This protein's enzymatic activity prevents the one electron reduction of quinones that results in the production of radical species. Mutations in this gene have been associated with tardive dyskinesia (TD), an increased risk of hematotoxicity after exposure to benzene, and susceptibility to various forms of cancer. Altered expression of this protein has been seen in many tumors and is also associated with Alzheimer's disease (AD). Alternate transcriptional splice variants, encoding different isoforms, have been characterized.
Immunogen	Purified recombinant fragment of human NQO1 expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	1728
Other Names	NAD(P)H dehydrogenase [quinone] 1, 1.6.5.2, Azoreductase, DT-diaphorase, DTD, Menadione reductase, NAD(P)H:quinone oxidoreductase 1, Phylloquinone reductase, Quinone reductase 1, QR1, NQO1, DIA4, NMOR1
Dilution	WB~~1/500 - 1/2000 IHC~~1/200 - 1/1000 FC~~1/200 - 1/400 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	NQO1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	NQO1 {ECO:0000303|PubMed:1657151, ECO:0000312|HGNC:HGNC:2874}
Function	Flavin-containing quinone reductase that catalyzes two- electron reduction of quinones to hydroquinones using either NADH or NADPH as electron donors. In a ping-pong kinetic mechanism, the electrons are sequentially transferred from NAD(P)H to flavin cofactor and then from reduced flavin to the quinone, bypassing the formation of semiquinone and reactive oxygen species (By similarity) (PubMed:8999809, PubMed:9271353). Regulates cellular redox state primarily through quinone detoxification. Reduces components of plasma membrane redox system such as coenzyme Q and vitamin quinones, producing antioxidant hydroquinone forms. In the process may function as superoxide scavenger to prevent hydroquinone oxidation and facilitate excretion (PubMed:15102952, PubMed:8999809, PubMed:9271353). Alternatively, can activate quinones and their derivatives by generating redox reactive hydroquinones with DNA cross-linking antitumor potential (PubMed:8999809). Acts as a gatekeeper of the core 20S proteasome known to degrade proteins with unstructured regions. Upon oxidative stress, interacts with tumor suppressors TP53 and TP73 in a NADH-dependent way and inhibits their ubiquitin-independent degradation by the 20S proteasome (PubMed:15687255, PubMed:28291250).
Cellular Location	Cytoplasm, cytosol {ECO:0000250|UniProtKB:P05982}

References

1. Mol Cancer Ther. 2009 Dec;8(12):3369-78. 2. J Biol Chem. 2009 Nov 27;284(48):33233-41.

Images

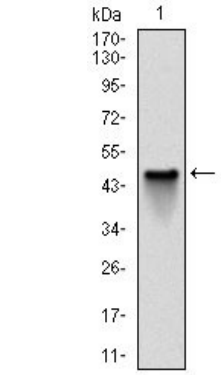

Figure 1: Western blot analysis using NQO1 mAb against human NQO1 (AA: 134-274) recombinant protein. (Expected MW is 41.3 kDa)

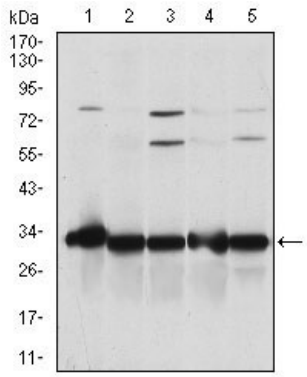

Figure 2: Western blot analysis using NQO1 mouse mAb against A549 (1), SKNES (2), HepG2 (3), MCF-7 (4) and Hela (5) cell lysate.

Figure 3: Immunohistochemical analysis of paraffin-embedded testis tissues using NQO1 mouse mAb with DAB staining.

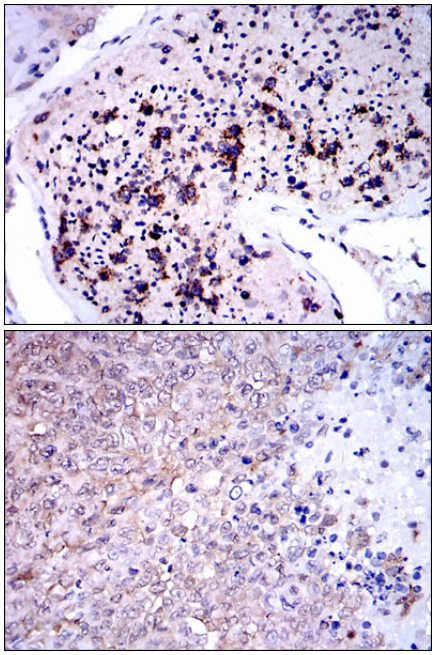

Figure 4: Immunohistochemical analysis of paraffin-embedded ovarian cancer tissues using NQO1 mouse mAb with DAB staining.

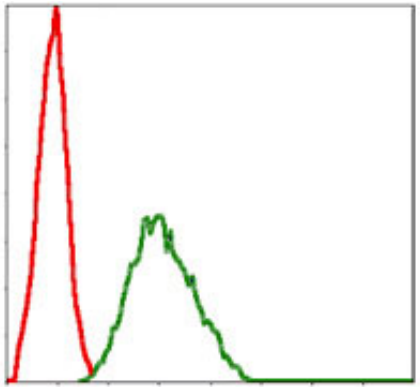

Figure 5: Flow cytometric analysis of NIH/3T3 cells using NQO1 mouse mAb (green) and negative control (red).