abcam

ab239896

Anti-NQO1 antibody [EPR3309] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR3309
Purification technique	Affinity purification Protein A
Concentration	1.009 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information NQO1

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).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab239896 is the carrier-free version of ab80588.

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.

Conjugation ready

Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility

This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	NQO1 also known as NAD(P)H:quinone oxidoreductase 1 is a cytosolic enzyme involved in two-electron reduction processes. This protein plays a role in detoxification transforming quinones into less reactive and harmful hydroquinones. NQO1 has a molecular weight of approximately 31 kDa and is present in various tissues with high expression in the liver and lungs. Sometimes called DT-diaphorase it contributes to antioxidant protection within cells and assists in the stabilization of other proteins such as p53.
Biological function summary	NQO1 serves a protective function against oxidative stress by reducing quinones and preventing redox cycling that generates reactive oxygen species. Part of a critical network its function integrates with the cellular defense mechanism assisting in maintaining cellular homeostasis. NQO1 helps metabolize xenobiotics and is associated with phase II detoxification working alongside enzymes like glutathione S-transferases but is not part of a complex.
Pathways	NQO1 is an important component of the antioxidant defense pathway participating in the direct enzymatic reduction of quinones protecting cells from oxidative damage. It also interfaces with the KEAP1-NRF2 pathway where the

	NQO1 gene is regulated by the NRF2 transcription factor that upregulates its expression in response to oxidative stress. NQO1 interlinks with proteins such as p53 through pathways related to apoptotic regulation and cellular stress responses.
Associated diseases and disorders	Mutations or altered expression of NQO1 have correlations with cancer development and progression notably in liver and lung cancers. This protein's stability influences cancer cell survival particularly under oxidative stress or chemotherapeutic treatments. NQO1 also exhibits links to Alzheimer's disease where its potential role in neuroprotection against oxidative damage draws investigation relating it to proteins like tau and amyloid-beta.

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

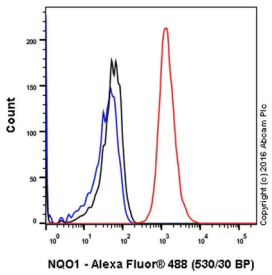
We do not recommend this combination. It is not covered by our product promise.

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.

3 product images



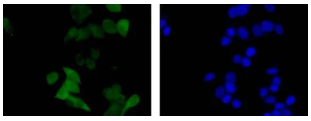
Flow Cytometry (Intracellular) - Anti-NQO1 antibody [EPR3309] - BSA and Azide free (ab239896)

NQO1 Flow Cytometry (Intracellular) staining using rabbit Anti-NQO1 antibody

ab80588 staining NQO1 in the human cell line MCF-7 (human breast carcinoma) by intracellular flow cytometry. Cells were fixed with 4% paraformaldehyde, permeabilized with 90% methanol and the sample was incubated with the primary antibody at a dilution of 1/20. A goat anti rabbit IgG (Alexa Fluor® 488) at a dilution of 1/2000 was used as the secondary antibody.
Isoytype control: Rabbit monoclonal IgG (Black)

Unlabelled control: Cell without incubation with primary antibody and secondary antibody (Blue)

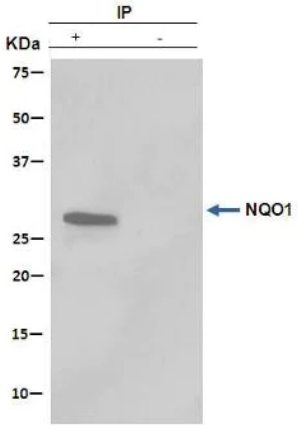
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab80588).



Immunocytochemistry/ Immunofluorescence - Anti-NQO1 antibody [EPR3309] - BSA and Azide free (ab239896)

NQO1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-NQO1 antibody

Immunocytochemsitry/Immunofluorescence analysis of MCF-7 cells labelling NQO1 (green) with purified ab80588 at 1/80. Cells were fixed with 4% paraformaldehyde. An Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/200) was used as the secondary antibody. Counterstained with DAPI (blue).
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab80588).



Immunoprecipitation - Anti-NQO1 antibody [EPR3309] - BSA and Azide free (ab239896)

ab80588 (purified) at 1/50 immunoprecipitating NQO1 in HeLa cell lysate (Lane 1). Lane 2 - PBS. For western blotting, a HRP-conjugated anti-rabbit IgG, specific to the non-reduced form of IgG was used as the secondary antibody (1/1500).
Blocking buffer and concentration: 5% NFDM/TBST.

Diluting buffer and concentration: 5% NFDM /TBST.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab80588).

All lanes:
Immunoprecipitation - Anti-NQO1 antibody [EPR3309] (ab80588)

Predicted band size: 31 kDa

Observed band size: 31 kDa

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