

NQO1 (A180): sc-32793

BACKGROUND

NAD(P)H:quinone oxidoreductase 1 (NQO1) and NRH:quinone oxidoreductase (NQO2) are flavoproteins that catalyze the metabolic detoxification of quinones and their derivatives to hydroquinones, using either NADH or NADPH as the electron donor. This protects cells against quinone-induced oxidative stress, cytotoxicity, and mutagenicity. Many tumors overexpress NQO1, which is an obligate two-electron reductase that deactivates toxins and activates bioreductive anticancer drugs. NQO1, a 274 amino acid protein, is ubiquitously expressed, but the expression level varies among tissues. NQO1 gene expression is coordinately induced in response to xenobiotics, antioxidants, heavy metals and radiation. The antioxidant response element (ARE) in the NQO1 gene promoter is essential for expression and coordinated induction of NQO1. ARE activation by tert-butylhydroquinone is dependent on PI3-kinase, which lies upstream of Nrf2. Nrf2, c-Jun, Nrf1, Jun-B and Jun-D bind to the ARE and regulate expression and induction of NQO1 gene. Maf-Maf homodimers and possibly Maf-Nrf2 heterodimers play a role in negative regulation of ARE-mediated transcription, but Maf-Nrf1 heterodimers fail to bind with the NQO1 gene ARE and do not repress NQO1 transcription.

REFERENCES

- Long, D.J. 2nd., et al. 2000. AD(P)H:quinone oxidoreductase 1 deficiency increases susceptibility to benzo(a)pyrene-induced mouse skin carcinogenesis. *Cancer Res.* 60: 5913-5915.
- Chen, S., et al. 2000. Structure-function studies of DT-diaphorase (NQO1) and NRH: quinone oxidoreductase (NQO2). *Free Radic. Biol. Med.* 29: 76-84.

CHROMOSOMAL LOCATION

Genetic locus: NQO1 (human) mapping to 16q22.1; Nqo1 (mouse) mapping to 8 D3.

SOURCE

NQO1 (A180) is a mouse monoclonal antibody raised against purified recombinant NQO1 protein of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

NQO1 (A180) is available conjugated to agarose (sc-32793 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-32793 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-32793 PE), fluorescein (sc-32793 FITC), Alexa Fluor[®] 488 (sc-32793 AF488), Alexa Fluor[®] 546 (sc-32793 AF546), Alexa Fluor[®] 594 (sc-32793 AF594) or Alexa Fluor[®] 647 (sc-32793 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-32793 AF680) or Alexa Fluor[®] 790 (sc-32793 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

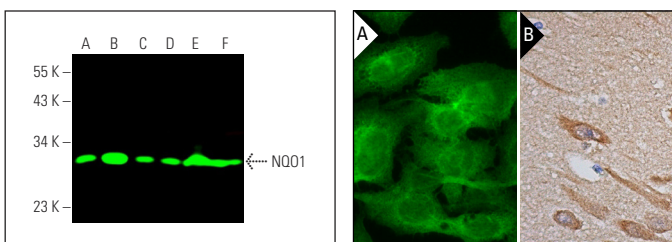
NQO1 (A180) is recommended for detection of NQO1 of human, mouse and, to a lesser extent, rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with purified human NQO2.

Suitable for use as control antibody for NQO1 siRNA (h): sc-37139, NQO1 siRNA (m): sc-37140, NQO1 shRNA Plasmid (h): sc-37139-SH, NQO1 shRNA Plasmid (m): sc-37140-SH, NQO1 shRNA (h) Lentiviral Particles: sc-37139-V and NQO1 shRNA (m) Lentiviral Particles: sc-37140-V.

Molecular Weight of NQO1: 31 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, SW480 cell lysate: sc-2219 or HCT-116 whole cell lysate: sc-364175.

DATA



NQO1 (A180) Alexa Fluor[®] 680: sc-32793 AF680. Direct near-infrared western blot analysis of NQO1 expression in Hep G2 (A), A549 (B), AN3 CA (C), SW480 (D), COLO 205 (E) and HCT-116 (F) whole cell lysates. Blocked with UltraCruz[®] Blocking Reagent: sc-516214.

NQO1 (A180): sc-32793. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic and nuclear localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebral cortex tissue showing cytoplasmic staining of neuronal cells and glial cells (B).

SELECT PRODUCT CITATIONS

- Planchon, S.M., et al. 2001. β -Lapachone-induced apoptosis in human prostate cancer cells: involvement of NQO1/xip3. *Exp. Cell Res.* 267: 95-106.
- Madajewski, B., et al. 2016. Depleting tumor-NQO1 potentiates anoikis and inhibits growth of NSCLC. *Mol. Cancer Res.* 14: 14-25.
- Hashimoto, K., et al. 2017. Nuclear lamins and progerin are dispensable for antioxidant Nrf2 response to arsenic and cadmium. *Cell. Signal.* 33: 69-78.
- Wang, P., et al. 2018. Rosuvastatin improves myocardial hypertrophy after hemodynamic pressure overload via regulating the crosstalk of Nrf2/ARE and TGF- β /smads pathways in rat heart. *Eur. J. Pharmacol.* 820: 173-182.
- Nazari Soltan Ahmad, S., et al. 2019. Tangeretin protects renal tubular epithelial cells against experimental cisplatin toxicity. *Iran. J. Basic Med. Sci.* 22: 179-186.

RESEARCH USE

For research use only, not for use in diagnostic procedures.