

NQO1 (H-9): sc-376023

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.

CHROMOSOMAL LOCATION

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

SOURCE

NQO1 (H-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 201-239 within an internal region of NQO1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

NQO1 (H-9) is available conjugated to agarose (sc-376023 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376023 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376023 PE), fluorescein (sc-376023 FITC), Alexa Fluor® 488 (sc-376023 AF488), Alexa Fluor® 546 (sc-376023 AF546), Alexa Fluor® 594 (sc-376023 AF594) or Alexa Fluor® 647 (sc-376023 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376023 AF680) or Alexa Fluor® 790 (sc-376023 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376023 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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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.

RESEARCH USE

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

APPLICATIONS

NQO1 (H-9) is recommended for detection of NQO1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

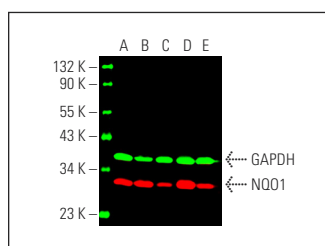
NQO1 (H-9) is also recommended for detection of NQO1 in additional species, including porcine.

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.

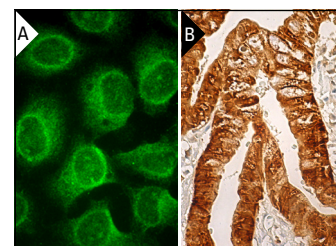
Molecular Weight of NQO1: 31 kDa.

Positive Controls: SW480 cell lysate: sc-2219, A549 cell lysate: sc-2413 or AN3 CA cell lysate: sc-24662.

DATA



Simultaneous direct near-infrared western blot analysis of NQO1 expression, detected with NQO1 (H-9) Alexa Fluor® 790: sc-376023 AF790 and GAPDH expression, detected with GAPDH (G-9) Alexa Fluor® 680: sc-365062 AF680 in Hep G2 (A), MES-SA/Dx5 (B), SW480 (C), A549 (D) and AN3 CA (E) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker MW Tag-Alexa Fluor® 680: sc-516730.



NQO1 (H-9): sc-376023. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human gall bladder tissue showing cytoplasmic and nuclear staining of glandular cells (B).

SELECT PRODUCT CITATIONS

- Dejeans, N., et al. 2012. Overexpression of GRP94 in breast cancer cells resistant to oxidative stress promotes high levels of cancer cell proliferation and migration: implications for tumor recurrence. *Free Radic. Biol. Med.* 52: 993-1002.
- Sajja, R.K., et al. 2018. *In vitro* modulation of redox and metabolism interplay at the brain vascular endothelium: genomic and proteomic profiles of sulforaphane activity. *Sci. Rep.* 8: 12708.
- Sivandzade, F. and Cucullo, L. 2019. Assessing the protective effect of rosiglitazone against electronic cigarette/tobacco smoke-induced blood-brain barrier impairment. *BMC Neurosci.* 20: 15.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.