SANTA CRUZ BIOTECHNOLOGY, INC.

NQO1 (F-8): sc-393736

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 up-stream 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 (F-8) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 249-270 at the C-terminus of NQO1 of human origin.

PRODUCT

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

NQO1 (F-8) is available conjugated to agarose (sc-393736 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393736 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393736 PE), fluorescein (sc-393736 FITC), Alexa Fluor® 488 (sc-393736 AF488), Alexa Fluor® 546 (sc-393736 AF546), Alexa Fluor® 594 (sc-393736 AF594) or Alexa Fluor® 647 (sc-393736 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393736 AF680) or Alexa Fluor® 790 (sc-393736 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-393736 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

PROTOCOLS

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

APPLICATIONS

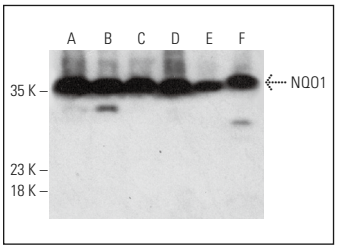
NQO1 (F-8) is recommended for detection of NQO1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000). NQO1 (F-8) is also recommended for detection of NQO1 in additional species, including canine.

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.

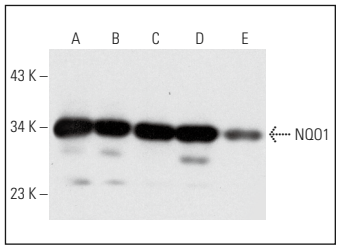
Molecular Weight of NQO1: 31 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, SW480 cell lysate: sc-2219 or Hep G2 cell lysate: sc-2227.

DATA



NQO1 (F-8) HRP: sc-393736 HRP. Direct western blot analysis of NQO1 expression in SW480 (**A**), HCT-116 (**B**), PC-3 (**C**), MCF7 (**D**), IB4 (**E**) and WEHI-231 (**F**) whole cell lysates.



NQO1 (F-8): sc-393736. Western blot analysis of NQO1 expression in Hep G2 (**A**), HeLa (**B**), SW480 (**C**) and HCT-116 (**D**) whole cell lysates and human kidney tissue extract (**E**).

SELECT PRODUCT CITATIONS

1. Tilton, C., et al. 2011. Human cytomegalovirus induces multiple means to combat reactive oxygen species. J. Virol. 85: 12585-12593.
2. Chen, P., et al. 2016. *Sargassum fusiforme* polysaccharides activate antioxidant defense by promoting Nrf2-dependent cytoprotection and ameliorate stress insult during aging. Food Funct. 7: 4576-4588.
3. Huang, M., et al. 2018. Brd4 regulates the expression of essential autophagy genes and Keap1 in AML cells. Oncotarget 9: 11665-11676.
4. Medina-Carmona, E., et al. 2019. Phosphorylation compromises FAD binding and intracellular stability of wild-type and cancer-associated NQO1: insights into flavo-proteome stability. Int. J. Biol. Macromol. 125: 1275-1288.
5. Barroso, E., et al. 2020. SIRT3 deficiency exacerbates fatty liver by attenuating the HIF1α-LIPIN 1 pathway and increasing CD36 through Nrf2. Cell Commun. Signal. 18: 147.
6. Liu, L., et al. 2021. Hydrogen alleviates acute lung injury induced by limb ischaemia/reperfusion in mice. Life Sci. 279: 119659.

RESEARCH USE

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