SANTA CRUZ BIOTECHNOLOGY, INC.

NQO2 (A-5): sc-271665

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. This detoxification process protects cells against quinone-induced oxidative stress, cytotoxicity and mutagenicity. NQO2 is a 231 amino acid protein and is 43 amino acids shorter than NQO1 at its C-terminus. NQO2 is an isozyme of NQO1 and transfers two electrons to a quinone, resulting in the formation of a hydroquinone product. The NQO2 gene is ubiquitously expressed and induced in response to TCDD. NQO2 has a higher level of expression in mouse liver and testis than NQO1, which is highly expressed in the heart. NQO2 has a different cofactor requirement than NQO1 and uses dihydronicotinamide riboside (NRH) rather than NAD(P)H as an electron donor. Unlike NQO1, NQO2 is resistant to typical inhibitors of NQO1 such as dicoumarol, cibacron blue and phenindonee, but is inhibited by quercetin and benzo(*a*)pyrene. NQO2 contains a specific metal binding site, which is absent in NQO1 and several *cis*-elements including SP1 binding sites, CCAAT box, XRE and ARE, which are located at the NQO2 gene promoter.

REFERENCES

1. Knox, R.J., et al. 2000. Bioactivation of 5-(aziridin-1-yl)-2,4-dinitrobenzamide (CB 1954) by human NAD(P)H quinone oxidoreductase 2: a novel co-substrate-mediated antitumor prodrug therapy. Cancer Res. 60: 4179-4186.
2. Chen, S., et al. 2000. Structure-function studies of DT-diaphorase (NQO1) and NRH:quinone oxidoreductase (NQO2). Free Radic. Biol. Med. 29: 76-84.
3. Jaiswal, A.K. 2000. Regulation of genes encoding NAD(P)H:quinone oxidoreductase. Free Radic. Biol. Med. 29: 254-262.
4. Long, D.J., 2nd. and Jaiswal, A.K. 2000. Mouse NRH:quinone oxidoreductase (NQO2): cloning of cDNA and gene- and tissue-specific expression. Gene 252: 107-117.

CHROMOSOMAL LOCATION

Genetic locus: NQO2 (human) mapping to 6p25.2; Nqo2 (mouse) mapping to 13 A3.3.

SOURCE

NQO2 (A-5) is a mouse monoclonal antibody raised against amino acids 182-231 mapping at the C-terminus of NQO2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

NQO2 (A-5) is available conjugated to agarose (sc-271665 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271665 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271665 PE), fluorescein (sc-271665 FITC), Alexa Fluor® 488 (sc-271665 AF488), Alexa Fluor® 546 (sc-271665 AF546), Alexa Fluor® 594 (sc-271665 AF594) or Alexa Fluor® 647 (sc-271665 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271665 AF680) or Alexa Fluor® 790 (sc-271665 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

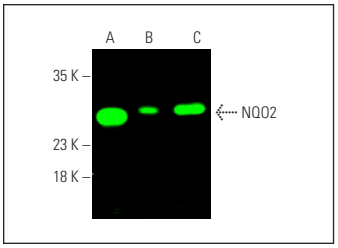
NQO2 (A-5) is recommended for detection of NQO2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for NQO2 siRNA (h): sc-41575, NQO2 siRNA (m): sc-41576, NQO2 shRNA Plasmid (h): sc-41575-SH, NQO2 shRNA Plasmid (m): sc-41576-SH, NQO2 shRNA (h) Lentiviral Particles: sc-41575-V and NQO2 shRNA (m) Lentiviral Particles: sc-41576-V.

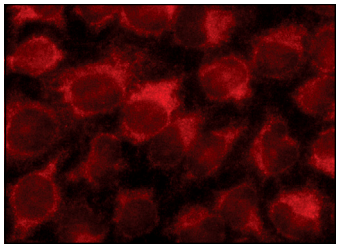
Molecular Weight of NQO2: 25 kDa.

Positive Controls: human liver extract: sc-363766, mouse liver extract: sc-2256 or c4 whole cell lysate: sc-364186.

DATA



m-IgGλ BP-CFL 680: sc-516194. Near-infrared western blot analysis of NQO2 expression in human liver (**A**) and mouse liver (**B**) tissue extracts and c4 whole cell lysate (**C**). Antibody tested: NQO2 (A-5): sc-271665.



NQO2 (A-5): sc-271665. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Pinkaew, D., et al. 2017. Fortilin binds IRE1α and prevents ER stress from signaling apoptotic cell death. Nat. Commun. 8: 18.
2. Olshina, M.A., et al. 2020. Regulation of the 20S Proteasome by a novel family of inhibitory proteins. Antioxid. Redox Signal. 32: 636-655.
3. Sonavane, M., et al. 2020. Dihydronicotinamide riboside promotes cell-specific cytotoxicity by tipping the balance between metabolic regulation and oxidative stress. PLoS ONE 15: e0242174.

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.

PROTOCOLS

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