

NQO2 (AT1E3): sc-517416

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., Jenkins, T.C., Hobbs, S.M., Chen, S., Melton, R.G. and Burke, P.J. 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., Wu, K. and Knox, R. 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. II. and Jaiswal, A.K. 2000. Mouse NRH:quinone oxidoreductase (NQO2): cloning of cDNA and gene- and tissue-specific expression. *Gene* 252: 107-117.
5. Long, D.J. II. and Jaiswal, A.K. 2000. NRH:quinone oxidoreductase2 (NQO2). *Chem. Biol. Interact.* 129: 99-112.

CHROMOSOMAL LOCATION

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

SOURCE

NQO2 (AT1E3) is a mouse monoclonal antibody raised against a recombinant protein corresponding to amino acids 1-231 of NQO2 of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

NQO2 (AT1E3) is recommended for detection of NQO2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

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.