SANTA CRUZ BIOTECHNOLOGY, INC.

NQO1 (C-19): sc-16464

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 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 (C-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of NQO1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-16464 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

NQO1 (C-19) is recommended for detection of NQO1 of mouse, rat and human 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

NQO1 (C-19) is also recommended for detection of NQO1 in additional species, including equine, canine, bovine and 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.

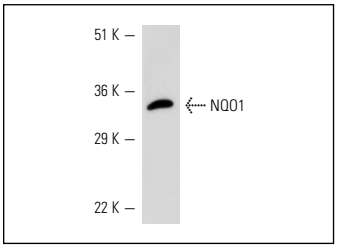
Molecular Weight of NQO1: 31 kDa.

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

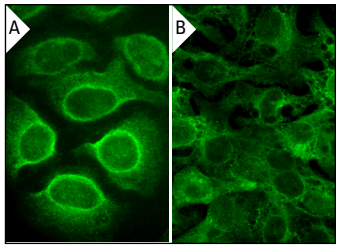
STORAGE

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

DATA



NQO1 (C-19): sc-16464. Western blot analysis of NQO1 expression in Hep G2 whole cell lysate.



NQO1 (C-19): sc-16464. Immunofluorescence staining of formalin-fixed HeLa (**A**) and Hep G2 (**B**) cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Ben-Dor, A., et al. 2005. Carotenoids activate the antioxidant response element transcription system. Mol. Cancer Ther. 4: 177-186.
2. Asher, G., et al. 2005. A mechanism of ubiquitin-independent proteasomal degradation of the tumor suppressors p53 and p73. Genes Dev. 19: 316-321.
3. Park, H.J., et al. 2005. Susceptibility of cancer cells to β-lapachone is enhanced by ionizing radiation. Int. J. Radiat. Oncol. Biol. Phys. 61: 212-219.
4. Singh, B., et al. 2011. Induction of NAD(P)H-quinone oxidoreductase 1 by antioxidants in female ACI rats is associated with decrease in oxidative DNA damage and inhibition of estrogen-induced breast cancer. Carcinogenesis 33: 156-163.
5. Tsai, C.W., et al. 2011. Carnosic acid induces the NAD(P)H: quinone oxidoreductase 1 expression in rat clone 9 cells through the p38/nuclear factor erythroid-2 related factor 2 pathway. J. Nutr. 141: 2119-2125.
6. Maruyama, A., et al. 2011. The novel NRF2-interacting factor KAP1 regulates susceptibility to oxidative stress by promoting the NRF2-mediated cytoprotective response. Biochem. J. 436: 387-397.
7. Hori, T., et al. 2011. Hyperthermia enhances the effect of β-lapachone to cause γH2AX formations and cell death in human osteosarcoma cells. Int. J. Hyperthermia 27: 53-62.

RESEARCH USE

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