

# NQO1 (R-20): sc-16463

## 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 (R-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region 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-16463 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

NQO1 (R-20) 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), 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 (R-20) 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.

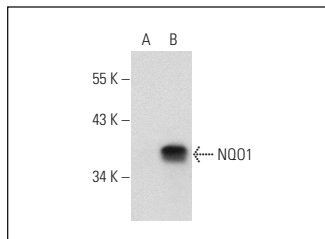
Molecular Weight of NQO1: 31 kDa.

Positive Controls: NQO1 (h2): 293T Lysate: sc-172015, Hep G2 cell lysate: sc-2227 or SW480 cell lysate: sc-2219.

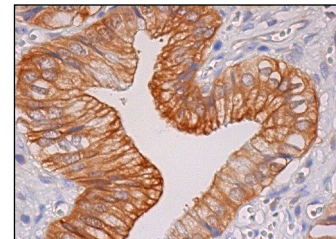
## STORAGE

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

## DATA



NQO1 (R-20): sc-16463. Western blot analysis of NQO1 expression in non-transfected: sc-117752 (A) and human NQO1 transfected: sc-172015 (B) 293T whole cell lysates.



NQO1 (R-20): sc-16463. Immunoperoxidase staining of formalin fixed, paraffin-embedded human gall bladder tissue showing cytoplasmic and membrane staining of glandular cells.

## SELECT PRODUCT CITATIONS

- Asher, G., et al. 2005. A mechanism of ubiquitin-independent proteasomal degradation of the tumor suppressors p53 and p73. *Genes Dev.* 19: 316-321.
- Alard, A., et al. 2010. NAD(P)H quinone-oxydoreductase 1 protects eukaryotic translation initiation factor 4G1 from degradation by the proteasome. *Mol. Cell. Biol.* 30: 1097-1105.
- Barroso, E., et al. 2015. PPARβ/δ ameliorates fructose-induced insulin resistance in adipocytes by preventing Nrf2 activation. *Biochim. Biophys. Acta* 1852: 1049-1058.
- Rizvi, F., et al. 2015. Suppression in PHLPP2 induction by morin promotes Nrf2-regulated cellular defenses against oxidative injury to primary rat hepatocytes. *Redox Biol.* 6: 587-598.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.



Try **NQO1 (A180): sc-32793** or **NQO1 (H-9): sc-376023**, our highly recommended monoclonal alternatives to NQO1 (R-20). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **NQO1 (A180): sc-32793**.