SANTA CRUZ BIOTECHNOLOGY, INC.

Oxr1 (N-12): sc-98061

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Reactive oxygen species (ROS) are highly reactive molecules that are a normal consequence of aerobic metabolism. Cellular ROS damage can induce apoptosis and spontaneous mutagenesis. Oxr1 (oxidation resistance protein 1) is a 758 amino acid mitochondrial protein that is most likely involved in protection from oxidative damage. Oxr1 is highly conserved from yeast to humans and is specific to eukaryotes. Induced by heat and oxidative stress, the carboxyl-terminal half of Oxr1 is required for its function. Upregulation of superoxide dismutase and catalase was observed in developing *Drosophila* mutants that lacked the gene encoding Oxr1, suggesting that oxidative stress may trigger compensatory protein expression. There are four isoforms of Oxr1 that are produced as a result of alternative splicing events.

REFERENCES

1. Volkert, M.R., Elliott, N.A. and Housman, D.E. 2000. Functional genomics reveals a family of eukaryotic oxidation protection genes. Proc. Natl. Acad. Sci. USA 97: 14530-14535.
2. Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 605609. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Bohr, V.A. 2002. Repair of oxidative DNA damage in nuclear and mitochondrial DNA, and some changes with aging in mammalian cells. Free Radic. Biol. Med. 32: 804-812.
4. Elliott, N.A. and Volkert, M.R. 2004. Stress induction and mitochondrial localization of Oxr1 proteins in yeast and humans. Mol. Cell. Biol. 24: 3180-3187.
5. Doudican, N.A., Song, B., Shadel, G.S. and Doetsch, P.W. 2005. Oxidative DNA damage causes mitochondrial genomic instability in *Saccharomyces cerevisiae*. Mol. Cell. Biol. 25: 5196-5204.
6. Durand, M., Kolpak, A., Farrell, T., Elliott, N.A., Shao, W., Brown, M. and Volkert, M.R. 2007. The Oxr domain defines a conserved family of eukaryotic oxidation resistance proteins. BMC Cell Biol. 8: 13.
7. Natoli, R., Provis, J., Valter, K. and Stone, J. 2008. Expression and role of the early-response gene Oxr1 in the hyperoxia-challenged mouse retina. Invest. Ophthalmol. Vis. Sci. 49: 4561-4567.
8. Volkert, M.R., Wang, J.Y. and Elliott, N.A. 2008. A functional genomics approach to identify and characterize oxidation resistance genes. Methods Mol. Biol. 477: 331-342.
9. Chung, K.R. and Liao, H.L. 2008. Determination of a transcriptional regulator-like gene involved in biosynthesis of elsinochrome phytotoxin by the citrus scab fungus, Elsinoë fawcettii. Microbiology 54: 3556-3566.

CHROMOSOMAL LOCATION

Genetic locus: OXR1 (human) mapping to 8q23.1; Oxr1 (mouse) mapping to 15 B3.1.

SOURCE

Oxr1 (N-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Oxr1 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-98061 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Oxr1 (N-12) is recommended for detection of Oxr1 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); non cross-reactive with Oxr1-4.

Oxr1 (N-12) is also recommended for detection of Oxr1 in additional species, including equine, canine and porcine.

Suitable for use as control antibody for Oxr1 siRNA (h): sc-77524, Oxr1 siRNA (m): sc-151952, Oxr1 shRNA Plasmid (h): sc-77524-SH, Oxr1 shRNA Plasmid (m): sc-151952-SH, Oxr1 shRNA (h) Lentiviral Particles: sc-77524-V and Oxr1 shRNA (m) Lentiviral Particles: sc-151952-V.

Molecular Weight of Oxr1 isoforms: 28/56/94/98 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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 or our catalog for detailed protocols and support products.