SANTA CRUZ BIOTECHNOLOGY, INC.

SOD-2 (h2): 293T Lysate: sc-176405

BACKGROUND

The superoxide dismutase family is composed of three metalloenzymes (SOD-1, SOD-2 and SOD-3) that catalyze the oxido-reduction of reactive oxygen species (ROS) such as superoxide anion. The SOD-2 precursor is a 222 amino acid protein that is encoded by nuclear chromatin, synthesized in the cytosol and imported post-translationally into the mitochondrial matrix. Unlike SOD-1, which is a homodimeric cytosolic Cu-Zn enzyme, SOD-2 is a homotetrameric manganese enzyme (also known as MnSOD) that functions in the mitochondrion. ROS are implicated in a wide range of degenerative processes, including Alzheimer's disease, Parkinson's disease and ischemic heart disease. Homozygous mutant mice, which lack SOD-2, exhibit dilated cardiomyopathy, accumulation of lipid in liver and skeletal muscle, metabolic acidosis, oxidative DNA damage and respiratory chain deficiencies in heart and skeletal muscle. Polymorphisms in the SOD-2 gene have also been implicated in non-familial, idiopathic, dilated cardiomyopathy in humans.

REFERENCES

1. Wispe, J.R., et al. 1989. Synthesis and processing of the precursor for human mangano-superoxide dismutase. Biochem. Biophys. Acta 994: 30-36.
2. Nishi, H., et al. 1995. DNA typing of HLA class II genes in Japanese patients with dilated cardiomyopathy. J. Mol. Cell. Cardiol. 27: 2385-2392.
3. Li, Y., et al. 1995. Dilated cardiomyopathy and neonatal lethality in mutant mice lacking manganese superoxide dismutase. Nat. Genet. 11: 376-381.
4. Borgstahl, G.E., et al. 1996. Human mitochondrial manganese superoxide dismutase polymorphic variant Ile58Thr reduces activity by destabilizing the tetrameric interface. Biochemistry 35: 4287-4297.
5. Hsieh, Y., et al. 1998. Probing the active site of human manganese superoxide dismutase: the role of glutamine 143. Biochemistry 37: 4731-4739.
6. Melov, S., et al. 1998. A novel neurological phenotype in mice lacking mitochondrial manganese superoxide dismutase. Nat. Genet. 18: 159-163.
7. Melov, S., et al. 1999. Mitochondrial disease in superoxide disumtase 2 mutant mice. Proc. Natl. Acad. Sci. USA 96: 846-851.

CHROMOSOMAL LOCATION

Genetic locus: SOD2 (human) mapping to 6q25.3.

PRODUCT

SOD-2 (h2): 293T Lysate represents a lysate of human SOD-2 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

SOD-2 (h2): 293T Lysate is suitable as a Western Blotting positive control for human reactive SOD-2 antibodies. Recommended use: 10-20 µl per lane.

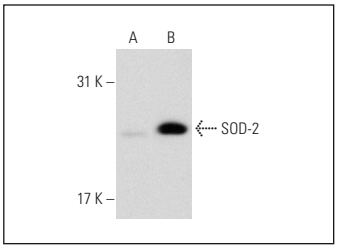
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

SOD-2 (A-2): sc-133134 is recommended as a positive control antibody for Western Blot analysis of enhanced human SOD-2 expression in SOD-2 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

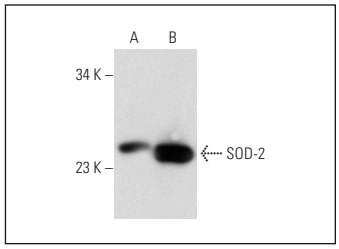
RECOMMENDED SUPPORT REAGENTS

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, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



SOD-2 (A-2): sc-133134. Western blot analysis of SOD-2 expression in non-transfected: sc-117752 (**A**) and human SOD-2 transfected: sc-176405 (**B**) 293T whole cell lysates.



SOD-2 (B-1): sc-133254. Western blot analysis of SOD-2 expression in non-transfected: sc-117752 (**A**) and human SOD-2 transfected: sc-176405 (**B**) 293T whole cell lysates.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. 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.