SANTA CRUZ BIOTECHNOLOGY, INC.

SOD-2 (E-7): sc-515068

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.

CHROMOSOMAL LOCATION

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

SOURCE

SOD-2 (E-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 137-162 within an internal region of SOD-2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-515068 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

SOD-2 (E-7) is recommended for detection of SOD-2 of human origin by Western Blotting (starting dilution 1:100, 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).

Suitable for use as control antibody for SOD-2 siRNA (h): sc-41655, SOD-2 shRNA Plasmid (h): sc-41655-SH and SOD-2 shRNA (h) Lentiviral Particles: sc-41655-V.

Molecular Weight of SOD-2: 25 kDa.

Positive Controls: SOD-2 (h2): 293 Lysate: sc-113078.

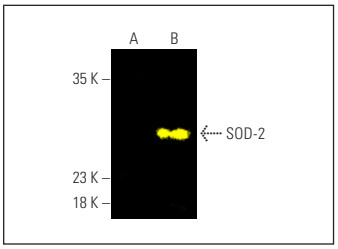
STORAGE

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

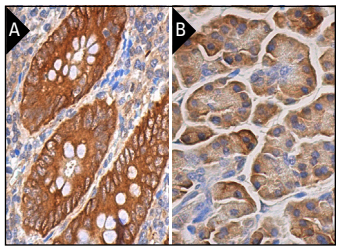
RECOMMENDED SUPPORT REAGENTS

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



SOD-2 (E-7): sc-515068. Fluorescent western blot analysis of SOD-2 expression in non-transfected: sc-110760 (**A**) and human SOD-2 transfected: sc-113078 (**B**) 293 whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG_1 BP-CFL 488: sc-533661.



SOD-2 (E-7): sc-515068. Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing cytoplasmic staining of glandular cells and lymphoid cells (**A**) and human pancreas tissue showing cytoplasmic staining of exocrine glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Park, S.Y., et al. 2018. Age-related endothelial dysfunction in human skeletal muscle feed arteries: the role of free radicals derived from mitochondria in the vasculature. Acta Physiol. E-published.
2. Gifford, J.R., et al. 2018. Altered skeletal muscle mitochondrial phenotype in COPD: disease vs. disuse. J. Appl. Physiol. 124: 1045-1053.
3. Sarikhani, M., et al. 2018. SIRT2 deacetylase regulates the activity of GSK3 isoforms independent of inhibitory phosphorylation. Elife 7: e32952.
4. Decker, S.T., et al. 2021. Skeletal muscle mitochondrial adaptations induced by long-term cigarette smoke exposure. Am. J. Physiol. Endocrinol. Metab. 321: E80-E89.

RESEARCH USE

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