SANTA CRUZ BIOTECHNOLOGY, INC.

CCS (C-14): sc-34167

BACKGROUND

Cu-Zn superoxide dismutase-1 (SOD-1) is a well characterized cytosolic scavenger of oxygen free radicals that requires copper and zinc binding to potentiate its enzymatic activity. Copper chaperone for SOD-1 (CCS) is essential for the incorporation of copper into SOD-1, and therefore is necessary for its enzymatic activity. CCS prevents copper ions from binding to intracellular copper scavengers and provides the SOD-1 enzyme with the necessary copper cofactor. CCS escorts copper only to SOD-1 and fails to deliver copper to proteins in the mitochondria, nucleus or secretory pathway. CCS interacts with both wild-type and mutated forms of SOD-1 through CCS domains that are homologous in SOD-1. CCS exists as a homodimer that may form a heterodimer with SOD-1 during copper loading. While many tissues express CCS, the chaperone is most abundant in the kidney, liver and Purkinje cells in the neurophil of the central nervous system.

REFERENCES

1. Levanon, D., et al. 1985. Architecture and anatomy of the chromosomal locus in human chromosome 21 encoding the Cu/Zn superoxide dismutase. EMBO J. 4: 77-84.
2. Bewley, G.C. 1988. cDNA and deduced amino acid sequence of murine Cu-Zn superoxide dismutase. Nucleic Acids Res. 16: 2728.
3. Culotta, V.C., et al. 1997. The copper chaperone for superoxide dismutase. J. Biol. Chem. 272: 23469-23472.
4. Casareno, R.L., et al. 1998. The copper chaperone CSS directly interacts with copper/zinc superoxide dismutase. J. Biol. Chem. 272: 23625-23628.
5. Rae, T.D., et al. 1999. Undetectable intracellular free copper: the requirement of a copper chaperone for superoxide dismutase. Science 284: 805-808.
6. Rothstein, J.D., et al. 1999. The copper chaperone CCS is abundant in neurons and astrocytes in human and rodent brain. J. Neurochem. 72: 422-429.
7. Wong, P.C., et al. 2000. Copper chaperone for superoxide dismutase is essential to activate mammalian Cu/Zn superoxide dismutase. Proc. Natl. Acad. Sci. USA 97: 2886-2891.

CHROMOSOMAL LOCATION

Genetic locus: CCS (human) mapping to 11q13.2; Ccs (mouse) mapping to 19 A.

SOURCE

CCS (C-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of CCS 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-34167 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

CCS (C-14) is recommended for detection of CCS 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).

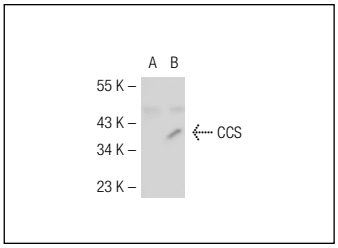
CCS (C-14) is also recommended for detection of CCS in additional species, including porcine.

Suitable for use as control antibody for CCS siRNA (h): sc-29956, CCS siRNA (m): sc-29957, CCS shRNA Plasmid (h): sc-29956-SH, CCS shRNA Plasmid (m): sc-29957-SH, CCS shRNA (h) Lentiviral Particles: sc-29956-V and CCS shRNA (m) Lentiviral Particles: sc-29957-V.

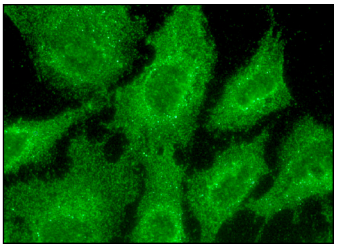
Molecular Weight of CCS: 35 kDa.

Positive Controls: CCS (m): 293T Lysate: sc-119087, HL-60 whole cell lysate: sc-2209 or Hep G2 cell lysate: sc-2227.

DATA



CCS (C-14): sc-34167. Western blot analysis of CCS expression in non-transfected: sc-117752 (**A**) and mouse CCS transfected: sc-119087 (**B**) 293T whole cell lysates.



CCS (C-14): sc-34167. Immunofluorescence staining of formalin-fixed HepG2 cells showing cytoplasmic and nuclear localization.

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.