SANTA CRUZ BIOTECHNOLOGY, INC.

CCS (FL-274): sc-20141

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 wildtype 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.

CHROMOSOMAL LOCATION

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

SOURCE

CCS (FL-274) is a rabbit polyclonal antibody raised against amino acids 1-274 representing full length 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.

APPLICATIONS

CCS (FL-274) 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 (FL-274) is also recommended for detection of CCS in additional species, including equine, canine and 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, HeLa whole cell lysate: sc-2200 or Hep G2 cell lysate: sc-2227.

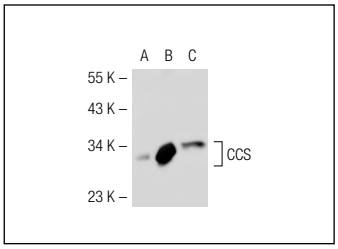
STORAGE

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

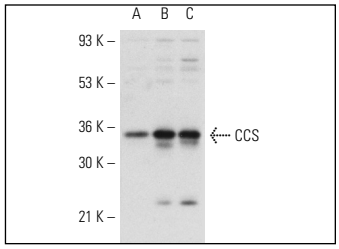
RESEARCH USE

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

DATA



CCS (FL-274): sc-20141. Western blot analysis of CCS expression in non-transfected 293T: sc-117752 (**A**), mouse CCS transfected 293T: sc-119087 (**B**) and HeLa (**C**) whole cell lysates.



CCS (FL-274): sc-20141. Western blot analysis of CCS expression in HL-60 (**A**), Hep G2 (**B**) and HeLa (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Bertinato, J., et al. 2003. Copper modulates the degradation of copper chaperone for Cu/Zn superoxide dismutase by the 26 S proteosome. J. Biol. Chem. 278: 35071-35078.
2. Bertinato, J., et al. 2008. Ctr2 is partially localized to the plasma membrane and stimulates copper uptake in COS-7 cells. Biochem. J. 409: 731-740.
3. Son, M., et al. 2009. Redox susceptibility of SOD1 mutants is associated with the differential response to CCS over-expression *in vivo*. Neurobiol. Dis. 34: 155-162.
4. Cozzolino, M., et al. 2009. Oligomerization of mutant SOD1 in mitochondria of motoneuronal cells drives mitochondrial damage and cell toxicity. Antioxid. Redox Signal. 11: 1547-1558.
5. Gray, E.H., et al. 2010. Deficiency of the copper chaperone for superoxide dismutase increases amyloid-β production. J. Alzheimers Dis. 21: 1101-1105.
6. Valentine, H.L., et al. 2010. Peripheral nerve and brain differ in their capacity to resolve N,N-diethyldithiocarbamate-mediated elevations in copper and oxidative injury. Toxicology 274: 10-17.
7. Getz, J., et al. 2011. The cardiac copper chaperone proteins Sco1 and CCS are up-regulated, but Cox 1 and Cox4 are down-regulated, by copper deficiency. Biol. Trace Elem. Res. 143: 368-377.
8. Haas, K.L., et al. 2011. Model peptides provide new insights into the role of histidine residues as potential ligands in human cellular copper acquisition via Ctr1. J. Am. Chem. Soc. 133: 4427-4437.