

# CCS (G-19): sc-14258

## 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.

## 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.

## CHROMOSOMAL LOCATION

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

## SOURCE

CCS (G-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region 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-14258 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## 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.

## APPLICATIONS

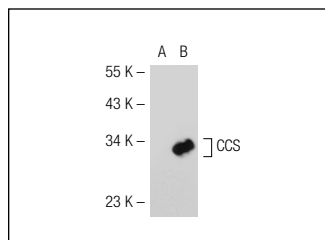
CCS (G-19) is recommended for detection of CCS of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000). CCS (G-19) 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.

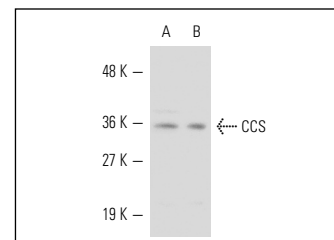
Molecular Weight of CCS: 35 kDa.

Positive Controls: CCS (m): 293T Lysate: sc-119087, HeLa whole cell lysate: sc-2200 or HL-60 whole cell lysate: sc-2209.

## DATA



CCS (G-19): sc-14258. Western blot analysis of CCS expression in non-transfected: sc-117752 (A) and mouse CCS transfected: sc-119087 (B) 293T whole cell lysates.



CCS (G-19): sc-14258. Western blot analysis of CCS expression in HeLa (A) and HL-60 (B) whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Bertinato, J., et al. 2003. Copper deficiency induces the upregulation of the copper chaperone for Cu-Zn superoxide dismutase in weanling male rats. *J. Nutr.* 133: 28-31.
2. Prohaska, J.R., et al. 2003. Copper, zinc-superoxide dismutase protein but not mRNA is lower in copper-deficient mice and mice lacking the copper chaperone for superoxide dismutase. *Exp. Biol. Med.* 228: 959-966.
3. Prohaska, J.R., et al. 2003. Metallochaperone for Cu,Zn-superoxide dismutase (CCS) protein but not mRNA is higher in organs from copper-deficient mice and rats. *Arch. Biochem. Biophys.* 417: 227-234.
4. Angeletti, B., et al. 2005. BACE1 cytoplasmic domain interacts with the copper chaperone for superoxide dismutase-1 and binds copper. *J. Biol. Chem.* 280: 17930-17937.

**MONOS**  
Satisfaction  
Guaranteed

Try **CCS (H-7): sc-55561** or **CCS (D-7): sc-374205**, our highly recommended monoclonal alternatives to CCS (G-19).