

# CCS (E-5): sc-365820

## 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 neuropil 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 (E-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 257-274 at the C-terminus of CCS of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> 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-365820 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

CCS (E-5) is recommended for detection of CCS of mouse, rat and 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

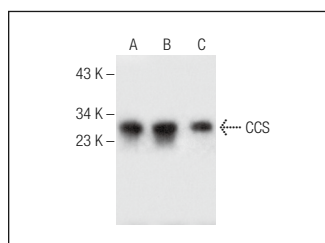
Molecular Weight of CCS: 35 kDa.

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

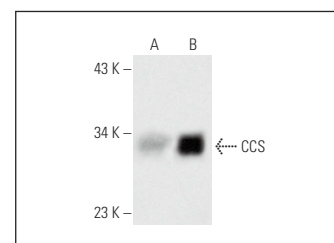
## RECOMMENDED SUPPORT REAGENTS

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.

## DATA



CCS (E-5): sc-365820. Western blot analysis of CCS expression in HL-60 (A), Hep G2 (B) and HeLa (C) whole cell lysates.



CCS (E-5): sc-365820. Western blot analysis of CCS expression in non-transfected: sc-117752 (A) and mouse CCS transfected: sc-119087 (B) 293T whole cell lysates.

## 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](http://www.scbt.com) for detailed protocols and support products.