

CCS (m): 293T Lysate: sc-119087

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.
8. Rae, T.D., et al. 2000. Mechanism of Cu,Zn-superoxide dismutase by the human metallochaperone CCS. *J. Biol. Chem.* 276: 5166-5176.
9. Lamb, A.L., et al. 2000. Heterodimer formation between superoxide dismutase and its copper chaperone. *Biochemistry* 39: 14720-14727.

CHROMOSOMAL LOCATION

Genetic locus: *Ccs* (mouse) mapping to 19 A.

PRODUCT

CCS (m): 293T Lysate represents a lysate of mouse CCS transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

RESEARCH USE

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

APPLICATIONS

CCS (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive CCS antibodies. Recommended use: 10-20 µl per lane.

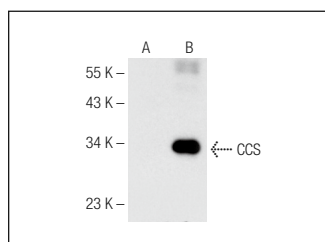
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

CCS (D-7): sc-374205 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse CCS expression in CCS transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

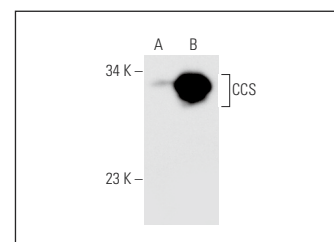
RECOMMENDED SUPPORT REAGENTS

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.

DATA



CCS (D-7): sc-374205. Western blot analysis of CCS expression in non-transfected: sc-117752 (A) and mouse CCS transfected: sc-119087 (B) 293T whole cell lysates.



CCS (H-7): sc-55561. 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 -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.