SANTA CRUZ BIOTECHNOLOGY, INC.

CCS (H-7): sc-55561



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.

CHROMOSOMAL LOCATION

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

SOURCE

CCS (H-7) is a mouse monoclonal antibody raised against amino acids 1-274 representing full length CCS of human origin.

PRODUCT

Each vial contains 200 μg lgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CCS (H-7) is available conjugated to agarose (sc-55561 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-55561 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-55561 PE), fluorescein (sc-55561 FITC), Alexa Fluor[®] 488 (sc-55561 AF548), Alexa Fluor[®] 546 (sc-55561 AF546), Alexa Fluor[®] 594 (sc-55561 AF594) or Alexa Fluor[®] 647 (sc-55561 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-55561 AF680) or Alexa Fluor[®] 790 (sc-55561 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

CCS (H-7) 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 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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: rat brain extract: sc-2392, mouse brain extract: sc-2253 or HeLa whole cell lysate: sc-2200.

STORAGE

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

DATA





CCS (H-7): sc-55561. Western blot analysis of CCS expression in HeLa (A), c4 (B) and 3611-RF (C) whole cell lysates and mouse brain (D) and rat brain (E) tissue extracts.

CCS (H-7): sc-55561. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic staining of Leydig cells.

SELECT PRODUCT CITATIONS

- Bertinato, J., et al. 2010. Decreased erythrocyte CCS content is a biomarker of copper overload in rats. Int. J. Mol. Sci. 11: 2624-2635.
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- Sudhahar, V., et al. 2019. Copper transporter ATP7A (copper-transporting P-type ATPase/Menkes ATPase) limits vascular inflammation and aortic aneurysm development: role of microRNA-125b. Arterioscler. Thromb. Vasc. Biol. 39: 2320-2337.
- Tsang, T., et al. 2020. Copper is an essential regulator of the autophagic kinases ULK1/2 to drive lung adenocarcinoma. Nat. Cell Biol. 22: 412-424.
- Grasso, M., et al. 2021. The copper chaperone CCS facilitates copper binding to MEK1/2 to promote kinase activation. J. Biol. Chem. 297: 101314.
- Tsang, T., et al. 2022. BRAFV600E-driven lung adenocarcinoma requires copper to sustain autophagic signaling and processing. Mol. Cancer Res. 20: 1096-1107.
- Chojnowski, J.E., et al. 2022. Copper modulates the catalytic activity of protein kinase CK2. Front. Mol. Biosci. 9: 878652.
- Lee, V.J. and Heffern, M.C. 2022. Structure-activity assessment of flavonoids as modulators of copper transport. Front. Chem. 10: 972198.
- Tasic, D., et al. 2022. Effects of fructose and stress on rat renal copper metabolism and antioxidant enzymes function. Int. J. Mol. Sci. 23: 9023.
- Abdelsaid, K., et al. 2022. Exercise improves angiogenic function of circulating exosomes in type 2 diabetes: role of exosomal SOD3. FASEB J. 36: e22177.

RESEARCH USE

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

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