SANTA CRUZ BIOTECHNOLOGY, INC.

ceruloplasmin (8): sc-135866

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Ceruloplasmin (CP) is a blue plasma glycoprotein that is synthesized in hepatocytes and transports copper throughout the body. Also known as ferroxidase, ceruloplasmin is the product of an intragenic triplication and is composed of three homologous domains. Two splice variants, CP-1 and CP-2, have differential expression in specific tissues. Ceruloplasmin mRNAs are expressed in human liver, macrophages and lymphocytes. Ceruloplasmin binds copper and has six or seven cupric ions per molecule. It is involved in peroxidation of Fe(II) transferrin to form Fe(III) transferrin. Ceruloplasmin is proteolytically degraded to a short form, which still possesses ferroxidase activity. However, only the intact long form is able to catalyze iron loading into ferritin, indicating that the structural integrity of ceruloplasmin is essential for the enzyme to effectively catalyze iron loading into ferritin. Ceruloplasmin also induces low density lipoprotein oxidation *in vitro,* an action that depends on the presence of a single, chelatable Cu atom. A glycosyl phosphatidylinositol (GPI)-anchored form of ceruloplasmin is expressed by Sertoli cells, which may be the dominant form in Sertoli cells.

REFERENCES

1. Takahashi, N., et al. 1984. Single-chain structure of human ceruloplasmin: the complete amino acid sequence of the whole molecule. Proc. Natl. Acad. Sci. USA 81: 390-394.
2. Yang, F., et al. 1986. Characterization, mapping, and expression of the human ceruloplasmin gene. Proc. Natl. Acad. Sci. USA 83: 3257-3261.
3. Royle, N.J., et al. 1987. Human genes encoding Prothrombin and ceruloplasmin map to 11p11-q12 and 3q21-24, respectively. Somat. Cell Mol. Genet. 13: 285-292.
4. Yang, F.M., et al. 1990. Human ceruloplasmin. Tissue-specific expression of transcripts produced by alternative splicing. J. Biol. Chem. 265: 10780-10785.
5. Terada, K., et al. 1995. Copper incorporation into ceruloplasmin in rat livers. Biochim. Biophys. Acta 1270: 58-62.
6. Mukhopadhyay, C.K., et al. 1997. Identification of the prooxidant site of human ceruloplasmin: a model for oxidative damage by copper bound to protein surfaces. Proc. Natl. Acad. Sci. USA 94: 11546-11551.
7. Fortna, R.R., et al. 1999. Glycosyl phosphatidylinositol-anchored ceruloplasmin is expressed by rat Sertoli cells and is concentrated in detergent-insoluble membrane fractions. Biol. Reprod. 61: 1042-1049.

CHROMOSOMAL LOCATION

Genetic locus: CP (human) mapping to 3q24; Cp (mouse) mapping to 3 A2.

SOURCE

ceruloplasmin (8) is a mouse monoclonal antibody raised against amino acids 233-355 of ceruloplasmin of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

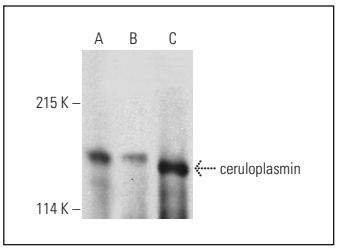
ceruloplasmin (8) is recommended for detection of ceruloplasmin of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for ceruloplasmin siRNA (h): sc-41194, ceruloplasmin siRNA (m): sc-41195, ceruloplasmin shRNA Plasmid (h): sc-41194-SH, ceruloplasmin shRNA Plasmid (m): sc-41195-SH, ceruloplasmin shRNA (h) Lentiviral Particles: sc-41194-V and ceruloplasmin shRNA (m) Lentiviral Particles: sc-41195-V.

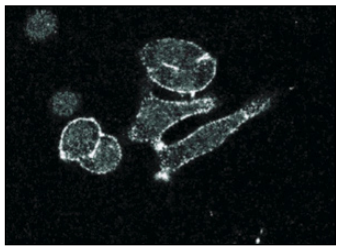
Molecular Weight of ceruloplasmin: 132 kDa.

Positive Controls: human eye extract: sc-364223, human plasma extract: sc-364374 or rat testis extract: sc-2400.

DATA



ceruloplasmin (8): sc-135866. Western blot analysis of ceruloplasmin expression in human eye (**A**), human plasma (**B**) and rat plasma (**C**) tissue extracts.



ceruloplasmin (8): sc-135866. Immunofluorescence staining of SK-BR-3 cells showing cytoplasmic and cell surface localization.

SELECT PRODUCT CITATIONS

1. Leyendecker, M., et al. 2011. Ceruloplasmin expression in rat liver cells is attenuated by Insulin: role of FoxO transcription factors. Horm. Metab. Res. 43: 268-274.
2. Chen, T.D., et al. 2017. Identification of ceruloplasmin as a gene that affects susceptibility to glomerulonephritis through macrophage function. Genetics 206: 1139-1151.
3. Stremmel, W., et al. 2017. The overall fatty acid absorption controlled by basolateral chylomicron excretion under regulation of p-JNK1. Biochim. Biophys. Acta 1862: 917-928.
4. Clement, C.C., et al. 2018. Quantitative profiling of the lymph node clearance capacity. Sci. Rep. 8: 11253.

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.