SANTA CRUZ BIOTECHNOLOGY, INC.

ceruloplasmin (3B11): sc-69767

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.

CHROMOSOMAL LOCATION

Genetic locus: CP (human) mapping to 3q24.

SOURCE

ceruloplasmin (3B11) is a mouse monoclonal antibody raised against purified ceruloplasmin of human origin.

PRODUCT

Each vial contains IgG_1 in 100 µl of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

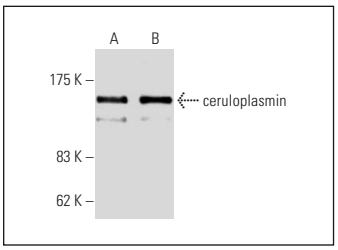
ceruloplasmin (3B11) is recommended for detection of ceruloplasmin of human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000), immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution to be determined by researcher, dilution range 1:30-1:5000).

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

Molecular Weight of ceruloplasmin: 132 kDa.

Positive Controls: human plasma extract: sc-364374, NTERA-2 cl.D1 whole cell lysate: sc-364181 or SK-BR-3 cell lysate: sc-2218.

DATA



ceruloplasmin (3B11): sc-69767. Western blot analysis of ceruloplasmin purified from human plasma (**A**) and in human plasma (**B**).

SELECT PRODUCT CITATIONS

1. Anagnostopoulos, A.K., et al. 2010. Proteomic analysis of amniotic fluid in pregnancies with Klinefelter syndrome foetuses. J. Proteomics 73: 943-950.
2. Heywood, W.E., et al. 2011. 2D DIGE analysis of maternal plasma for potential biomarkers of Down syndrome. Proteome Sci. 9: 56.
3. Jin, H. and Zangar, R.C. 2012. High-throughput, multiplexed analysis of 3-nitrotyrosine in individual proteins. Curr. Protoc. Toxicol. 17: Unit 17.15.
4. Braoudaki, M., et al. 2013. Protein biomarkers distinguish between high- and low-risk pediatric acute lymphoblastic leukemia in a tissue specific manner. J. Hematol. Oncol. 6: 52.
5. Jin, H., et al. 2013. Oxidatively modified proteins as plasma biomarkers in breast cancer. Cancer Biomark. 13: 193-200.
6. Sogabe, M., et al. 2014. Novel glycobiomarker for ovarian cancer that detects clear cell carcinoma. J. Proteome Res. 13: 1624-1635.
7. Balfoussia, E., et al. 2014. A proteomic study of plasma protein changes under extreme physical stress. J. Proteomics 98: 1-14.

STORAGE

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