

CDO1 (K-17): sc-164022

BACKGROUND

CDO1 (cysteine dioxygenase, type I) is a 200 amino acid protein that belongs to the cysteine dioxygenase family and is involved in organosulfur biosynthesis. Existing as a monomer and expressed at high levels in liver and placenta and at lower levels in brain, pancreas and heart, CDO1 functions as a dioxygenase that uses iron and zinc as cofactors to catalyze the conversion of L-cysteine and oxygen to 3-sulfinoalanine. Via its catalytic activity, CDO1 is involved in pyruvate-, sulfate- and taurine-related metabolic pathways and is a crucial regulator of cysteine concentrations within the cell. Human CDO1 shares 94% amino acid identity with its rat counterpart, suggesting a conserved role between species. The gene encoding CDO1 maps to human chromosome 5, which contains 181 million base pairs and comprises nearly 6% of the human genome. Deletion of the p arm of chromosome 5 leads to Cri du chat syndrome, while deletion of the q arm or of chromosome 5 altogether is common in therapy-related acute myelogenous leukemias and myelodysplastic syndrome.

REFERENCES

- Hosokawa, Y., et al. 1990. Isolation and characterization of a cDNA for rat liver cysteine dioxygenase. *Biochem. Biophys. Res. Commun.* 168: 473-478.
- McCann, K.P., et al. 1994. Human cysteine dioxygenase type I: primary structure derived from base sequencing of cDNA. *Biochim. Biophys. Acta* 1209: 107-110.
- Jeremiah, S., et al. 1996. Chromosomal localisation of genes coding for human and mouse liver cytosolic cysteine dioxygenase. *Ann. Hum. Genet.* 60: 29-33.
- Ramsden, D.B., et al. 1997. Human cysteine dioxygenase type I (CDO-I; EC 1.13.11.20): 5' flanking region and intron-exon structure of the gene. *Mol. Pathol.* 50: 269-271.
- Qusti, S., et al. 2000. Development of an *in vitro* model for cysteine dioxygenase expression in the brain. *Cell Biol. Toxicol.* 16: 243-255.
- Wilkinson, L.J. and Waring, R.H. 2002. Cysteine dioxygenase: modulation of expression in human cell lines by cytokines and control of sulphate production. *Toxicol. In Vitro* 16: 481-483.
- Satsu, H., et al. 2003. Functional characterization and regulation of the taurine transporter and cysteine dioxygenase in human hepatoblastoma HepG2 cells. *Biochem. J.* 375: 441-447.
- Dominy, J.E., et al. 2007. Overexpression of cysteine dioxygenase reduces intracellular cysteine and glutathione pools in HepG2/C3A cells. *Am. J. Physiol. Endocrinol. Metab.* 293: E62-E69.
- Booken, N., et al. 2008. Sezary syndrome is a unique cutaneous T-cell lymphoma as identified by an expanded gene signature including diagnostic marker molecules CDO1 and DNM3. *Leukemia* 22: 393-399.

CHROMOSOMAL LOCATION

Genetic locus: CDO1 (human) mapping to 5q22.3; Cdo1 (mouse) mapping to 18 C.

SOURCE

CDO1 (K-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of CDO1 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-164022 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

CDO1 (K-17) is recommended for detection of CDO1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with CDO.

CDO1 (K-17) is also recommended for detection of CDO1 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for CDO1 siRNA (h): sc-91642, CDO1 siRNA (m): sc-142234, CDO1 shRNA Plasmid (h): sc-91642-SH, CDO1 shRNA Plasmid (m): sc-142234-SH, CDO1 shRNA (h) Lentiviral Particles: sc-91642-V and CDO1 shRNA (m) Lentiviral Particles: sc-142234-V.

Molecular Weight of CDO1: 23 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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 or our catalog for detailed protocols and support products.