

HAO1 (7A1-8H3B): sc-517552

BACKGROUND

HAO1 (hydroxyacid oxidase 1) is also known as GOX1 (glycolate oxidase 1) or HAOX1 and is a 370 amino acid protein that is expressed in liver and pancreas. HAO1 is localized to peroxisomes and aids in organic acid metabolism via 2-hydroxyacid oxidase activity. 2-hydroxyacid oxidases, such as HAO1, are enzymes that require a flavin cofactor to oxidize 2-hydroxyacids to 2-ketoacids while reducing oxygen to hydrogen peroxide. HAO1 preferentially oxidizes the substrate glycolate and also oxidizes other substrates, including 2-hydroxy fatty acids as well as L- α -hydroxy acids of moderately short chain lengths. The oxidation of glycolate yields glyoxylate which is utilized for peroxisomal synthesis of glycine. HAO1 is also able to convert glyoxylate to oxalate. HAO1 is thought to play a role in the pathophysiology of hyperoxaluria type 1, which is caused by defects in AGXT, a peroxisomal enzyme, leading to accumulation of glyoxylate. Hyperoxaluria type 1 is characterized by an accumulation of oxalate that is thought to lead to precipitates of calcium oxalate in kidneys which can be fatal.

REFERENCES

- Williams, E., Cregeen, D. and Rumsby, G. 2000. Identification and expression of a cDNA for human glycolate oxidase. *Biochim. Biophys. Acta* 1493: 246-248.
- Jones, J.M., Morrell, J.C. and Gould, S.J. 2000. Identification and characterization of HAOX1, HAOX2, and HAOX3, three human peroxisomal 2-hydroxy acid oxidases. *J. Biol. Chem.* 275: 12590-12597.
- Recalcati, S., Menotti, E. and Kühn, L.C. 2001. Peroxisomal targeting of mammalian hydroxyacid oxidase 1 requires the C-terminal tripeptide SKI. *J. Cell Sci.* 114: 1625-1629.
- Recalcati, S., Tacchini, L., Alberghini, A., Conte, D. and Cairo, G. 2003. Oxidative stress-mediated down-regulation of rat hydroxyacid oxidase 1, a liver-specific peroxisomal enzyme. *Hepatology* 38: 1159-1166.
- Online Mendelian Inheritance in Man, OMIM[™]. 2004. Johns Hopkins University, Baltimore, MD. MIM Number: 605023. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Murray, M.S., Holmes, R.P. and Lowther, W.T. 2008. Active site and loop 4 movements within human glycolate oxidase: implications for substrate specificity and drug design. *Biochemistry* 47: 2439-2449.
- Fahnenstich, H., Scarpeci, T.E., Valle, E.M., Flügge, U.I. and Maurino, V.G. 2008. Generation of hydrogen peroxide in chloroplasts of Arabidopsis overexpressing glycolate oxidase as an inducible system to study oxidative stress. *Plant Physiol.* 148: 719-729.

CHROMOSOMAL LOCATION

Genetic locus: HAO1 (human) mapping to 20p12.3; Hao1 (mouse) mapping to 2 F2.

SOURCE

HAO1 (7A1-8H3B) is a mouse monoclonal antibody raised against HAO1 of human origin.

PRODUCT

Each vial contains 100 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide, 0.1% gelatin and 5% glycerol.

APPLICATIONS

HAO1 (7A1-8H3B) is recommended for detection of HAO1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

Suitable for use as control antibody for HAO1 siRNA (h): sc-75224, HAO1 siRNA (m): sc-145894, HAO1 shRNA Plasmid (h): sc-75224-SH, HAO1 shRNA Plasmid (m): sc-145894-SH, HAO1 shRNA (h) Lentiviral Particles: sc-75224-V and HAO1 shRNA (m) Lentiviral Particles: sc-145894-V.

Molecular Weight of HAO1: 41 kDa.

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 for detailed protocols and support products.