

DAAO (B-3): sc-398757

BACKGROUND

D-amino acid oxidase (DAAO) metabolizes exogenous D-amino acids that accumulate during aging, and may modulate the level of D-serine in the brain, acting as a detoxifying agent. DAAO is specific for the D-configuration of amino acids and exhibits a preference for those with small, hydrophobic side chains and polar, aromatic and basic functional groups. Single base-pair substitutions at certain amino acid residues of the DAAO enzyme result in the loss of DAO activity in mice. Mutation of the enzyme at residue Y238, one of the few conserved residues in the active site of DAAO, leads to a significantly slower rate of product release relative to the wild-type enzyme, indicating the importance of this residue in controlling access to the active site. In addition, the other conserved residues in the active site of DAAO do not play a role in acid-base catalysis but rather are involved in substrate interactions, which along with the mode of substrate orientation into the active site, suggest a hybrid transfer type of mechanism for catalysis.

REFERENCES

1. Sasaki, M., et al. 1992. A single-base-pair substitution abolishes D-amino acid oxidase activity in the mouse. *Biochim. Biophys. Acta* 1139: 315-318.
2. Mujawar, S.K. 1999. D-amino acid oxidase: its potential in the production of 7-aminocephalosporanic acid. *Hindustan Antibiot. Bull.* 41: 1-14.

CHROMOSOMAL LOCATION

Genetic locus: DAO (human) mapping to 12q24.11; Dao (mouse) mapping to 5 F.

SOURCE

DAAO (B-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 312-337 near the C-terminus of DAAO of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

DAAO (B-3) is available conjugated to agarose (sc-398757 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-398757 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-398757 PE), fluorescein (sc-398757 FITC), Alexa Fluor® 488 (sc-398757 AF488), Alexa Fluor® 546 (sc-398757 AF546), Alexa Fluor® 594 (sc-398757 AF594) or Alexa Fluor® 647 (sc-398757 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-398757 AF680) or Alexa Fluor® 790 (sc-398757 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-398757 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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STORAGE

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

APPLICATIONS

DAAO (B-3) is recommended for detection of DAAO of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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).

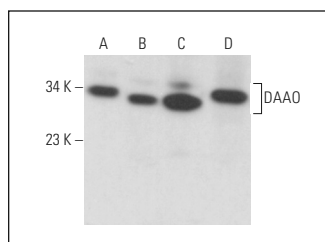
Suitable for use as control antibody for DAAO siRNA (h): sc-105269, DAAO siRNA (m): sc-142864, DAAO shRNA Plasmid (h): sc-105269-SH, DAAO shRNA Plasmid (m): sc-142864-SH, DAAO shRNA (h) Lentiviral Particles: sc-105269-V and DAAO shRNA (m) Lentiviral Particles: sc-142864-V.

Molecular Weight (predicted) of DAAO: 39 kDa.

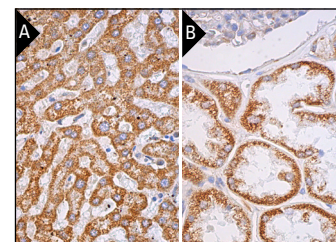
Molecular Weight (observed) of DAAO: 34 kDa.

Positive Controls: HEK293 whole cell lysate: sc-45136, SK-N-MC cell lysate: sc-2237 or HL-60 whole cell lysate: sc-2209.

DATA



DAAO (B-3): sc-398757. Western blot analysis of DAAO expression in SK-N-MC (A), HEK293 (B) and HL-60 (C) whole cell lysates and human fetal liver tissue extract (D).



DAAO (B-3): sc-398757. Immunoperoxidase staining of formalin fixed, paraffin-embedded human liver tissue showing cytoplasmic staining of hepatocytes (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in tubules (B).

SELECT PRODUCT CITATIONS

1. Shindo, T., et al. 2022. D-serine metabolism in the medial prefrontal cortex, but not the hippocampus, is involved in AD/HD-like behaviors in SHRSP/Ezo. *Eur. J. Pharmacol.* 923: 174930.
2. Yoshikawa, M., et al. 2022. Free d-amino acids in salivary gland in rat. *Biology* 11: 390.

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.