10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

DAO Antibody (Center)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP21416c

Product Information

Application	WB, E
Primary Accession	P14920
Reactivity	Human, Rat, Mouse
Predicted	Bovine, Rabbit
Host	Rabbit
Clonality	polyclonal
Isotype	Rabbit IgG
Clone Names	RB52983
Calculated MW	39474

Additional Information

Gene ID	1610
Other Names	D-amino-acid oxidase, DAAO, DAMOX, DAO, DAO, DAMOX
Target/Specificity	This DAO antibody is generated from a rabbit immunized with a KLH conjugated synthetic peptide between 216-248 amino acids from the Central region of human DAO.
Dilution	WB~~1:2000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	DAO Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	DAO
Synonyms	DAMOX
Function	Catalyzes the oxidative deamination of D-amino acids with broad substrate specificity (PubMed:16616139, PubMed:17088322, PubMed:17303072, PubMed:18544534, PubMed:20368421, PubMed:20567862,

	PubMed:20603179, PubMed:22203986, PubMed:23219954, PubMed:23391306, PubMed:25030849, PubMed:25701391, PubMed:29274788, PubMed:29326945, PubMed:30938755, PubMed:31799256, PubMed:32730563, PubMed:33484270, PubMed:34041270, PubMed:37558109, PubMed:38035964). Required to catabolize D-amino acids synthesized endogenously, of gastrointestinal bacterial origin or obtained from the diet, and to use these as nutrients (By similarity). Regulates the level of D-amino acid neurotransmitters in the brain, such as D-serine, a co-agonist of N- methyl D-aspartate (NMDA) receptors, and may modulate synaptic transmission (PubMed:17303072). Catalyzes the first step of the racemization of D-DOPA to L-DOPA, for possible use in an alternative dopamine biosynthesis pathway (PubMed:17303072). Also catalyzes the first step of the chiral inversion of N(gamma)-nitro-D-arginine methyl ester (D-NNA) to its L-enantiomer L-NNA that acts as a nitric oxide synthase inhibitor (By similarity). The hydrogen peroxide produced in the reaction provides protection against microbial infection; it contributes to the oxidative killing activity of phagocytic leukocytes and protects against bacterial colonization of the small intestine (By similarity). Enzyme secreted into the lumen of the intestine may not be catalytically active and could instead be proteolytically cleaved into peptides with antimicrobial activity (By similarity). The hydrogen peroxide produced in the reaction may also play a role in promoting cellular senescence in response to DNA damage (PubMed:30659069). Could act as a detoxifying agent which removes D-amino acids accumulated during aging (PubMed:17303072).
Cellular Location	Peroxisome matrix. Cytoplasm, cytosol. Presynaptic active zone {ECO:0000250|UniProtKB:O35078}. Secreted Note=Transiently present in the cytosol before being delivered to the peroxisomes (PubMed:21679769, PubMed:31799256). In the cerebellum, a fraction of protein localizes to the presynaptic active zone, where its activity is regulated by protein BSN (By similarity). Secreted into the lumen of the small intestine (PubMed:27670111) {ECO:0000250|UniProtKB:O35078, ECO:0000269|PubMed:21679769, ECO:0000269|PubMed:27670111, ECO:0000269|PubMed:31799256}
Tissue Location	Expressed in the cerebellum, in astrocytes of the cortex, in motor neurons and fibers of the lumbar spinal cord (at protein level) (PubMed:17880399, PubMed:18544534, PubMed:18560437, PubMed:24138986, PubMed:34041270). Expressed in goblet cells of the small intestine (at protein level) (PubMed:27670111). Increased in the cerebellum of schizophrenic patients (at protein level) (PubMed:17880399, PubMed:18560437). Decreased in motor neurons of the spinal cord of patients with amyotrophic lateral sclerosis (at protein level) (PubMed:24138986). Expressed in the cerebellum, spinal cord, kidney, and thalamus (PubMed:17880399). Abundant in glia of the cerebellum and predominantly neuronal in the dorsolateral prefrontal cortex, hippocampus and substantia nigra (PubMed:17880399)

Background

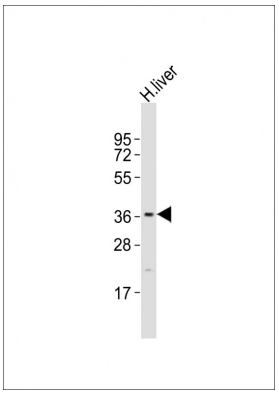
Regulates the level of the neuromodulator D-serine in the brain. Has high activity towards D-DOPA and contributes to dopamine synthesis. Could act as a detoxifying agent which removes D-amino acids accumulated during aging. Acts on a variety of D- amino acids with a preference for those having small hydrophobic side chains followed by those bearing polar, aromatic, and basic groups. Does not act on acidic amino acids.

References

Momoi K.,et al.FEBS Lett. 238:180-184(1988).
Momoi K.,et al.Submitted (SEP-1990) to the EMBL/GenBank/DDBJ databases.

Ota T.,et al.Nat. Genet. 36:40-45(2004).
Mural R.J.,et al.Submitted (JUL-2005) to the EMBL/GenBank/DDBJ databases.
Fukui K.,et al.J. Biol. Chem. 267:18631-18638(1992).

Images



Anti-DAO Antibody (Center)at 1:2000 dilution + human liver lysates Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution Predicted band size : 39 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.