

Superoxide Dismutase 3 (SOD3, EC-SOD) Antibodies

Cat. # SOD32-P	Human SOD3 control blocking peptide	SIZE: 100 ug
Cat. # SOD32-A	Rabbit Anti-Human SOD3 IgG, aff pure	SIZE: 100 ug

Superoxide dismutase (SOD) is an enzyme, which thought to play a role in the protection of aerobic cells against oxygen toxicity by catalyzing dismutation of superoxide anion (O₂⁻) to H₂O₂ and O₂. SODs are found in 3 forms and produced by separate genes. The first isoforms (**SOD1**, also known as SOD-A, soluble SOD, Cytosolic SOD, Cu-Zn SOD and indophenoloxidase A or IPOA). Human SOD1 is 154 aa (chromosome 21q22). It is a homodimer and each subunit can bind 1 copper ion and 1 zinc ion. SOD1 is cytoplasmic protein. Defects in SOD1 are the cause of familial amyotrophic lateral sclerosis (FALS) or amyotrophic lateral sclerosis 1 (ALS1 or ALS). ALS is a degenerative disorder of motorneurons in the cortex, brainstem and spinal cord. ALS is characterized by muscular weakness and atrophy beginning in the hands and spreading to the forearms and legs. Death usually occurs within 2 to 5 years. The familial form of ALS accounts for about 10% of the cases and is transmitted in an autosomal dominant manner.

SOD2 (mitochondrial indophenoloxidaseB, IPO-B, Mn-SOD) is a Mn-containing enzyme found primarily in mitochondria and therefore is not present in erythrocytes. SOD2 (human 222-aa; chromosome 6q25.3) is a homotetramer. It binds 1 Mn per subunit. **SOD3** (extracellular-SOD or EC-SOD) is found in extracellular space (blood, lymph, synovial fluids and cerebrospinal fluid). Human SOD3 (240-aa, signal peptide 1-18aa; chromosome 4p15.3-p15.1) is a homotetramer. Each subunit, 30 kDa, can bind 1 Cu and 1 Zn. Approx. 99% of EC-SOD is anchored to heparan sulfate proteoglycans in the tissue interstitium, and 1% is located in the vasculature in equilibrium between the plasma and the endothelium. Since the above proteins were able to transport substances across cellular membranes and against concentration gradient they require an input of energy, which requires the hydrolysis of ATP, directly or indirectly.

FUNCTION: Destroys radicals which are normally produced within the cells and which are toxic to biological systems.

SUBCELLULAR LOCATION: Secreted, extracellular space. Note=99% of EC-SOD is anchored to heparan sulfate proteoglycans in the tissue interstitium, and 1% is located in the vasculature in equilibrium between the plasma and the endothelium

SIMILARITY: Belongs to the Cu-Zn superoxide dismutase family.

Protein name Extracellular superoxide dismutase [Cu-Zn] [Precursor]

Synonyms EC 1.15.1.1; EC-SOD

Gene name Name: SOD3

Source of Antigen and Antibodies

Antigen	17-aa peptide Human EC-SOD/SOD3 (protein accession #P08294, refs 1)(designated SOD32-P or control peptide) coupled to KLH; Epitope location ~ C-terminus of human
Ab Host/type	Rabbit, Polyclonal, IgG (Cat # SOD32-A) purified over antigen column
2-ab	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available
-ve control	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as -ve control

Form & Storage of Antibodies/Peptide Control

Affinity pure IgG

100 ug/100ul solution lyophilized powder
Supplied in **Buffer:** PBS+0.1% BSA
Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide

100 ug/100 ul solution lyophilized powder
Supplied in **Buffer:** PBS pH 7.5,
Reconstitute powder in PBS at 1 mg/ml.

Storage

Short-term: unopened, undiluted liquid vials at -20°C and powder at 4°C or -20°C..

Long-term: at -20°C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at -20°C or below.

Shipping: 4°C for solutions and room temp for powder

Recommended Usage

Western Blotting (1-5 ug/ml of IgG ECL technique).

ELISA: Control antigen can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (0.1-1 ug/ml)

Histochemistry & Immunofluorescence: Not tested.

Specificity & Cross-reactivity

SOD32-P peptide is 88% conserved in mouse and 94% in rat SOD3/EC-SOD. Antibody cross-reactivity in various species has not been studied. No significant reactivity is seen with SOD1 or SOD2 proteins. Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity

General References: Hjalmarsson K et al (1987) PNAS 84, 6340-6344; Folz RJ et al (1994) Genomics 22, 162-171; Strasberg RL et al (2002) PNAS 99, 16899-16903; Sandstrom J et al (1994) JBC 269, 19163-19166; Yamada H et al (1995) Jpn J Hum. Genet. 40, 177-184;

*This product is for In vitro research use only.

Related material available from ADI

Antibodies to SOD1-3, GST alpha, mu, pi

Nitrotyrosine, MDA, HNE,

SOD32-A-P 709119J