

Product Specification Sheet

**Superoxide Dismutase 2 (SOD2, SOD-B, Mn-SOD or IPO-B) Antibodies**

Cat. # SOD21-A

Sheep Anti-Human SOD2 IgG

**SIZE:** 100 ul

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 ( $O_2^-$ ) to  $H_2O_2$  and  $O_2$ . 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.

**Source of Antigen and Antibodies**

<b>Antigen</b>	Highly purified SOD2 protein from human liver
<b>Ab Host/type</b>	Sheep, Polyclonal, IgG (Cat # SOD21-A), Partially pure (Salt fractionation, DEAE chromatography etc) IgG
<b>2ab</b>	Anti-Sheep IgG (H+L)-HRP conjugate cat # 30520
<b>-ve control</b>	Sheep (non-immune) Serum IgG, purified Cat # 20006-1

**Form & Storage of Antibodies/Peptide Control**

**Partially Affinity pure IgG**

100 ug/100ul solution lyophilized powder

Supplied in **Buffer:** PBS+0.1% BSA

**Reconstitute powder** in PBS at 1mg/ml

**Storage**

**Short-term:** unopened, undiluted liquid vials at  $-20^{\circ}C$  and powder at  $4^{\circ}C$  or  $-20^{\circ}C$ .

**Long-term:** at  $-20^{\circ}C$  or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

**Stability:** 6-12 months at  $-20^{\circ}C$  or below.

**Shipping:**  $4^{\circ}C$  for solutions and room temp for powder

**Recommended Usage**

**Western Blotting** (1:500-1:3000) of IgG ECL technique).

**ELISA:** Control antigen can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (1:1K-1:10K)

**Histochemistry & Immunofluorescence:** Not tested.

**Specificity & Cross-reactivity**

Anti-human SOD1 reacts with human, monkey, mouse and rat SOD1 protein. Antibody cross-reactivity in various species has not been studied. No significant reactivity is seen with SOD1 or SOD3 proteins.

**General References:** Wispe JR et al (1989) BBA 994, 30-36; Beck Y et al (1987) Nucl. Acid Res. 15, 9076; Heckl K et al (1988) Nucl Acid Res. 16, 6224; Ho YS et al (1988) FEBS Lett. 229, 25-260; St Clair DK et al (1991) Cancer Res. 51, 939-943; Church SL et al (1990) BBA 1087, 250-252; Barra D et al (1984) JBC 12595-12601:

\*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,**

SOD21-A

71218S