

Product Specification Sheet

Superoxide Dismutase 1 (SOD1, SOD-A, soluble SOD, Cytosolic SOD, Cu-Zn SOD or indophenoloxidase A or IPOA) Antibodies

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|----------------|---|---------------------|
| Cat. # SOD11-A | Sheep Anti-Human SOD1 IgG | SIZE: 100 ul |
| Cat. # SOD11-C | Recombinant Human SOD1 protein control for WB | 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

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|---------------------|--|
| Antigen | Highly purified SOD1 protein from human erythrocytes |
| Ab Host/type | Sheep, Polyclonal, IgG (cat # SOD11-A) Partially pure (Salt fractionation, DEAE chromatography etc) IgG |
| 2ab | Anti-Sheep IgG (H+L)-HRP conjugate cat # 30520 |
| -ve control | Sheep (non-immune) Serum IgG, purified Cat # 20006-1 |

Human SOD1 protein was expressed in E. coli as his-tagged (c-terminus) and purified >90%. Purified protein is ~20 kDa (pI 6.6). Human SOD1 protein for Western blot +ve control (**Cat # SOD11-C**) is supplied in SDS-PAGE sample buffer (reduced). Load 10 ul/lane of **SOD11-C** for good visibility with antibody Cat # **SOD11-A**. Store at -20°C in suitable size aliquots. SDS may crystallize in cold conditions. It should redissolve by warming before taking it from the stock.

It should be heated once prior to loading on gels. If the product has been stored for several weeks, then it may be preferable to add 5 ul of fresh 2x sample buffer per 10 ul of the **SOD11-C** solution prior to heating and loading on gels. This preparation is **biologically inactive**. It is not suitable for ELISA or other applications where native protein is required. This preparation is intended for qualitative purpose and not to serve as standard of known concentration. Do not freeze, thaw, or heat repeatedly

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°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 (1:500-1:3000) 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 SOD2 or SOD3 proteins. Recombinant Purified human SOD1 protein (Cat # SOD11-C) is available for WB control.

General References: Barra D et al (1980) FEBS Lett. 12, 53-56; Jabusch JR et al (1980) Biochem. 19, 2310-2316; Levanin D et al (1985) EMBO J 4, 77-84; Sherman L et al (1983) PNAS 80, 5465-5469;

*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,**

SOD11-A-P

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