

**APB960Ra01 100µg**  
**Active Superoxide Dismutase 1 (SOD1)**  
**Organism Species: *Rattus norvegicus* (Rat)**  
***Instruction manual***

FOR RESEARCH USE ONLY  
NOT FOR USE IN CLINICAL DIAGNOSTIC PROCEDURES

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13th Edition (Revised in Aug, 2023)

## **[ PROPERTIES ]**

**Source:** Prokaryotic expression.

**Host:** *E. coli*

**Residues:** Ala2~Gln154

**Tags:** N-terminal His-tag

**Purity:** >95%

**Endotoxin Level:** <1.0EU per 1µg (determined by the LAL method).

**Buffer Formulation:** PBS, pH7.4, containing 0.01% SKL, 5%Trehalose .

**Original Concentration:** 200µg/mL

**Applications:** Cell culture; Activity Assays.

(May be suitable for use in other assays to be determined by the end user.)

**Predicted isoelectric point:** 6.2

**Predicted Molecular Mass:** 17.0kDa

**Accurate Molecular Mass:** 18kDa as determined by SDS-PAGE reducing conditions.

## **[ USAGE ]**

Reconstitute in 10mM PBS (pH7.4) to a concentration of 0.1-1.0 mg/mL. Do not vortex.

## **[ STORAGE AND STABILITY ]**

**Storage:** Avoid repeated freeze/thaw cycles.

Store at 2-8°C for one month.

Aliquot and store at -80°C for 12 months.

**Stability Test:** The thermal stability is described by the loss rate. The loss rate was determined by accelerated thermal degradation test, that is, incubate the protein at 37°C for 48h, and no obvious degradation and precipitation were observed. The loss rate is less than 5% within the expiration date under appropriate storage condition.

## **[ SEQUENCE ]**

```
AMKAVCVLK GDGPVQGVIIH FEQKASGEPV VVSGQITGLT EGEHGFHVHQ  
YGDNTQGCTT AGPHFNPHSK KHGGPADEER HVGDLGNVAA GKDGVANVSI  
EDRVISLSGE HSIIGRTMVV HEKQDDLKGG GNEESTKTGN AGSRLACGVI  
GIAQ
```

## **[ ACTIVITY ]**

Superoxide Dismutase 1 (SOD1) is an enzyme that in human is encoded by the SOD1 gene. This gene encodes a member of the superoxide dismutase (SOD) protein family. SODs are antioxidant enzymes that catalyze the dismutation of two superoxide radicals into hydrogen peroxide and oxygen. According to the report, in a weakly alkaline buffer solution (pH=8.2) with N-tris(hydroxymethyl)amino methane-HCL, pyrogallol can occur autoxidation in the air, then SOD can inhibit this reaction. Thus, we use this way to measure the activity of recombinant rat SOD1. The reaction was performed in adding 8  $\mu$ l 5 mmol/L pyrogallol to 200  $\mu$ l 50mmol/L Tris-HCl, rapidly mixing at 25 °C, then read at 325 nm (using 50mmol/L Tris-HCl as blank control) in kinetic mode for 3 minutes using a microplate reader controlling the pyrogallol autoxidation rate at 0.70 OD/min. Different concentrations of recombinant rat SOD1 were added into 200  $\mu$ l 50 mmol/L Tris-HCl, incubated for 20 min at 25 °C, then adding 8  $\mu$ l 5 mmol/L pyrogallol to each well, rapidly mixing and read at 325 nm in kinetic mode for 3 minutes. Under these conditions, the enzyme amount of 50% inhibition of pyrogallol autoxidation per minute is defined as a unit. The specific activity of recombinant rat SOD1 is 88.9 U/mg.

Calculation

$$\text{SOD1 activity (U/mg)} = \frac{\frac{0.070 - A_{325} / \text{min}}{0.070} \times 100\%}{50\%} / M$$

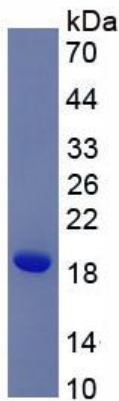
Where:

0.070=pyrogallol autoxidation rate

A325/min= inhibition pyrogallol autoxidation rate of SOD1

M=mass of enzyme

## **[ IDENTIFICATION ]**



**Figure 1. SDS-PAGE**

**Sample: Active recombinant SOD1, Rat**

## **[ IMPORTANT NOTE ]**

The kit is designed for research use only, we will not be responsible for any issue if the kit was used in clinical diagnostic or any other procedures.