(FOR RESEARCH USE ONLY. DO NOT USE IT IN CLINICAL DIAGNOSIS!)

Myeloperoxidase (MPO) Assay Kit

Catalog No.: BC00206

Size: 100T

Please read the instructions carefully before use. If you have any questions or need further help during experiment, please don't hesitate to contact us through the following methods:

✉ Email (Sale) order@enkilife.com

✉ Email (Techsupport) techsupport@enkilife.com

☎ Tel: 0086-27-87002838

Website: www.enkilife.com

Shelf life: Please refer to the label on the outer package.

Techsupport: In order to provide you with better service, please inform us the lot number on the label of the outer package.

Basic Information

Product Name	Myeloperoxidase (MPO) Assay Kit
Detection Method	Colorimetric
Sample Type	Serum, plasma, tissue
Assay Type	Quantitative
Detection Instrument	Spectrophotometer (460 nm)

Product Introduction

Myeloperoxidase (MPO) is a key leukocyte enzyme secreted by activated neutrophils and monocyte-macrophages, which is mainly stored in azurophilic granules. During inflammation or oxidative stress, MPO is released into phagocytic vacuoles and plasma. It catalyzes the decomposition of hydrogen peroxide and oxidizes substrates, thereby inducing oxidative damage.

Principle

This kit adopts the principle that MPO catalyzes hydrogen peroxide to oxidize o-dianisidine to form colored products, which show a characteristic absorption peak at 460 nm. The color intensity is linearly correlated with MPO activity, enabling quantitative detection of MPO activity.

Components

No.	Components	Size	Notes
Reagent 1	Buffer stock solution	35 mL	Store at 4°C. Preparation of working buffer solution: mix stock solution and double-distilled water at the ratio of 1:9. It can be stored for one month at 4°C.

Reagent 2	Powder	2 vials	Store at 4°C. Dissolve each vial with 60 mL working buffer solution before use; heating at 37°C is acceptable for dissolution. The prepared solution can be stored at 4°C for two weeks.
Reagent 3	Powder	3 vials	Store at 4°C. Pour one sachet of powder into one portion of solvent to dissolve before use. Preparation one day in advance is recommended. The fully dissolved solution can be stored at 4°C for two weeks.
	Solvent	6 mL×3	
Reagent 4	Solution	24 mL	Store at room temperature. It may solidify in cold weather. Prior to use, place it in water above 37°C and shake until fully dissolved and transparent before application.
Reagent 5	Powder	2 vials	Store at 4°C.
Reagent 6	Solution	0.5 mL	Store at 4°C.
Reagent 7	Solution	6 mL	Store at 4°C.

Preparation of chromogenic reagent: Before use, add one vial of Reagent 5 into 100 mL working buffer solution and shake well. After the powder is completely dissolved, add 0.1 mL of Reagent 6 and mix thoroughly. The prepared chromogenic reagent shall be stored away from light at 4°C. Discard it once it turns deep red.

Storage

The kit can be stored for 6 months under specified conditions.

Preparation

- **Sample requirements**

1. Tissue Sample Pretreatment: Accurately weigh the tissue sample. Use prepared Reagent 2 solution as the homogenate medium, and prepare 5% tissue homogenate by adding the medium at a weight-to-volume ratio of 1:19. A 10% homogenate is also acceptable as appropriate. No centrifugation is required. Ensure the tissue homogenate is well-distributed without large tissue chunks.

Notes:

If you need to detect other indicators besides myeloperoxidase, prepare tissue homogenate in accordance with the following methods:

① Prepare Reagent 2 at double concentration: dissolve one vial of Reagent II powder in 30 mL working buffer solution.

② Prepare double-concentrated homogenate using normal saline as homogenate medium as specified in the protocol, namely 10% tissue homogenate (20% homogenate for brain tissue). No centrifugation is needed. Take an appropriate amount of the double-concentrated homogenate, mix it evenly with equal volume of double-concentrated Reagent 2 solution at a ratio of 1:1, and then proceed with the detection.

2. Serum (Plasma) Sample Pretreatment: Dilute serum (plasma) with Reagent 2 at a ratio of 1:1 and mix thoroughly.

Operation process

	Control tube	Assay tube	Blank tube
Sample (mL)	0.18	0.18	
Reagent 3 (mL)	0.02	0.02	
Mix thoroughly and incubate in a 37°C water bath for 15 minutes.			
Reagent 4 (mL)	0.2	0.2	0.2
Double distilled water (mL)	3		0.2
Chromogenic reagent (mL)		3	3
Mix well and incubate in a 37°C water bath for 30 minutes.			
Reagent 7 (mL)	0.05	0.05	0.05

Mix well, incubate in 60°C water bath for 10 minutes. Take out samples immediately, set zero with double-distilled water, then determine the absorbance (A) of each tube by spectrophotometer at 460 nm with 1 cm optical path length.

Preparation of blank tube is unnecessary.

Calculation

1. Calculation of MPO in Tissue Homogenate

   Definition: One unit of enzyme activity is defined as the amount of enzyme that decomposes 1 μmol of H_2O_2 per gram of tissue in the reaction system at 37°C.

$$\text{MPO Activity (U/g)} = \frac{A_{Assay} - A_{Control}}{11.3 \times W}$$

2. Calculation of MPO in Serum (plasma)

   Definition: One unit of enzyme activity is defined as the amount of enzyme that decomposes 1 μmol of hydrogen peroxide per liter of serum (plasma) in the reaction system at 37°C.

$$\text{MPO Activity (U/L)} = \frac{A_{Assay} - A_{Control}}{11.3 \times V_{Sample}}$$

Annotation:

V_{Sample}: Volume of sample added, L

11.3: Reciprocal of slope

W: Sample weighing quantity, g

Precautions

1. It is recommended to use disposable laboratory test tubes for operation.
2. This product is intended for scientific research use only by professionals and must not be used for clinical diagnosis or treatment, in food or drugs, or stored in ordinary residences.
3. When the temperature is low, the reaction solution may solidify, leading to increased absorbance. Before colorimetry, place each test tube in a water bath at 25-37°C for 1 to 2 minutes until the solidification disappears, then proceed with the absorbance measurement.
4. Vortex mixing is recommended to fully blend the liquid thoroughly up and down. Ensure the liquid at the bottom is fully swirled to the top. Avoid using conical-bottom tubes, especially 1.5 mL EP tubes, as they make sufficient mixing extremely difficult.