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

Tartrate Resistant Acid Phosphatase (StrACP) Assay Kit

Catalog No.: BC00207

Size: 50T

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	Tartrate Resistant Acid Phosphatase (StrACP) Assay Kit
Detection Method	Colorimetric
Sample Type	Serum, plasma, tissue, cell
Assay Type	Quantitative
Detection Instrument	Spectrophotometer (530 nm)

Principle

The activity of tartrate-resistant acid phosphatase (StrACP) is not inhibited by tartaric acid, whereas other acid phosphatases (ACP) are inhibited by it. Based on this principle, the activity of StrACP can be determined. StrACP catalyzes substrate hydrolysis to produce free phenol, which reacts with diazonium salt to form colored azo compounds. The absorbance is measured at 530 nm, and the enzyme activity is calculated accordingly.

Components

No.	Components	Size	Notes
Reagent 1	Solution	16 mL	Store at 4°C. If crystals form, dissolve them by heating in a boiling water bath.
Reagent 2	Powder	3 vials	Store at 4°C. Dissolve each powder vial with 10 mL of diluent 2 before use, and set aside for later use. The prepared solution can be stored at 4°C for 7 to 10 days.
	Diluent 2	10 mL×3	
Reagent 3	Powder	1 vial	Store at 4°C. Dissolve one vial of powder with 30 mL diluent 3 before use and keep for standby. Store away from light at 4°C.
	Diluent 3	30 mL	
Reagent 4	Solution	60 mL	Store at room temperature.

Reagent 5	Solution	6 mL	Store at 4°C.

Storage

The kit can be stored for 3 months under specified conditions.

Preparation

Spectrophotometer with 530 nm wavelength and 1 cm optical path cuvettes, 37°C water bath or constant temperature incubator, 100°C water bath or electric furnace and beakers, desktop low-speed centrifuge, pipettes of various specifications, double-distilled water, normal saline (0.9%) or 0.1M PBS, vortex mixer, test tubes or centrifuge tubes, protein assay reagents (for tissue and cell samples, available from our company).

- **Sample requirements**

1. Tissue Sample Pretreatment: Accurately weigh the tested tissue. Add 9 times the volume of normal saline at a weight (g) to volume (mL) ratio of 1:9, and perform mechanical homogenization in an ice water bath to prepare 10% tissue homogenate. Centrifuge at 2500 rpm for 10 minutes, then collect the supernatant for detection. Determine the protein concentration with partial supernatant. Protein quantification kits are available in our laboratory, and the Coomassie brilliant blue protein quantification kit is recommended.
2. Serum (Plasma) Sample Pretreatment: Hemolysis must be avoided during blood collection. Serum or plasma can be used directly. Store samples at 4°C and test them preferably on the same day. If immediate detection is unavailable, freeze samples below zero; the lower the temperature, the longer the storage period.
3. Cell Samples Pretreatment: Collect cells. For adherent cells, digest with trypsin or scrape off, transfer into centrifuge tubes and centrifuge at 1000-2000 rpm for 5 minutes, then discard the supernatant and retain the cell pellet. Suspension cells can be directly transferred and centrifuged to collect pellets. Wash the pellets 1 to 2 times with 0.5-1 mL PBS, and harvest cells by centrifugation at 1000-2000 rpm. Resuspend cells in 0.3-0.5 mL of 0.1 M isotonic PBS buffer (pH 7.4), then lyse cells by ultrasonication or manual grinding. The obtained cell lysate is ready for detection. If obvious particles or floccules exist in the suspension, centrifuge at 2000 rpm for 10 minutes and take the supernatant for use.

Operation process

	Control tube	Assay tube
Sample (mL)		0.05
Reagent 1 (mL)	0.3	0.3
Reagent 2 (mL)	0.5	0.5
Mix well and react accurately at 37°C for 15 minutes.		
Reagent 3 (mL)	0.5	0.5
Mix well and incubate precisely at 37°C for 10 minutes.		
Reagent 4 (mL)	1.0	1.0
Reagent 5 (mL)	0.1	0.1
Sample (mL)	0.05	
Mix thoroughly, let stand at room temperature for 5 minutes. Set the wavelength to 530 nm with a 1 cm optical path, zero the spectrophotometer using double-distilled water, then measure the absorbance (A) of each tube.		

If turbidity occurs before colorimetry in low temperature environment, place samples in 37°C water bath until clarified before measurement.

Calculation

1. Calculation of StrACP in Tissue (Cell) Homogenate

   Definition: One unit of enzyme activity is defined as the amount of enzyme that produces 1 μmol free phenol per gram of tissue (cell) protein by reacting with the substrate at 37°C within one minute.

$$\text{StrACP Activity (U/g)} = \frac{A_{Assay} - A_{Control}}{\varepsilon \times d \times T} \times \frac{V_{Total}}{V_{Sample}} \div Cpr$$

2. Calculation of StrACP in Serum (plasma)

Definition: One unit of enzyme activity is defined as the amount of enzyme that produces 1 μmol free phenol per liter of serum by reacting with the substrate at 37°C for 1 minute.

$$\text{StrACP Activity (U/L)} = \frac{A_{Assay} - A_{Control}}{\varepsilon \times d \times T} \times \frac{V_{Total}}{V_{Sample}}$$

Annotation:

V_{Sample}: Volume of sample added, 0.05mL

V_{Total}: Total volume of reaction solution, 2.45 mL

T: Reaction time, 15 minutes

ε: Molar extinction coefficient of chromogen, 12.8×10^{-3} L/(μmol·cm)

d: Optical path length, 1 cm

Cpr: Homogenate protein concentration, g/L

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.