Tartrate-Resistant Acid Phosphatase (TRAP) Staining Kit

Catalog No.: RA20118

Basic Information

Product name	Tartrate-Resistant Acid Phosphatase (TRAP) Staining Kit
Sizes	10 mL
Storage	-20 ℃, keep away from light
Shipping	Shipped with ice pack
Validity	6 months

Product Introduction

Acid phosphatase (ACP) is widely distributed in virtually all tissues, predominantly within lysosomes, and is therefore commonly used as a lysosomal marker enzyme. Extralysosomal ACP is also present in the endoplasmic reticulum and cytoplasm. ACP isoforms differ among species; the optimum pH is 4.5 – 5.5. Tartrate-resistant acid phosphatase (TRAP) is found in follicles of normal human alveolar macrophages and in leukemic spleen cells, but is not released into blood. Consequently, serum TRAP activity largely reflects osteoclast function, enabling assessment of osteoclastic status via blood measurement.

EnkiLife TRAP Staining Solution uses naphthol AS-BI as substrate; under acidic pH, ACP hydrolyses the substrate to release phosphate and naphthol, which couples with a diazonium salt to yield a colored product localized in the cytoplasm. Cells whose ACP is resistant to tartrate exhibit a positive reaction. Suitable for fresh blood smears, cytospins, and frozen sections.

Product Components

Components		3x 10mL
Reagent (A): TRAP Fixative		25 mL
Reagent (B): TRAP Incubation Solution	B1: AS-BI Buffer	2 × 0.5 mL
	B2: GBC Stain Solution	0.5 mL
	B3: TRAP Buffer	9 mL
Immediately before use, mix B1 : B2 : B3 = 10 : 5 : 90 to prepare TRAP Incubation Solution; use within the same day.		
Reagent (C): Lea Hematoxylin Stain Solution		10 mL

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Materials Required (Not Supplied)

1. Distilled water, incubator.
2. Glass slides, light microscope.

Experimental procedure

(I) Blood or Bone-Marrow Smears

1. Prepare smear: place a fresh blood/bone-marrow drop on a slide; hold the spreader slide at ~30°; contact the drop and allow fluid to spread along the edge, then push smoothly forward to cover the slide surface.
2. Air-dry; fix in TRAP Fixative at 4 °C for 30 s–3 min (30–60 s is usually sufficient).
3. Rinse with water; drain briefly (do not over-dry).
4. Immerse in TRAP Incubation Solution, incubate at 37 °C protected from light for 45–60 min; rinse.
5. Counterstain with Lea Hematoxylin Solution for 3–5 min; rinse, air-dry, and examine.

(II) Frozen Sections

1. Bring frozen sections to 37 °C; immerse in water for 1–2 min.
2. Air-dry; fix in TRAP Fixative at 4 °C for 1–3 min; rinse and drain briefly.
3. Incubate in TRAP Incubation Solution at 37 °C protected from light for 45–60 min; rinse.
4. Counterstain with Lea Hematoxylin Solution for 5–8 min; rinse, air-dry, and examine.

Staining Results

Component	Color
Positive granules	Purplish red
Nuclei	Blue

Clinical Significance

1. Hairy cells in hairy-cell leukemia show strong or moderate ACP positivity that is not inhibited by tartrate; other cells are negative or only very weakly positive.
2. In acute leukemia, immature monocytes are ACP-positive; lymphoblasts are weakly positive; myeloblasts show variable reactions.
3. T-lymphocytes exhibit coarse, densely distributed ACP-positive granules; B-lymphocytes are

negative or show only fine, weak positivity.
4. Gaucher cells are strongly ACP-positive; Niemann-Pick cells are negative or weakly positive.

Notes

1. TRAP Incubation Solution is prone to deterioration; skin-puncture blood smears are recommended and should be stained soon after drying.
2. Store GBC Stain Solution at 4 °C whenever possible; avoid –20 °C to prevent deliquescence.
3. For frozen sections, minimize exposure to room temperature.
4. Samples must be fresh; process immediately after collection to preserve enzyme activity.
5. Tissue fixation must be carried out at 4 °C and should not exceed 24 h, or enzyme activity will decline or disappear.
6. Use frozen sections; paraffin sections are not suitable.

This product is for research use only!