Peroxidase Staining Solution (Oxidase WG-KI Method)

P1518603

Storage Room temperature. Protect from light.
Shipping Ambient temperature transportation.

Introduction

Peroxidase (abbreviated as POX or MPO) is an oxidoreductase produced by microorganisms or plants that can catalyze a variety of reactions. Using hydrogen peroxide as an electron acceptor, peroxidase catalyzes the oxidation of substrates. It is mainly located in peroxisomes, with iron protoporphyrin as the prosthetic group. It can catalyze hydrogen peroxide and oxidize phenolic and amine compounds, exerting a dual function of eliminating the toxicity of hydrogen peroxide, phenols, amines, aldehydes, and benzenes.

Peroxidase Staining Solution (Oxidized WG-KI Method) is an improved Pereira POX staining method. This staining solution can be used for peroxidase staining of blood, bone marrow, or cell smears. POX-active sites appear as reddish-brown to blue-black granules localized in the cytoplasm. This reagent is for research use only and not intended for clinical diagnosis or other purposes.

Kit Contents

P1518603	Component	2×10mL	Storage
P1518603A	WG-KI Fixative Solution	10mL	RT
P1518603B	WG Staining Solution	1.9mL	RT
P1518603C	KI Staining Solution	0.75mL	RT. Store in the dark.
P1518603D	WG-KI Buffer	7.5mL	RT

Note: Immediately before use, mix B:C:D at a ratio of 5:2:20 to prepare the oxidized WG-KI staining solution. Use immediately after preparation.

Materials Required (User-supplied):

Glass slides, Microscope.

Protocol (For Reference Only):

1. After air-drying blood or bone marrow smears, cover the film with WG-KI Fixative Solution and fix for 30–60 seconds.
2. Rinse briefly with water, then air-dry or blot dry with filter paper.
3. Add oxidized WG-KI Staining Solution and stain for 1–2 minutes.
4. Discard the staining solution, blot dry with filter paper, and examine microscopically.

Staining Results:

Positive reaction: Reddish-brown to blue-black granules in the cytoplasm;
Negative reaction: Cytoplasm stained blue;
Cell nucleus: Pale blue or pale purplish-red.
With the exception of early myeloblasts, which are negative, more differentiated myeloblasts and subsequent stages of the granulocytic series show an increasingly positive reaction with cell maturation, while senescent neutrophils exhibit a decreased reaction. The monocytic series is weakly positive, and the lymphocytic series is negative. Plasma cells and megakaryocytes are both negative. Eosinophils and Auer rods show a strongly positive reaction.
Evaluation of Positive Reaction Intensity:
Negative: No granules;
Weakly positive: Small granules, sparsely distributed;
Positive: Moderately coarse granules, densely distributed;
Strongly positive: Coarse, large, blue-black granules filling the cytoplasm.

Clinical Significance:

1. Myeloblasts in advanced acute myeloblastic leukemia are positive, with relatively few and large granules.
2. Cells in acute monocytic leukemia are negative or weakly positive, with small and sparse granules.
3. Acute promyelocytic leukemia shows a strongly positive reaction; some promyelocytes are positive, while malignant histiocytes are negative.
4. Acute lymphoblastic leukemia is negative.

Precautions:

1. Blood or bone marrow smears should be fresh, appropriately thin, and fixed promptly; otherwise, enzyme activity may be affected.
2. Staining time may be appropriately prolonged when cell density is high or the positive reaction is weak, but generally should not exceed 3 minutes. Staining time should be appropriately shortened for AML-M3 cells.
3. A healthy donor's peripheral blood or bone marrow smear should be used as a negative control in each staining run.
4. For your safety and health, please wear a lab coat and disposable gloves during operation.