Giemsa Staining Solution (10X)

Introduction

Giemsa Staining Solution is a mix of an anionic dye eosin, and a cationic dye azure. Giemsa staining is a widely used technique in histopathology and it acts as a golden standard for blood sample staining.

Eosin being acidic, bind to the mature red blood cells and eosinophils to give a pink color. While azure is basic and binds to acidic components like basophils, monocytes, and lymphocytes, producing a blue-purple or purple-red color. Neutrophils can react with eosin and azure together and are stained to pale purple. Each type of blood cell stains differently and can be distinguished morphologically. Similarly, this solution stains the basic cytoplasm pink, and stains the acidic nuclei blue-purple or purple-red. Giemsa staining is also used in karyotyping of the chromosomes. After Giemsa staining, chromosomes show different G banding and can be distinguished easily.

Giemsa staining solution is often used in combination with Wright staining solution.

Components and Storage

Components	K1181-100 mL	K1181-500 mL
Giemsa Staining Solution (10X)	100 mL	500 mL
Store the components at room temperature away from light. Stable for at least 2 years.		

Protocol

1. Giemsa Staining working solution preparation

Add 1 mL Giemsa Staining Solution (10X) into 9 mL PBS and mix, it is Giemsa staining working solution (1X). The working solution is ready for use.

***Note:** It is recommended to prepare a fresh working solution every time.

2. Sample pretreatment

1) Paraffin section

① Soak the sections in the xylene 2 times (5-10 min/per time) to remove the wax

② Absolute ethanol treatment for 5 min

③ 90% ethanol treatment for 2 min

④ 80% ethanol treatment for 2 min

⑤ 70% ethanol treatment for 2 min

⑥ Rinse with distilled water for 2 min

2) Frozen section

① Rinse with distilled water for 2 min

3) Cell smear

① Prepare the cell smear as usual and dry it naturally

② 70% ethanol fixation for 10 min

4) Culture cell

① 70% ethanol fixation for 10 min

3. Sample staining

1) Giemsa staining working solution (1X) treatment for 15-30 min

2) Rinse with distilled water from one side of the section, dry and examine directly under the microscope.

4. Staining result

Mature red blood cells, eosinophils	Pink
Basophils, monocytes, lymphocytes	Blue-purple or purple-red
Neutrophils	Pale purple

Note

1. The surface of staining working solution should appear metallic sheen. If not, this solution may not work well.
2. Usually, pH may affect the staining. Make sure the slides are clean and free from acid and alkaline.

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