



# **May-Grunwald's Stain**

# **S039**

# **Intended use**

May Grunwalds Stain is used primarily to stain peripheral blood smears, urine samples, and bone marrow.

### **Composition\*\***

#### Ingredients

Eosin Y	1.0 gm
Methylene blue	1.0 gm
Methanol	100.0 ml

\*\*Formula adjusted, standardized to suit performance parameters

### Directions

1. Prepare blood film on a grease free slide and air dry.

2. Treat the dried blood film with methanol for 3-5 minutes.

3. Stain slides with May- Grunwald stain solution for 3 minutes. (Note :Staining time may vary depending on concentration of stain, determine optimal staining time with a trial slide before proceeding).

4. Add equal amount of distilled water, tilt to mix and stain 1 minute.

5. Pour off fluid and without washing add about 10 drops of freshly buffer diluted Giemsa (S011) stain for 5-10 minutes. Time required varies with the age of film, age of stain. and the kind of parasite). Sorensens buffer may be used for dilution (1:10).

6. Rinse with a quick ample jet of distilled water.

7. Air dry the smear and examine under oil.

# **Principle And Interpretation**

May Grunwald's Blood Stains are basic and acidic dyes which induce multiple colours when applied to cells. Methanol acts as a fixative and also as a solvent. The fixative does not allow any further change in the cells and makes them adhere to the glass slide. The basic component of white cells (i.e. cytoplasm) is stained by the acidic dye and they are described as eosinophilic or acidophilic. The acidic components (e.g. nucleus with nucleic acid) take blue to purple, shades of the basic dyes and they are called basophilic. The neutral components of the cell are stained by both the dyes.

# **Type of specimen**

Clinical samples: peripheral blood smears, urine samples, and bone marrow

# **Specimen Collection and Handling**

For clinical samples follow appropriate techniques for handling specimens as per established guidelines. After use, contaminated materials must be sterilized by autoclaving before discarding.

### **Warning and Precautions**

In Vitro diagnostic use only. Read the label before opening the container. Wear protective gloves/protective clothing/ eye protection/face protection. Follow good microbiological lab practices while handling specimens and

culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

## Limitations

1. To preserve morphology of cells, films must be fixed without delay and the films should never be left unfixed for more than a few hours.

2. Methanol used as fixative should be completely water free. As little as 1% water may affect the appearance of the films and a higher water content causes gross changes.

3. The red cells will also be affected by traces of detergent on inadequately washed slides.

4. Sometimes when thick films are stained they become overlaid by a residue of stain or spoil by the envelopes of the lysed red cells.

# **Performance and Evaluation**

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature

# **Quality Control**

- → **Appearance :** Violet coloured solution.
- $\rightarrow$  **Clarity :** Clear solution without any insoluble particles.
- → **Microscopic Examination :** Blood staining is carried out where May-Grunwald stain is used. Staining characteristic of organism is observed under microscope by using oil immersion lense.
- → **Results :** Nucleus or part of nucleus of protozoan: Red or carmine

Cytoplasm of protozoan: Blue Endulating membrane: Purple Chromatin of leukocytes: Purple Basophil cytoplasm of agranulocytes: Blue Eosinophil granule: Pink to red Neutrophil granules: Purple Red corpuscles: Pink or bluish.

### **Storage and Shelf Life**

Store between 10-30°C in tightly closed container and away from bright light. Use before expiry date on label. On opening, product should be properly stored in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use.

### Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques.

#### Reference

1. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

2. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.

3. Jorgensen, J.H., Pfaller , M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

4. Shanhooltzer, C. J., P. Schaper, and L.R. Peterson. 1982. Concentrated Gram stain smear prepared with a cytospin centrifuge. J.clin. Microbiol.16:1052-1056.

5. Staining Procedures; Fourth Edition; Williams& Wilkins; Baltimore

10°C	Storage temperature	8	Do not use if package is damaged
IVD	In vitro diagnostic medical device	CE	CE Marking
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