KIT FOR FAST STAINING IN HAEMATOLOGY (FAST PANOPTIC)

Principle

The Panoptic fast staining technique is a hematological, differential, non-vital staining, which is performed on dead cells and is based on May Grünwald-Giemsa's traditional technique, Romanowsky type staining, with the modification that it is a procedure based on immersions.

Romanowski stains are defined by the use of aqueous solutions of methylene blue and eosin. The variants of the Romanowski group differ from each other in the degree of oxidation (polychrome) corresponding to methylene blue (azure B). It was originally designed to incorporate a cytoplasmic (pink) stain with a nuclear (blue) stain and fixation as a single step for smears and thin films of tissue.

Over the years, modifications have been made to the working concentration of the stains and the staining time. This is how we talk about Romanowsky, Jenner, May-Grünwald, Leishman, Wright and Giemsa staining. All of them very similar.

Panoptic Fixative Nr. 1

Non-vital stains are hematological stains that are performed on dead cells. These techniques require a previous step, which is the fixation of these cells using methanol, in order to maintain the structures of the different cellular components unaltered.

Panoptic eosin Nr. 2

It is a halogenated xanthene dye with three aryl groups (4 bromine atoms per molecule) that gives it a negative electrical charge that provides optimal qualities as a cytoplasmic dye. It has special affinity for the basic structures of the cells, like for example the hemoglobin. Being an anionic (acidic) dye, it will bind to basic cell structures- acidophilic- and eosinophilic granules.

Panoptic Azur B Nr. 3

It is a basic colorant, which is part of a group of substances called thiacin. It has special affinity for the acid structures of the cells, such as nucleic acids, granules in neutrophils and acid proteins that are stained with a more or less intense purple red color. As a cationic (basic) dye it will bind to acidic-basophilic structures, and will remain in bluish tones (DNA, mitochondria ribosomes and cells with high biosynthetic activity - a lot of RNA). The cellular components that have an affinity for both types of dyes will remain in violet tones (e.g. neutrophils).

Applications

It is a kit with all the necessary reagents to carry out the staining of blood or spinal cord smears in biological samples of human origin.

The formulation of the components of the kit has been designed with the objective of being able to perform the hematological staining, in a much faster way than the traditional stains.

This fast panoptic method is a modification of the Romanowsky staining. It differs from the classical methods (May Grünwald Giemsa and Wright) in that in these two methods the dye had to be spread over the extension, unlike the rapid panopticon, which is an immersion method, i.e. we immerse the extension in the dye solution for a certain time. This immersion procedure makes the staining much faster.

In panoptic staining, biological samples of blood or bone marrow, usually prepared as smears, are used.

The first step is to fix the cell structures in methanol by immersing the sample in this fixative, several times during a certain short period of time. This allows the structures of the different cellular components to remain unaltered.

Then the sample is immersed in a second solution, eosin, proceeding in the same way. Finally, it is immersed in a third solution, blue, doing the same as in the previous two. After washing with pH 7.2 solution; the preparation can be observed by optical microscopy thus revealing the different blood cells (white and red cells).

The interpretation is identical to that of the classical stains (May Grünwald-Giemsa).

Material

Panoptic staining uses biological samples of blood or bone marrow, usually prepared as smears.

Reagents

Code	Description
254101	Fixing for fast staining (Panoptic No. 1) for clinical diagnosis
253999	Eosin for fast staining (Panoptic No. 2) for clinical diagnosis
253998	Blue for fast staining (Panoptic No. 3) for clinical diagnosis
252164	Buffer Solution pH 7.2 for clinical diagnosis

Procedure

The procedure to perform the rapid Panopticon staining is as follows:

1. Prepare a very fine blood smear on a clean slide and degrease it with alcohol.
2. Allow to dry in the air (approximately 2 hours)
3. Immerse the blood smear sample in Fastener (Panoptic Nr. 1) 5 times for 1 second each time.
4. Allow to drain.
5. Immerse the blood smear sample in Eosin for rapid staining (Panoptic Nr. 2) 5 times for 1 second.
6. Allow to drain.
7. Immerse the blood smear sample in Rapid Staining Blue (Panoptic Nr. 3) 5 times for 1 second each time.
8. Allow to drain.
9. Rinse the smear with pH 7.2 buffer.
10. Dry in the air and observe under the microscope.

Results

Erythrocytes	pink-grey
Plaquettes	Blue-Violet

Type of leukocyte	Nuclei	Cytoplasm	Granulations
neutrophyl	Blue-Violet	-----	Violet
eosinophil	Blue-Violet	-----	brick red to brown violet
basophil	Blue-Violet	-----	Dark violet to black
monocyte	Blue-Violet	pink-grey	-----
lymphocyte	Blue-Violet	Blue	-----

The intensity and resolution of the staining may vary as a function of time. They can also vary according to the repetition of the dives within the dyes.

Keep the cuvettes of Panoptic No. 1 Quick Stain Fixer covered as evaporation of the product may occur and give errors in staining.

Technical note

The microscope used should correspond to the requirements of a clinical diagnostic laboratory. If an automatic staining device is used, the operating instructions of the appliance manufacturer and the software must be observed.

Sample preparation

All samples should be treated according to the state of the technology. All samples must be unambiguously labeled.

Diagnostics

Diagnosis should be established only by authorized and qualified persons. Each application should involve appropriate controls to rule out erroneous results.

Storage

The staining solution should be stored at room temperature

Expiration

The product stored at the indicated temperature and in a tightly closed container is usable until the expiration date indicated on the package.

Notes on use

To avoid errors, the staining must be carried out by specialized personnel. For professional use only. The national directives on safety at work and quality assurance must be complied with.

Advise on disposal of waste

Solutions used and expired solutions should be disposed of as hazardous waste and local waste disposal regulations must be observed. If further questions are asked about disposal, they may be processed through E-Mail: info.es@itwreagents.com. Inside the EU are valid the requirements based on Council Directive 67/548/EEC on the approximation of the laws, regulations and laws, regulations and administrative provisions relating to the classification, packaging and labeling of dangerous substances in the relevant version.

Classification of hazardous substances

Observe the classification of dangerous substances on the label and the information on the safety data sheet.

Manufacturer

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