2E-042

Giemsa solution L
In-vitro diagnostic agent

Description

The product 2E-042 is a ready-to-use solution for professional users in histology. It is an aqueous solution of methylene blue, eosin and methanol. The product comes in 7 different pack sizes: 2E-042.00025 (25ml bottle), 2E-042.00100 (100ml bottle), 2E- 042.00250 (250ml bottle), 2E-042.00500 (500ml bottle), 2E-042.01000 (1l bottle), 2E-042.02500 (2.5l canister) and 2E-042.10000 (10l canister).

Main components

Methylene blue (C.I.52015) +	4.3 g/l
Azure eosin (C.I.45380)	3.2 g/l
Methanol (CH_4O)	600ml/l

Purpose

The Giemsa Azure-Eosin-Methylene Blue Solution is used for cell diagnostics for the examination of histological specimens (e.g. histological sections). It is a ready-to-use dye solution for professional users. The staining solution is used for the differentiation of cells and cell types and allows the differentiation of eosinophilic, basophilic and neutrophilic cells of the blood or bone marrow and enables the differentiation of tissue components and the immunohistological determination of *Helicobacter pylori*.

Sample material and sample preparation

Sampling may only be carried out by qualified personnel. All samples must be processed with state-of-the-art technology. All samples must be clearly labelled.

Sample material: Sections of human tissue (3–4 µm thickness) after fixation, for instance by means of buffered formol and fixation mixtures with ethanol and formalin and subsequent embedding in paraffin or fresh, native whole blood and bone marrow smears, as well as smear specimens after air drying such as urine sediment, sputum, smears from fine needle aspiration biopsies, rinsing fluids, imprints.

Test principle

In haematological applications, Azure Eosin Gimsa staining solution is often used in combination with other staining solutions (e.g. May-Grünwald solution) as an overview staining. The cell nuclei are thereby stained red, which is based on the molecular interaction between the eosin G dye and the azure B-DANN complex. An eosin G-azure B-DNA complex is formed, with the resulting staining depending on the azure B content and the ratio of azure B to eosin G.

In histology and clinical cytological applications, the staining solution is used as the sole stain. The colouring of the cell components is influenced by the pre-treatment of the material, with chromatin-containing structures (e.g. cell nuclei) turning bluish, whereas acidophilic components appear reddish.

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Komplementärin:
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Staining

The concentrated staining solution must be diluted with a buffer solution before use. For the staining of air-dried smears, the specimens are fixed in methanol. The samples are then coated with diluted Giemsa solution for 20 minutes and then rinsed twice in buffer solution. The specimens are then dried again.

For the staining of paraffin sections of iliac crests and detection of *Helicobacter pylori*, the samples must be deparaffinised and transferred to distilled water via a descending ethanol series. After the staining, the samples are rinsed with undiluted Giemsa azure-eosin methylene blue solution in acetic acid (0.1%) and washed in distilled water. The samples are transferred to xylene via an ascending ethanol series. The samples can be covered with a synthetic covering medium for subsequent examination under a microscope. To ensure the differentiability of the target structures, suitable control specimens should be kept along with the staining.

The usual staining protocols known from literature must be used.
Staining may only be carried out by qualified personnel.

Result

Air-dried smears

Cell nuclei	red to purple
Cytoplasm of the lymphocytes	blue
Cytoplasm of the monocytes	grey-blue
Neutrophil granules	light purple
Eosinophilic granules	reddish to reddish brown
Basophilic granules	dark purple
Thrombocytes:	purple
Erythrocytes	reddish

Paraffin sections of iliac crests and detection of Helicobacter pylori

Nuclei, cells	blue to dark blue
Collagen, osteoid	pale blue
Eosinophilic granules	red
Acid mucopolysaccharides, mast cell granules, cartilage matrix	reddish-purple
Acidophilic substances	orange-red
Helicobacter pylori	blue to dark blue

Precautionary measures

When removing the product, care must be taken to avoid contamination of the storage vessel. Once the solution has been removed, it must not be returned to the canister. If turbidity or solids appear, discard the product. The product is intended for single use and must not be reused.

Storage and shelf life

Store the unopened containers in a dry place at 15 to 25 °C, avoiding direct sunlight.

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The shelf life is 2 years. See also the best-before date (BBD) on the label. Once the containers have been opened, the shelf life corresponds to the best-before date, as long as the storage conditions are observed and the solution is handled properly.

Safety notice

If any serious incidents occur in connection with the product, please report them to the manufacturer and the national authority.

Literature

Romeis, Mikroskopische Technik, Editors: Maria Mulisch, Ulrich Welsch, 2010, Springer Spektrum, 18th edition

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