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Microscopy

Brilliant cresyl blue solution

for the staining of reticulocytes
for microscopy

For professional use only



In Vitro Diagnostic Medical Device



Intended purpose

This "Brilliant cresyl blue solution - for the staining of reticulocytes - for microscopy" is used for human-medical cell diagnosis and serves the hematological investigation of sample material of human origin. It is a staining solution that makes target structures evaluable for diagnostic purposes (by staining) in hematological specimen materials.

Unstained structures are relatively low in contrast and are extremely difficult to distinguish under the light microscope. The images created using the staining solutions help the authorized and qualified investigator to better define the form and structure in such cases. Further tests must be carried out according to recognized, valid methods to reach a definitive diagnosis.

Principle

The dye stains the nucleic acids in the reticulocytes (Substantia granulofilamentosa), thus enabling reticulocytes to be morphologically distinguished from erythrocytes.

The Substantia granulofilamentosa (ribonucleoproteins) can be rendered visible with fresh, non-fixed, young erythrocytes in a supervital staining procedure.

Characterized by an intense black-blue hue, it is possible both to determine the number of the reticulocytes (visual microscopic counting) and also to visualize their morphological aspects.

Four stages of substantia granulofilamentosa maturation can be distinguished depending on the stage of reticulocyte development: coiled skein (I), incomplete network (II), complete network (III) and granular form (IV). In peripheral blood the development stages III and IV are found most commonly.

Sample material

Anticoagulant venous blood, in exceptional cases capillary blood

Reagents

Cat. No. 101384
Brilliant cresyl blue solution 100 ml, 25 l
for the staining of reticulocytes
for microscopy

Sample preparation

The sampling must be performed by qualified personnel.

All samples must be treated using state-of-the-art technology.

All samples must be clearly labeled.

Suitable instruments must be used for taking samples and their preparation. Follow the manufacturer's instructions for application / use.

When using the corresponding auxiliary reagents, the corresponding instructions for use must be observed.

Procedure

Single tests

Draw 20 µl blood and 20 µl brilliant cresyl blue solution into a hemoglobin pipette and fill into a small sealable container. Mix thoroughly and after about 30 min prepare a thin smear.

Tests in series

Prepare thin smears of brilliant cresyl blue solution on microscope slides using a glass rod. Air-dried slides prepared in this way can be stored for 2 - 3 weeks.

For reticulocyte counts smear a small drop of blood quickly over the stain layer, and immediately place the still wet preparation in a moist chamber (Petri dish with damp filter paper). Leave for 5 - 10 min and then allow to dry in air.

Counting under the microscope

Count the reticulocytes per 1000 erythrocytes with oil immersion under the microscope following a meandering pattern. In order to avoid confusion when counting it is advisable to place a reticulocyte counting grid subdivided into small squares (or a square paper diaphragm) in one of the two eye pieces.

Result

Erythrocytes soft green
Reticulocytes black-blue network and dots

The reticulocyte count is expressed in relation to 1000 counted erythrocytes (i.e. as ‰). If the erythrocyte count is low, then the absolute reticulocyte count/µl is used.

Calculation

$$\text{Reticulocyte count [cells/}\mu\text{l]} = \frac{\text{erythrocyte count/}\mu\text{l} \times \text{reticulocyte count}(\text{‰})}{1000}$$

For standard values please refer to the current technical literature.

Technical notes

The microscope used should meet the requirements of a medical diagnostic laboratory.

Use a standard hemoglobin pipette and grid for counting reticulocytes. The diluted staining solution should be filtered before use.

Diagnostics

Diagnoses are to be made only by authorized and qualified personnel. Valid nomenclatures must be used.

This method can be supplementarily used in human diagnostics.

Further tests must be selected and implemented according to recognized methods.

Suitable controls should be conducted with each application in order to avoid an incorrect result.

Storage

Store the Brilliant cresyl blue solution - for the staining of reticulocytes - for microscopy at +15 °C to +25 °C.

Shelf-life

The Brilliant cresyl blue solution - for the staining of reticulocytes - for microscopy can be used until the stated expiry date.

After first opening of the bottle, the contents can be used up to the stated expiry date when stored at +15 °C to +25 °C.

The bottles must be kept tightly closed at all times.

Capacity

approx. 1000 applications / 100 ml

Additional instructions

For professional use only.

In order to avoid errors, the application must be carried out by qualified personnel only.

National guidelines for work safety and quality assurance must be followed. Microscopes equipped according to the standard must be used.

Protection against infection

Effective measures must be taken to protect against infection in line with laboratory guidelines.

Instructions for disposal

The package must be disposed of in accordance with the current disposal guidelines.

Used solutions and solutions that are past their shelf-life must be disposed of as special waste in accordance with local guidelines. Information on disposal can be obtained under the Quick Link "Hints for Disposal of Microscopy Products" at www.microscopy-products.com. Within the EU the currently applicable REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 applies.

Auxiliary reagents

Cat. No. 101368	Brilliant cresyl blue zinc chloride double salt for microscopy Certistain®	25 g
Cat. No. 103699	Immersion oil Type N acc. to ISO 8036 for microscopy	100-ml dropping bottle
Cat. No. 104699	Immersion oil for microscopy	100-ml dropping bottle, 100 ml, 500 ml
Cat. No. 106009	Methanol for analysis EMSURE® ACS, ISO, Reag. Ph Eur	1 l, 2.5 l, 5 l

Hazard classification

Cat. No. 101384

Please observe the hazard classification printed on the label and the information given in the safety data sheet.

The safety data sheet is available on the website and on request.

Main components of the product

Cat. No. 101384

C.I. 51010	1 g/l
C.I. 52040	3 g/l
NaCl	9 g/l

1 l = 1.01 kg

Other IVD products

Cat. No. 101383	Wright's eosin methylene blue solution for microscopy	100 ml, 500 ml, 2.5 l
Cat. No. 109204	Giemsa's azur eosin methylene blue solution for microscopy	100 ml, 500 ml, 1 l, 2.5 l
Cat. No. 111674	Hemacolor® Rapid staining of blood smear staining set for microscopy	1 set

General remark

If during the use of this device or as a result of its use, a serious incident has occurred, please report it to the manufacturer and/or its authorised representative and to your national authority.

Literature

1. Atlas der klinischen Hämatologie, Löffler, Rastetter, Haferlach, 2004, Springer Verlag 6. Auflage
2. Methoden der diagnostischen Hämatologie, H. Huber, H. Löffler, V. Faber, 1994, Springer Verlag
3. Romeis - Mikroskopische Technik, Editors: Maria Mulisch, Ulrich Welsch, 2015, Springer Spektrum, 19. Auflage
4. Staining Procedures, George Clark, Fourth Edition, Williams & Wilkins
5. Sobotta, Lehrbuch Histologie, Welsch, 2006, Urban&Fischer, 2. Auflage



Consult instructions for use



Manufacturer



Catalog number



Batch code



Caution, consult accompanying documents



Use by YYYY-MM-DD



Temperature limitation

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