1.00362.0001

Microscopy

Silver plating kit acc. to von Kossa

for the detection of microcalcification

For professional use only

IVD In Vitro Diagnostic Medical Device

CE

Intended purpose

This "Silver plating kit acc. to von Kossa - for detection of microcalcification" is used for human-medical cell diagnosis and serves the purpose of the histological investigation of sample material of human origin. It is a ready-to-use staining kit that when used together with other in vitro diagnostic products from our portfolio makes target structures evaluable for diagnostic purposes (by fixing, embedding, staining, counterstaining, mounting) in histological specimen materials, for example histological sections of e.g. the Mamma tissue, the heart, or the lung.

The Silver plating kit acc. to von Kossa is used to visualize calcium deposits in histological tissue specimens.
It contains two ready-to-use reagents that are needed for the silver plating. A counterstaining can be performed with, e.g. Nuclear fast red staining solution, optionally, which is not contained in the kit.

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 examinations may be necessary to reach a definitive diagnosis.

Principle

Silver ions of the silver nitrate solution react with the carbonate and phosphate ions of the calcium in the stored calcium deposits and displace the calcium ions.
These silver ions are reduced to metallic silver by exposure to strong light, and this silver is evaluated by microscopy.

Sample material

Starting materials are sections of formalin-fixed tissue embedded in paraffin (5 - 6 µm thick paraffin sections).

Reagents

Cat. No. 1.00362.0001
Silver plating kit acc. to von Kossa
for detection of microcalcification

Package components:

The staining kit contains

Reagent 1:	Silver nitrate solution	100 ml
Reagent 2:	Sodium thiosulfate solution	100 ml

Optional (see "Procedure"):

Cat. No.	100121	Nuclear fast red-aluminium sulfate solution 0.1% for microscopy	500 ml

Additionally required auxiliaries for exposure

Also required:

Light source (e.g. desk lamp) fitted with an energy-saving lamp of at least 20 watts.

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.

Deparaffinize and rehydrate sections in the conventional manner.

Reagent preparation

The reagents of the Silver plating kit acc. to von Kossa - for detection of microcalcification used for silver plating are ready-to-use, dilution of the solutions is not necessary and merely produces a deterioration of the result and their stability.

Procedure

Staining in the staining cell

Deparaffinize histological slides in the conventional manner and rehydrate in a descending alcohol series.

The slides should be allowed to drip off well after the individual staining steps, as a measure to avoid any unnecessary cross-contamination of solutions.

Do not use metal tweezers and do not allow any other metal objects to come into contact with the slides.

The stated times should be adhered to in order to guarantee an optimal staining result.

Note: To guarantee an optimal exposure, the distance between light source and staining cell should be about 5 cm. The light source should be placed such, that the reaction is illuminated from the top.

Slide with histological specimen	
Distilled water	1 min
Reagent 1 (Silver nitrate solution) under exposure to illuminant	20 min
Running tap water	3 min
Reagent 2 (Sodium thiosulfate solution)	5 min
Running tap water	1 min
Nuclear fast red-aluminium sulfate solution 0.1% (optional)	3 min
Distilled water	1 min
Ethanol 70 %	1 min
Ethanol 96 %	1 min
Ethanol 100 %	1 min
Ethanol 100 %	1 min
Xylene or Neo-Clear®	5 min
Xylene or Neo-Clear®	5 min
Mount the Neo-Clear®-wet slides with Neo-Mount® or the xylene-wet slides with e.g. Entellan® new and cover glass.	

After dehydration (ascending alcohol series) and clearing with xylene or Neo-Clear®, histological samples can be mounted with water-free mounting agents (e.g. Neo-Mount®, Entellan® new, or DPX new) and a cover glass and can then be stored.

Result

Calcium	brown to black
Nuclei	red
Background	red
Collagen	red

Trouble-shooting

Silver-staining techniques can be difficult and require special care during the procedure.

Weak visualization of calcium deposits

- The use of a 20-Watt energy-saving lamp (with periodic exchange of the bulb), as well as the distance between the lamp and the staining cell (5 cm, illuminated from the top) is essential.
- Further, a tissue thickness of 5 - 6 µm should be used, as mostly sections <5 µm do not contain enough calcium material for the reaction, which might result in false-negative results.

Technical notes

The microscope used should meet the requirements of a medical diagnostic laboratory.
When using histoprocessors or automatic staining systems, please follow the instructions for use supplied by the supplier of the system and software.

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 Silver plating kit acc. to von Kossa - for detection of microcalcification at +15 °C to +25 °C.

Shelf-life

The Silver plating kit acc. to von Kossa - for detection of microcalcification 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.

The used silver nitrate solution can be used for multiple reactions. However, it should be collected in a separate bottle that is then stored at 15 °C to 25 °C.

Capacity

The package is sufficient for up to 300 applications.

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.	100121	Nuclear fast red-aluminum sulfate solution 0.1 % for microscopy	500 ml
Cat. No.	100496	Formaldehyde solution 4%, buffered, pH 6.9 (approx. 10% Formalin solution) for histology	350 ml and 700 ml (in bottle with wide neck), 5 l, 10 l, 10 l Titripac®
Cat. No.	100579	DPX new non-aqueous mounting medium for microscopy	500 ml
Cat. No.	100974	Ethanol denatured with about 1 % methyl ethyl ketone for analysis EMSURE®	1 l, 2.5 l
Cat. No.	103699	Immersion oil Type N acc. to ISO 8036 for microscopy	100-ml dropping bottle
Cat. No.	103999	Formaldehyde solution min. 37% free from acid stabilized with about 10% methanol and calcium carbonate for histology	1 l, 2.5 l, 25 l
Cat. No.	104699	Immersion oil for microscopy	100-ml dropping bottle, 100 ml, 500 ml
Cat. No.	107960	Entellan® rapid mounting medium for microscopy	500 ml
Cat. No.	107961	Entellan® new rapid mounting medium for microscopy	100 ml, 500 ml, 1 l
Cat. No.	108298	Xylene (isomeric mixture) for histology	4 l
Cat. No.	109016	Neo-Mount® anhydrous mounting medium for microscopy	100-ml dropping bottle, 500 ml
Cat. No.	109843	Neo-Clear® (xylene substitute) for microscopy	5 l
Cat. No.	111609	Histosec® pastilles solidification point 56-58°C embedding agent for histology	1 kg, 10 kg (4x 2.5 kg), 25 kg
Cat. No.	115161	Histosec® pastilles (without DMSO) solidification point 56-58°C embedding agent for histology	10 kg (4x 2.5 kg), 25 kg

Hazard classification

Cat. No. 1.00362.0001

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 products

Cat. No. 1.00362.0001

Reagent 1

$AgNO_3$	20 g/l

Reagent 2

$Na_2O_3S_2$	51.4 g/l

Other IVD products

Cat. No.	100251	Reticulin silver plating kit acc. to Gordon & Sweets	1 set
Cat. No.	100361	ISOSLIDE® Reticulin Control Slides with reference tissue for the detection of reticular fibres in histology	25 tests
Cat. No.	100820	Methenamine silver plating kit acc. to Gomori for microscopy	1 set
Cat. No.	102414	Warthin-Starry silver plating kit modified for the detection of Helicobacter pylori in paraffin sections	1 set
Cat. No.	105174	Hematoxylin solution modified acc. to Gill III for microscopy	500 ml, 1 l, 2.5 l
Cat. No.	109844	Eosin Y-solution 0.5% aqueous for microscopy	1 l, 2.5 l

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. Romeis - Mikroskopische Technik, Editors: Maria Mulisch, Ulrich Welsch, 2015, Springer Spektrum, 19. Auflage
2. Histotechnik, Gudrun Lang, 2013 Springer Verlag, 2. Auflage
3. Theory and Practice of Histological Techniques, John D Bancroft, Marilyn Gamble, 2008, Churchill Livingstone ELSEVIER, 6th Edition
4. Laboratory Manual of Histochemistry, Linda L. Vacca, 1985, Raven Press
5. Staining Procedures, George Clark, 1981, Williams&Wilkins, 4th Edition
6. Histological & Histochemical Methods: Theory & Practice, J. A. Kiernan, 1990, Pergamon Press, 2nd Edition
7. Histological and Histochemical Methods, Theory and practice, J. A. Kiernan, 2015, Scion Publishing Ltd, 5th Edition


Consult instructions for use


Manufacturer

Catalog number

Batch code


Caution, consult accompanying documents


Use by YYYY-MM-DD


Temperature limitation

Status: 2021-Jan-18

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