Kit HistoPerls

REF. 361850-0000

Differential staining of histo-cytological structures

CE IVD

IFU096A-RAL

For professional use only.
Please read all information carefully before using this device.

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Intended use

Kit HistoPerls is intended to be used for differential staining of histo-cytological structures prior microscopic examination

If applicable, RAL Diagnostics recommends using the associated RAL Diagnostics products and cannot guarantee that the expected results will be achieved if used in combination with products of other brands.

Principle

In an acid environment, ferric ions react with potassium ferrocyanide to form a precipitate: ferric ferrocyanide (or Prussian blue), that shows the presence of the pathological pigment, hemosiderin.
This pigment is found in the liver and in bone marrow in diseases such as haemochromatosis, cirrhosis and some anemia.

Kit description

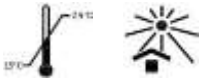
Acid buffer and potassium ferrocyanide
Clear white solution
REF. 361955-0005 10 X 5 mL

Nuclear red solution
Clear fuchsia solution
REF. 320910-0100 1 X 100 mL

For a specific batch, refer to the analysis certificate of the batch available at my.ral-diagnostics.fr.

Storage

Storage temperature: 15-25°C away from light.
Bottle shelf life before and after opening: refer to expiry date on label.



Active components

Acid buffer and potassium ferrocyanide
Potassium ferrocyanide -CAS- 14459-95-1: ca 0.5%

Nuclear red solution
Nuclear fast red – CAS - 6409-77-4: < 0,2%

Hazard classification and safety information

Acid buffer and potassium ferrocyanide

Warning: H315 - Causes skin irritation. H319 - Causes serious eye irritation.
P264 - Wash hands thoroughly after handling. P280 - Wear protective gloves, protective clothing, eye protection, face protection, eye protection. P337+P313 - If eye irritation persists: Get medical advice/attention.

Nuclear red solution

Danger: H318 - Causes serious eye damage.
P280 - Wear protective gloves, protective clothing, eye protection. P305+P351+P338+P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

CONT	Al2(SO4)3, xH2O

Personnel qualification

All samples and products must be handled by qualified and authorized personnel, using individual or collective protection, in accordance with the national directives in force in the laboratories. Personnel must also be aware of the classification of hazardous materials indicated on the label and of the safety data sheet (available at my.ral-diagnostics.fr).

Specimen must be treated in accordance with procedures available in the laboratory and promulgated by national authorities.

The diagnosis must be conducted by qualified and authorized personnel, in accordance with the procedures in force within the laboratory.

Specific equipment and reagents required but not provided

Microscope slides.

This equipment may vary depending on the protocol. Please refer to the relevant protocol (see the section operating procedure) to ensure that you have the necessary equipment to carry out tests.

Operating procedure

The equipment used for sample processing must comply with the supplier's instructions for use.

Sample preparation

Histological sections: dewax and et hydrate tissues sections in appropriate reagents before staining.

Manual blood smear: Mix the tube by slow inversion and install a smearing droplet device. Invert the tube and lightly press the drop depositor onto a slide to deposit a small drop of blood (Fig. 1- slide A at step 1).
Using another slide tilted at 45° (Fig. 1- slide B at step 1), spread the blood by capillarity on the short edge (Fig. 1- steps 2 & 3) using a pushing motion (Fig. 1- step 4). A good quality smear does not reach the end of the slide and has a gradual decrease in thickness until the end is feathered. Allow the smear to air dry before fixing or staining.
NB: if you do not have a smearing droplet device, open the tube, and use a pipette to deposit a blood drop.

Manual bone marrow smear by crushing method: using a pipette deposit, a small amount of the sample on a microscope slide. Blot up blood excess to keep only shiny lumps. Cover the first slide with a slide. Squeeze and thin the sample by sliding and stretching to the end of the slide. A good quality smear does not reach the end of the slide. Discard the slide used for smearing. Allow the smear to air dry before fixing or staining.

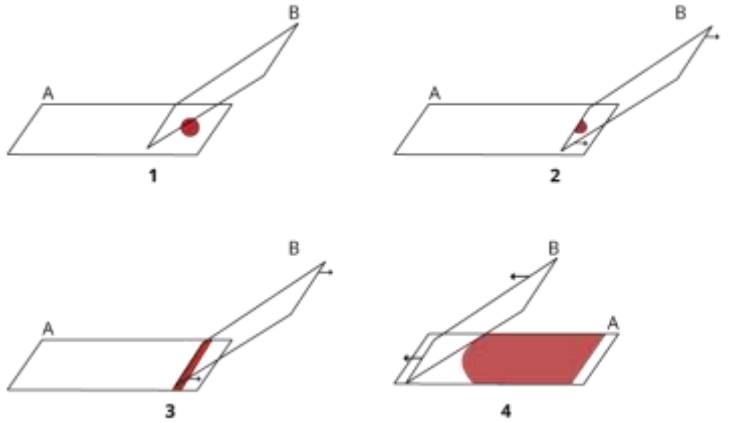


Figure 1. Schematic representation of performing a blood smear
A & B: slides, 1 – 4: steps 1 to 4

Reagents and instruments preparation

Nuclear red solution is ready to use.
Prepare potassium ferrocyanide solution: press on the cap to free the Potassium ferrocyanide tablet in the differentiating acid buffer (Fig. 2- step 1). Shake the bottle vigorously until the complete dissolution of Potassium ferrocyanide tablet in the differentiating acid buffer (Fig. 2- step 2). The mixture is normally turbid.
Realize extemporaneously this mixture.
Put the pouring lip on. (Fig. 2- step 3)

Protocols

The staining steps of the protocols indicated below consist of a successive covering of the slides with the different staining reagents.
For the staining steps, place slide on a stand with fixed smear on top.

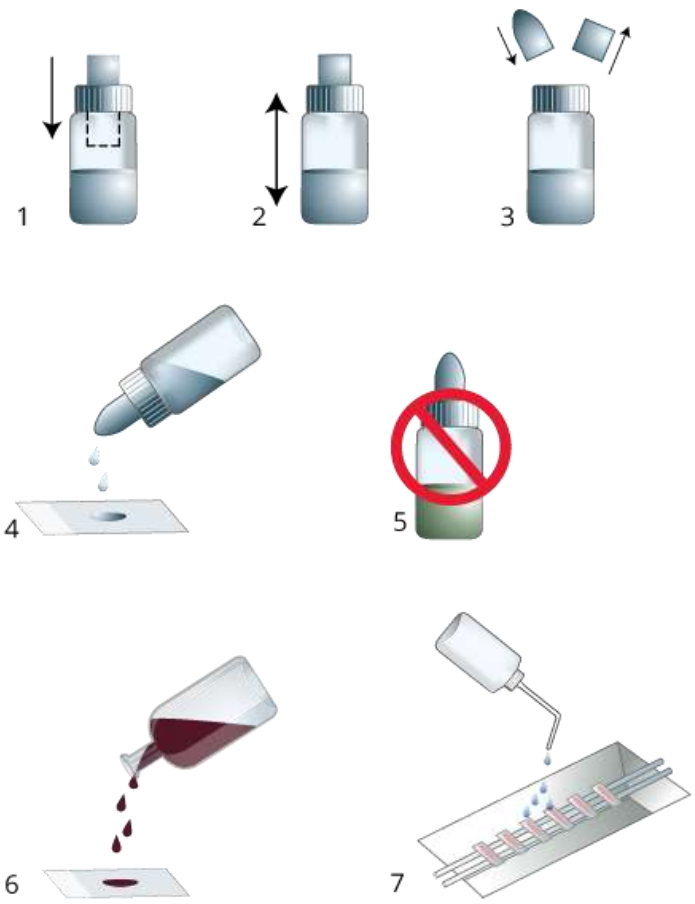


Figure 2. Kit HistoPerls preparation and staining steps
1 – 8: steps 1 to 8

1 to 3- Preparation potassium ferrocyanide solution steps
4 and 6 to 7- Staining steps
5- Beyond 30 minutes, the ferrocyanide solution turns light blue, then green blue and must not be used anymore.

Protocol for histological sections staining - Manual bath method - Manual microscopic analysis

Dewax and et hydrate tissues sections in appropriate reagents before staining.
Processing time: 40 min

Steps	Reagent	Time [mm: ss]	Indications
Stain	Potassium ferrocyanide solution	30:00	(Fig. 2- step 4)
Rinse	Distilled water	No	(Fig. 2- step 7)
Stain	Nuclear Red	10:00	(Fig. 2- step 6)
Rinse	Distilled water	No	(Fig. 2- step 7)
Dehydrate	growing degree alcohols baths	No	until absolute alcohol
Dehydrate	Toluene or xylene	No	No
Mount	Toluene or Xylene based mounting medium	No	No

Protocol for blood and bone marrow smear staining - Manual bath method - Manual microscopic analysis

Processing time: 43 min

Steps	Reagent	Time [mm: ss]	Indications
Fix	Methanol	03:00	No
Dry	No	No	Air dry
Stain	Potassium ferrocyanide solution	30:00	(Fig. 2- step 4)
Rinse	Distilled water	No	(Fig. 2- step 7)
Stain	Nuclear Red	10:00	(Fig. 2- step 6)
Rinse	Distilled water	No	(Fig. 2- step 7)
Dry	No	No	Air dry

Expected results

Ferric Salts: bright blue
Nuclei: red

If observed results vary from those expected, please contact RAL Diagnostics technical service through your usual supplier for assistance.

Performance

This medical device is state of the art. Its analytical performance, scientific validity and medical relevance are assessed in the CE marking review.

To ensure product performance, use clean and dry laboratory equipment.

The laboratory is responsible for notifying the maufacturer and state competent authority of any serious incident relating to the use of the medical device.

User quality Control

Users are responsible for determining the appropriate quality control procedures for their laboratory and complying with applicable laboratory regulations.

RAL Diagnostics recommend quality control at reagents renewal and for the first staining cycle of each day. Slides stained for quality control purposes should be checked to ensure that they are satisfactory for intended test (properly stained and free of precipitate).
Staining results for each cell type must also be compliant with this manual expected results.

These quality control procedures should only be performed by qualified personnel.

Other products

For more information contact your usual supplier.

Recommendations, notes, and troubleshooting

Products appearance
If the appearance of the products differs from the description above, do not use it and contact RAL Diagnostics technical service through your usual supplier for assistance.

Procedures notes
To prevent products degradation, please comply with the storage and handling recommendations specified in this manual.

Staining times may vary according to the tissue section structure.
The extemporaneous mixture of Differentiating acid buffer and Potassium ferrocyanide tablet must be used within 30 minutes after prepared. Beyond this, the mixture turns light blue, then green blue and must not be used anymore.
Nuclear Red Solution must be stored away from light after each use.
Avoid the use of metallic instruments during the procedure.
Use carefully rinsed glassware as exogenous iron may cause many risks of artefacts.

Products stability
Every RAL Diagnostics product can be used until the expiry date indicated on, in its original packaging if it is still hermetically sealed.

Staining stability

Staining quality and reproducibility depend on the correct use of the products. Staining conducted according to these recommendations will remain stable for several days. RAL Diagnostics recommends mounting the stained slides with a coverslip using a suitable mounting liquid and to store them in a light and dustproof container.

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Instructions for cleaning and waste disposal

All biological samples, effluents and used consumables should be considered potentially hazardous.

To avoid any risk, apply the following instructions: dispose of samples, effluents and consumables in accordance with laboratory standards and applicable national and local standards and regulations.

Chemical and biological waste must be collected and processed by specialized, registered companies.

Table of symbols and abbreviations

Depending on the product, you may find the following symbols on the device or the packaging material.

GHS PICTOGRAMS	INTERPRETATION
	Explosive
	Flammable
	Oxidizer
	Compresses gas
	Corrosive
	Toxic
	Harmful
	Health Hazard
	Environmental Hazard
	No labelling applicable

SYMBOL	INTERPRETATION
LOT	Batch code
SN	Serial number
REF	Catalogue reference
	Date of manufacture
	Use up to
UDI	Unique device identifier
	Manufacturer
	Importer
	Entity distributing the medical advice in the region concerned
CE	CE marking device
IVD	In vitro diagnostic medical device
	Authorised Representative in the European Community
	Authorised Representative in Switzerland
UK CA	Complies with UK guidelines
	Do not use if packaging is damaged
	Keep away from light
	Temperature limit: 15-25°C
	Temperature limit: 15-30°C
	Keep dry
	Box: handling upwards
	Fragile
	Sterilised by irradiation
	Single sterile barrier system with outer protective packaging
	Sterile and radiation-sterilised barrier suit
	Do not reuse
	Do not resterilize
	Contents sufficient for n tests
	Hazardous material contained
	Consult instructions for use
USE	Use
	After opening, use within XX months
	The product must not be used in conjunction with an automatic colouring machine
	Indicates a medical device that contains potentially carcinogenic, mutagenic or reprotoxic (CMR) substances, or substances classified as endocrine disruptors

Bibliography

GANTER P., JOLLES G., *Histochimie normale et pathologique*, éd. GAUTHIER VILLARS, vol. 2, 1970, p. 1672-1673.
LORD-DUBE H. L'ITALIEN R. *Hématologie*, éd. Décarie, 1983, p. 194-196.
SOCIETE FRANCAISE D'HEMATOLOGIE (SFH), *Guides des bonnes pratiques des ponctions médullaires*, Juin 2003, VI.2
THEML H., *ATLAS de poche d'Hématologie, Médecine-Sciences Flammarion, p. 19-25, 2000*

Change tracking

Date	Version	Changes
05/2022	IFU096A-RAL	IVDR (EU) 2017/746 compliance

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