BIOGNOST®

PERIODIC ACID, 1% SOLUTION

IVD *In vitro* diagnostic medical device CE

Synonym: Orthoperiodic acid
INSTRUCTIONS FOR USE

REF Catalog number: PK1-OT-100 (100 mL) PK1-OT-250 (250 mL) PK1-OT-500 (500 mL)

Introduction

Periodic acid (H_5IO_6) is frequently used with special staining in histopathology, such as P.A.S. (Periodic Acid Schiff) method used for staining aldehydes, mucopolysaccharides and mucoproteins in purple/magenta. Should basement membranes, glycogen, bacteria and fungi are to be displayed, Periodic acid, 1% solution may be used with Grocott or P.A.S.M./Jones staining methods.

Product description

PERIODIC ACID, 1% SOLUTION - Component of Grocott and P.A.S.M./Jones kits

CAUTION:

Adhere to the following rules in order to achieve the best results:
- use distilled or demineralized high purity water **WITHOUT** any chlorine
- use completely clean laboratory glassware
- do not touch the sections / be in contact with metal objects (scissors, tweezers etc.) during staining
- all reagents must reach room temperature before use
- apply the reagents so they completely cover the section

Preparation of silver-methenamine-borate working solution for:

NOTE: silver-methenamine-borate working solution must be used for one staining only and be discarded after the use

a) kit for 100 tests (GRC-100T), 40 ml volume (optimal for Coplin jar):

Add 7 ml of Methenamine, solution and 8 ml of Borax, solution to 23 ml of double distilled (demi) water. Then gradually add 2 ml of Silver nitrate, solution (~50 drops) by stirring using glass stick.

b) kit for 100 tests (GRC-100T), 80 ml volume (optimal for Hellendahl jar):

Add 13 ml of Methenamine, solution and 15 ml of Borax, solution to 48 ml of double distilled (demi) water. Then gradually add 4 ml of Silver nitrate, solution by stirring using glass stick.

c) kit of greater volume (GRC-K-100), 120 ml (optimal for Schifferdecker jar):

Add 20 ml of Methenamine, solution and 22 ml of Borax, solution to 72 ml of double distilled (demi) water. Then gradually add 6 ml of Silver nitrate, solution by stirring using glass stick.

Preparing the histological sections for staining

Fix the tissue sample tightly (4% NB Formaldehyde, 10% NB Formaldehyde), rinse with water and dehydrate through series of ascending alcohol solutions (Histanol 70, Histanol 80, Histanol 95 and Histanol 100)
Clear the sample with intermedium; in xylene (BioClear) or in a xylene substitute (BioClear New)
Infiltrate and fit the sample in paraffin (BioWax Plus, BioWax 56/58, BioWax Blue, BioWax Micro)
Cut the paraffin block to **4-6** μm slices and place them on a VitroGnost glass slide

1.	Prepare **silver-methenamine-borate working solution,** pour it into jar, cover with a glass lid and place in the water bath at 62°C	
	Note: we recommend using Coplin or Hellendahl jars	
2.	Deparaffinize the section in xylene (BioClear) or in a xylene substitute (BioClear New)	3 exchanges, 2 min each
3.	Rehydrate using 100% alcohol (Histanol 100)	2 exchanges, 3 and 2 min
4.	Rehydrate using 95% alcohol (Histanol 95)	2 min
5.	Rehydrate in distilled (demi) water	2 min
6.	Add Periodic acid, 1% solution (≥5 drops)	5 min for fungi oxidation
	Note: prolong the incubation period for basement membrane oxidation	11 min
7.	Rinse in double distilled (demi) water	6 exchanges, 5 seconds each
8.	Immerse the sections in previously heated silver-methenamine-borate working solution and incubate at 62°C. Check the section staining microscopically. If necessary, prolong the incubation period (if the fungi turn dark brown on light yellow background)	20 min for staining fungi
	Note: for staining basement membrane, incubate for 30 min and visually check until required staining intensity is achieved (basement membranes turn dark brown on light yellow background)	30 min
9.	Rinse in redistilled (demi) water (room temperature)	6 exchanges, 5 seconds each
10.	Add Gold chloride, 0.2% solution (≥5 drops)	30 seconds
11.	Rinse in redistilled (demi) water (room temperature)	6 exchanges, 5 seconds each
12.	Add Sodium thiosulfate, 2% solution (≥5 drops)	2 min
13.	Rinse well under tap water	2 min
14.	Add Fast Green F.C.F. contrast reagent (≥5 drops)	2-3 minutes
15.	Rinse in distilled (demi) water	
16.	Dehydrate using 95% alcohol (Histanol 95)	2 exchanges, 30 seconds each
17.	Dehydrate using 100% alcohol (Histanol 100)	30 seconds

18.	Dehydrate using 100% alcohol (Histanol 100)	2 min
19.	Clear the section in xylene (BioClear) or in a xylene substitute (BioClear New)	2 exchanges, 2 min each

Immediately after clearing apply an appropriate BioMount medium for covering/mounting on the section. If BioClear xylene was used, use one of BioGnost's mounting xylene-based media (BioMount, BioMount High, BioMount M, BioMount DPX, BioMount C, or universal BioMount New). If BioClear New xylene substitute was used, the appropriate covering agent is BioMount New. Cover the section with VitroGnost cover glass.

Result

Basement membranes, glycogen, bacteria and fungi - brown to black
Background - green

Note

Time periods of staining processes are not entirely standardized in clinical and laboratory practical experience. Time periods specified in the instruction approximately correspond to a longtime work practice with optimal results. Intensity of staining depends on the period of immersion in the dye. Real staining protocol depends on personal requests and priorities.

Preparing the sample and diagnostics

Use only appropriate instruments for collecting and preparing the samples. Process the samples with modern technology and mark them clearly. Follow the manufacturer's instructions for handling. In order to avoid mistakes, the staining procedure and diagnostics should only be conducted by authorized and qualified personnel. Use only microscope according to standards of the medical diagnostic laboratory.

Safety at work and environmental protection

Handle the product in accordance with safety at work and environmental protection guidelines. Used solutions and out of date solutions should be disposed of as special waste in accordance with national guidelines. Reagents used in this procedure could pose danger to human health. Tested tissue specimens are potentially infectious. Necessary safety measures for protecting human health should be taken in accordance with good laboratory practice. Act in accordance with signs and warnings notices printed on the product's label, as well as in BioGnost's material safety data sheet.

Storing, stability and expiry date

Keep Periodic acid, 1% solution in a tightly closed original package at temperature between 15°C and 25°C. Do not keep in cold places, do not freeze and avoid exposing to direct sunlight. Date of manufacture and expiry date are printed on the product's label.

References

1. Culling, C.F.A.(1974): Handbook of histopathological and histochemical techniques, 2nd ed., Butterworth, London, UK.
2. Davey, F.R. et Nelson, D.A.(1977): Periodic Acid Schiff (PAS) Stain. IN Hematology, 2nd ed., W. J. Williams, E. Buetler, A. J. Erslev, R.W. Rundles, McGraw-Hill, New York, p1630-1632.
3. Hotchkiss, R.D.(1948): A microchemical reaction resulting in the staining of polysaccharide structures in fixed tissue preparations, Arch. Biochem. 16, p131.
4. Sheehan D.C. et Hrapchak, B.B.(1980): Theory and Practice Histotechnology, 2nd ed., CV Mosby, St. Louis, (MO), pp 52, p14-167.

PK1-OT-X, V4-EN3, 5 November 2018, AK/IŠP

	Refer to the supplied documentation	°C	Storage temperature range	Σ	Number of tests in package	REF	Product code	CE	European Conformity		BIOGNOST Ltd. Medjugorska 59 10040 Zagreb CROATIA www.biognost.com
	Refer to supplied instructions		Keep away from heat and sunlight		Valid until	LOT	Lot number		Manufacturer		
IVD	For *in vitro* diagnostic use only		Keep in dry place		Caution - fragile						