

Periodic Acid-Schiff Stain Kit Instructions for Use

For *in vitro* diagnostic use.

Periodic Acid-Schiff Stain Kit is an *in vitro* diagnostic medical device intended to be used by laboratory professionals for the qualitative evaluation of cell morphology in pathology specimens. For use as an aid in the identification of carbohydrates, glycogen, basement membranes and fungus in tissue sections for the diagnosis of general pathology specimens.

Technical Discussion

Microtomy

Cut sections at 4-6 microns.

Fixation

No special requirements; formalin fixation is adequate. Carnoy's fixative may also be used. Avoid fixatives containing glutaraldehyde to prevent non-specific background staining.

Quality Control

Kidney is the most sensitive control; however, normal liver or cervix (with both endo- and ectocervix) should be used in order to demonstrate glycogen.

Technical Procedure

Standard Staining Protocol

1. Deparaffinize and hydrate sections to deionized water.
2. Place sections in Periodic Acid Solution for 5 minutes at room temperature.
3. Rinse sections in several changes of deionized water.
4. Stain sections in Schiff Reagent for 15 minutes to achieve desired contrast.
5. Rinse sections in lukewarm running tap water for 10 minutes.
6. Rinse sections in several changes of deionized water.
7. Stain sections in Hematoxylin 1 for 1 minute to achieve desired contrast.
8. Rinse sections in deionized water for 30 seconds.
9. Place sections in Bluing Reagent for 1 minute.
10. Rinse sections in deionized water for 1 minute.
11. Dehydrate sections in three changes of anhydrous alcohol for 1 minute each.
12. Clear sections in three changes of clearing reagent for 1 minute each and mount.

Microwave Staining Protocol

1. Deparaffinize and hydrate sections to deionized water.
2. Place sections in Periodic Acid Solution for 5 minutes at room temperature.
3. Rinse sections in deionized water for 30 seconds.
4. Place sections in plastic Coplin jar containing Schiff Reagent.
5. Microwave sections on high for 30 seconds to maintain a temperature of 30° C.
6. Remove sections from microwave and agitate the solution to equalize the temperature. Allow sections to remain in warm solution for an additional 5 minutes.
7. Rinse sections in lukewarm running tap water for 10 minutes.
8. Rinse sections in several changes of deionized water.
9. Stain sections in Hematoxylin 1 for 1 minute.
10. Rinse sections in deionized water for 30 seconds.
11. Place sections in Bluing Reagent for 1 minute.
12. Rinse sections in deionized water for 1 minute.
13. Dehydrate sections in three changes of anhydrous alcohol for 1 minute each.
14. Clear sections in three changes of clearing reagent for 1 minute each and mount.

Results

Carbohydrates, Glycogen, Basement Membranes, Fungus – Magenta

Nuclei – Blue

Background – Light Purple

Probable Mode of Action

Periodic acid oxidizes various tissue moieties to aldehydes. Schiff Reagent bonds to the induced tissue-aldehyde in its leuco (colorless) form. Water rinsing removes the sulfurous acid, restoring the Schiff Reagent to its rose-colored form.

Discussion

It is strongly recommended to store Schiff Reagent tightly capped at 2-8° C; this ensures longer stability. Schiff Reagent may contain a small amount of white crystallization which will not impede stain performance. However, if stored improperly, larger amounts of white precipitate may form and can lead to a weak stain reaction. Contamination will cause Schiff Reagent to discolor; it should be discarded. The PAS staining reagents are for "in vitro" use only. Refer to the Safety Data Sheet for health and safety information. Periodic Acid Solution and Schiff Reagent should be discarded after use. All dyes used in these formulations are certified by the Biological Stain Commission.

Technical Comments

More intense staining is achieved with the room temperature procedure. Bouin's and Zenker's fixatives have shown adverse effects on staining results. The microwave protocol was developed using a 1200-watt microwave oven. Microwave frequencies vary from model to model, so it may be necessary to adjust power levels or times to achieve desired results. All results should be tested and validated following normal laboratory procedure.

Warnings and Precautions

See Safety Data Sheets for warnings and precautions, as well as EUH code definitions. See container labeling for warnings and precautions.

References

1. Bancroft, J.D. and Stevens, A. Theory and Practice of Histological Techniques. Churchill Livingstone, New York, NY, 1977.
2. Sheehan, D.C. and Hrapchak, B.B. Theory and Practice of Histotechnology, 2nd Edition. Mosby, St. Louis, MO, 1980.
3. Thompson, C.C. Selected Histochemical and Histopathological Methods. Springfield, IL, 1966.
4. Lillie, R.D., H.J. Conn's Biological Stains. Williams & Wilkins, Baltimore, MD, 1972.
5. Carson, F. L. Histotechnology: A Self-Instructional Text, 2nd Edition. ASCP Press, Chicago, 1997.

Order Information

Product	Size	Qty.	REF
Periodic Acid-Schiff Stain Kit	1 Kit	1	87007
Periodic Acid Solution (0.5%)	500 mL	1	88016
Schiff Reagent	500 mL	1	88017
Hematoxylin 1	500 mL	1	88018