

Schiff Reagent, McManus for Periodic Acid Schiff (PAS) Stain - Technical Memo

SOLUTION:	125 ml	500 ml	1 Liter	4 Liters
Schiff Reagent, McManus	Part 1371A	Part 1371B	Part 1371C	Part 1371D

Additionally Needed For Periodic Acid Schiff (PAS) Stain:

Periodic Acid Schiff (PAS) Glycogen Control Slides	Part 4540
Periodic Acid 0.5%, Aqueous	Part 13308
Hematoxylin Stain, Harris Modified	Part 1201
Acid Alcohol 1%	Part 10011
Lithium Carbonate, Saturated Aqueous	Part 12215
Xylene, ACS	Part 1445
Alcohol, Ethyl Denatured, 100%	Part 10841
Alcohol, Ethyl Denatured, 95%	Part 10842

For storage requirements and expiration date refer to individual product labels.

APPLICATION:

Newcomer Supply Schiff Reagent, McManus a crucial element in the Periodic Acid Schiff (PAS) Stain and for staining glycoproteins, epithelial mucins, basement membranes and fungal cell walls. Schiff Reagent, McManus is used in a variety of staining procedures that include:

- PAS with and without diastase
- Alcian Blue/PAS for mucins
- PAS/Light Green for Fungus (refer to page 2)
- Feulgen Reaction for demonstration of DNA

Schiff Reagent, McManus is a stable and reliable product that is conveniently stored at room temperature for ready-to-use staining. Although initially colorless, Schiff Reagent, McManus when in direct contact with skin, clothing, countertops, floors and other surfaces, will react and leave a bright magenta stain that is difficult to remove.

METHOD:

Fixation: Formalin 10%, Phosphate Buffered (Part 1090)

Technique: Paraffin sections cut at 5 microns

Solutions: All solutions manufactured by Newcomer Supply, Inc.

All Newcomer Supply stain procedures are designed to be used with Coplin jars filled to 40 ml following the staining procedure provided below.

PAS STAINING PROCEDURE:

1. Deparaffinize sections thoroughly in three changes of xylene, 3 minutes each. Hydrate through two changes each of 100% and 95% ethyl alcohols, 10 dips each. Wash well with distilled water.
 - a. See Procedure Notes #1 and #2.
2. Place in Periodic Acid 0.5%, Aqueous (13308) for 10 minutes.
3. Wash in three changes of tap water; rinse in distilled water.
4. Place in Schiff Reagent, McManus for 20 minutes.
 - a. See Procedure Notes #3, #4 and #5.
5. Wash slides in lukewarm tap water for 5-10 minutes.
6. Stain with Hematoxylin Stain, Harris Modified (1201), 1-5 minutes, depending on preference of nuclear stain intensity.
7. Wash in tap water for 2-3 minutes.
8. Differentiate in Acid Alcohol 1% (10011); 1-2 quick dips.
9. Wash in tap water for 1 minute.
10. Blue sections in Lithium Carbonate, Saturated Aqueous (12215); 3-4 dips.
11. Wash in several changes of tap water; rinse in distilled water.
12. Dehydrate in two changes each of 95% and 100% ethyl alcohol. Clear in three changes of xylene, 10 dips each; coverslip with compatible mounting medium.

RESULTS:

Glycogen	Magenta
Acid & neutral epithelial mucin	Magenta
Fungal cell walls	Red to purple
Basement membranes	Red to purple
Nuclei	Blue

PROCEDURE NOTES:

1. Drain staining rack/slides after each step to prevent solution carry over.
2. Do not allow sections to dry out at any point during staining procedure.
3. Once used, do not return Schiff Reagent, McManus back to the original bottle and mix with fresh solution.
4. To test quality of Schiff Reagent, McManus reactivity;
 - a. Add a few drops of Schiff Reagent, McManus to 10 ml of Formaldehyde 37-40%, ACS (Part 1089). Formalin 10%, Phosphate Buffered can also be used.
 - b. A good Schiff reagent will rapidly turn reddish-purple.
 - c. A deteriorating Schiff reagent will have a delayed reaction and turn deep blue-purple.
5. All glassware/plasticware that contained Schiff Reagent, McManus in the staining process should be thoroughly rinsed with running tap water to remove residual stain prior to standard glassware cleaning procedure.
6. Digestion steps can be employed in the PAS procedure for further identification of mucosubstances.
7. If using a xylene substitute, closely follow the manufacturer's recommendations for deparaffinization and clearing steps.

REFERENCES:

1. Bancroft, John D., and Marilyn Gamble. *Theory and Practice of Histological Techniques*. 6th ed. Oxford: Churchill Livingstone Elsevier, 2008. 168-174, 180.
2. Carson, Freida L., and Christa Hladik. *Histotechnology: A Self-Instructional Text*. 3rd ed. Chicago, Ill.: American Society of Clinical Pathologists, 2009. 137-141.
3. Sheehan, Dezna C., and Barbara B. Hrapchak. *Theory and Practice of Histotechnology*. 2nd ed. St. Louis: Mosby, 1980. 164-168, 245.
4. Modifications developed by Newcomer Supply Laboratory.

Schiff Reagent, McManus for Fungus Stain, PAS/Light Green Technical Memo

SOLUTION:	125 ml	500 ml	1 Liter	4 Liters
Schiff Reagent, McManus	Part 1371A	Part 1371B	Part 1371C	Part 1371D

Additionally Needed For Fungus Stain, PAS/Light Green:

Fungus, PAS, <i>Aspergillus sp.</i> , Artificial Control Slides	Part 4232	or	Fungus, PAS, <i>Candida sp.</i> , Artificial Control Slides	Part 4233
Periodic Acid 0.5%, Aqueous	Part 13308			
Light Green SF Yellowish Stain 0.1%, Aqueous	Part 12203			
Xylene, ACS	Part 1445			
Alcohol, Ethyl Denatured, 100%	Part 10841			
Alcohol, Ethyl Denatured, 95%	Part 10842			

For storage requirements and expiration date refer to individual product labels.

APPLICATION:

Newcomer Supply Schiff Reagent, McManus, a crucial element in the Fungus Stain, PAS/Light Green procedure, is used for staining fungus and glycogen in tissue sections.

Schiff Reagent, McManus is a stable and reliable product that is conveniently stored at room temperature for ready-to-use staining. Although initially colorless, Schiff Reagent, McManus when in direct contact with skin, clothing, countertops, floors and other surfaces, will react and leave a bright magenta stain that is difficult to remove.

METHOD:

Fixation: Formalin 10%, Phosphate Buffered (Part 1090)
Technique: Paraffin section cut at 5 microns
Solutions: All solutions are manufactured by Newcomer Supply, Inc.

All Newcomer Supply stain procedures are designed to be used with Coplin jars filled to 40 ml following the staining procedure provided below.

STAINING PROCEDURE:

1. Deparaffinize sections thoroughly in three changes of xylene, 3 minutes each. Hydrate through two changes each of 100% and 95% ethyl alcohols, 10 dips each. Wash well with distilled water.
 - a. See Procedure Notes #1 and #2.
2. Place slides in Periodic Acid 0.5%, Aqueous (13308) for 5 minutes.
3. Wash in three changes of tap water; rinse in distilled water.
4. Drain slides of excess water and stain in Schiff Reagent, McManus for 20 minutes.
 - a. See Procedure Notes #3, #4 and #5.
5. Wash gently in lukewarm tap water for 10 minutes to allow pink color to develop.
6. Counterstain in Light Green SF Yellowish Stain 0.1%, Aqueous (12203) for 5 seconds.
 - a. See Procedure Note #6.
7. Dehydrate in two changes each of 95% and 100% ethyl alcohol. Clear in three changes of xylene, 10 dips each; coverslip with compatible mounting medium.

RESULTS:

Fungal cell walls and glycogen	Red to magenta
Background	Pale green

PROCEDURE NOTES:

1. Drain staining rack/slides after each step to prevent solution carry over.
2. Do not allow sections to dry out at any point during staining procedure.
3. Once used, do not return Schiff Reagent, McManus back to the original bottle and mix with fresh solution.
4. To test quality of Schiff Reagent, McManus reactivity;
 - a. Add a few drops of Schiff Reagent, McManus to 10 ml of Formaldehyde 37-40%, ACS (Part 1089). Formalin 10%, Phosphate Buffered can also be used.
 - b. A good Schiff reagent will rapidly turn reddish-purple.
 - c. A deteriorating Schiff reagent will have a delayed reaction and turn deep blue-purple.
5. All glassware/plasticware that contained Schiff Reagent, McManus in the staining process should be thoroughly rinsed with water to remove residual stain prior to standard glassware cleaning procedure.
6. Increase or decrease staining time in Light Green SF Yellowish Stain 0.1%, Aqueous for a length of time to suit preference of counterstain intensity.
7. If using a xylene substitute, closely follow the manufacturer's recommendations for deparaffinization and clearing steps.

REFERENCES:

1. Bancroft, John D., and Marilyn Gamble. *Theory and Practice of Histological Techniques*. 6th ed. Oxford: Churchill Livingstone Elsevier, 2008. 321-323.
2. Sheehan, Dezna C., and Barbara B. Hrapchak. *Theory and Practice of Histotechnology*. 2nd ed. St. Louis: Mosby, 1980. 245.
3. Modifications developed by Newcomer Supply Laboratory.