

## Mucicarmine Stock Stain, Mayer - Technical Memo

<b>SOLUTION:</b>	<b>125 ml</b>	<b>500 ml</b>	<b>1 Liter</b>
Mucicarmine Stock Stain, Mayer	Part 1250A	Part 1250B	Part 1250C

Additionally Needed For Mucin, Mayer Mucicarmine Stain:

Mucin Mucicarmine Control Slides	Part 4455		
Xylene, ACS	Part 1445		
Alcohol, Ethyl Denatured, 100%	Part 10841		
Alcohol, Ethyl Denatured, 95%	Part 10842		
Hematoxylin Stain Set, Weigert Iron	Part 1409		
Metanil Yellow Stain, Aqueous	Part 12235	or Tartrazine Stain 0.25%, Acetic Aqueous	Part 14016
Coplin Jar, Plastic	Part 5184	(for microwave modification)	

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

**APPLICATION:**

Newcomer Supply Mucicarmine Stock Stain, Mayer a key element in the Mucin, Mayer Mucicarmine Stain procedure, is used to stain acid epithelial mucin (sialomucin, sulfomucin) and also useful for the demonstration of the encapsulated yeast *Cryptococcus neoformans*. The Metanil Yellow or Tartrazine Stain counterstain will lend a light yellow color to connective tissue and cytoplasmic elements.

**METHOD:**

**Fixation:** Formalin 10%, Phosphate Buffered (Part 1090)  
**Technique:** Paraffin sections 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. Prepare fresh Weigert Iron Hematoxylin Working Solution directly before use; combine and mix well.
  - a. Solution A: Ferric Chloride, Acidified 20 ml
  - b. Solution B: Hematoxylin 1%, Alcoholic 20 ml
3. Stain slides in fresh Weigert Iron Hematoxylin Working Solution for 7 minutes.
4. Rinse in running tap water for 10 minutes.
  - a. See Procedure Note #3.
5. Prepare Mayer Mucicarmine Working Solution; combine and mix well.
  - a. Mucicarmine Stock Stain, Mayer 10 ml
  - b. Tap Water (do not use distilled water) 30 ml
6. Stain slides in Mayer Mucicarmine Working Solution for 60 minutes or longer if a more intense stain is desired.
 

**Microwave Modification:** See Procedure Note #4.

  - a. Place slides in a plastic Coplin jar containing Mayer Mucicarmine Working Solution and microwave at 70°C for 10 minutes.
7. Rinse in several changes of tap water.
8. Counterstain with preferred method:
  - a. Metanil Yellow Stain, Aqueous; stain for 30 seconds to 1 minute. Proceed directly to Step #9.
  - b. Tartrazine Stain 0.25%, Acetic Aqueous; 5 quick dips then rinse for 30 seconds in distilled water. Proceed to Step #9.

9. Dehydrate quickly through 95% and 100% ethyl alcohols. Clear in three changes of xylene, 10 dips each; coverslip with compatible mounting medium.

**RESULTS:**

Acid epithelial mucin	Deep rose to red
Capsule of <i>Cryptococcus neoformans</i>	Deep rose to red
Nuclei	Black
Other tissue elements	Yellow

**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. If Weigert Iron Hematoxylin is not completely washed from tissue sections, nuclear and cytoplasmic staining may be compromised.
4. The suggested microwave procedure has been tested at Newcomer Supply using an "EB Sciences", 850 watt microwave oven with temperature probe and agitation tubes. This procedure is reproducible in our laboratory. It is nonetheless a guideline and techniques should be developed for your laboratory which meet the requirements of your situation. Microwave devices should be placed in a fume hood or vented into a fume hood, according to manufacturer's instructions, to prevent exposure to chemical vapors.
5. 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. 174-175.
2. Carson, Freida L., and Christa Hladik. *Histotechnology: A Self-Instructional Text*. 3rd ed. Chicago, Ill.: American Society of Clinical Pathologists, 2009. 142-144.
3. Luna, Lee G. *Manual of Histologic Staining Methods of the Armed Forces Institute of Pathology*. 3rd ed. New York: Blakiston Division, McGraw-Hill, 1968. 161-162.
4. Sheehan, Dezna C., and Barbara B. Hrapchak. *Theory and Practice of Histotechnology*. 2nd ed. St. Louis: Mosby, 1980. 168-169.
5. Modifications developed by Newcomer Supply Laboratory.