

## Mucin, Mayer Mucicarmine Stain Kit - Technical Memo

### KIT INCLUDES:

	Part 9151A	Part 9151B
Solution A: Ferric Chloride, Acidified	125 ml	250 ml
Solution B: Hematoxylin 1%, Alcoholic	125 ml	250 ml
Solution C: Mucicarmine Stock Stain, Mayer	125 ml	125 ml
Solution D: Metanil Yellow Stain, Aqueous	250 ml	500 ml

**COMPLIMENTARY POSITIVE CONTROL SLIDES:** Enclosed with this kit are two complimentary unstained positive control slides to be used for the initial verification of staining techniques and reagents. Verification must be documented by running one Newcomer Supply complimentary positive control slide along with your current positive control slide for the first run. Retain the second complimentary control slide for further troubleshooting, if needed.

Individual stain solutions and additional control slides may be available for purchase under separate part numbers at [www.newcomersupply.com](http://www.newcomersupply.com).

### Additionally Needed:

Xylene, ACS	Part 1445
Alcohol, Ethyl Denatured, 100%	Part 10841
Alcohol, Ethyl Denatured, 95%	Part 10842
Coplin Jar, Plastic	Part 5184 (for microwave modification)

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

### APPLICATION:

Newcomer Supply Mucin, Mayer Mucicarmine Stain Kit procedure, with included microwave modification, is used to stain acid epithelial mucin (sialomucin, sulfomucin) and is also useful for the demonstration of the encapsulated yeast *Cryptococcus neoformans*.

### 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 Kits are designed to be used with Coplin jars filled to 40 ml following the staining procedure provided below. Some solutions in the kit may contain extra volumes.

### STAINING PROCEDURE:

- 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.
  - See Procedure Notes #1 and #2.
- Prepare **fresh** Weigert Iron Hematoxylin Working Solution directly before use; combine and mix well.
  - Solution A: Ferric Chloride, Acidified 20 ml
  - Solution B: Hematoxylin 1%, Alcoholic 20 ml
- Stain in **fresh** Weigert Iron Hematoxylin Working Solution for 7 minutes.
- Rinse in running tap water for 10 minutes.
  - See Procedure Note #3.
- Prepare **fresh** Mayer Mucicarmine Working Solution; combine and mix well.
  - Solution C: Mucicarmine Stock Stain, Mayer 10 ml
  - Tap Water (do not use distilled water) 30 ml
- Stain slides in **fresh** Mayer Mucicarmine Working Solution for 60 minutes or longer if a more intense stain is desired.
 

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

  - Place slides in a **plastic** Coplin jar containing **fresh** Mayer Mucicarmine Working Solution and microwave at 70°C for 10 minutes.
- Rinse in several changes of tap water.
- Counterstain in Solution D: Metanil Yellow Stain, Aqueous for 30 seconds to 1 minute.

- 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:

- Drain staining rack/slides after each step to prevent solution carry over.
- Do not allow sections to dry out at any point during staining procedure.
- If Weigert Iron Hematoxylin is not completely washed from tissue sections, nuclear and cytoplasmic staining may be compromised.
- 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.
- If using a xylene substitute, closely follow the manufacturer's recommendations for deparaffinization and clearing steps.

### REFERENCES:

- Bancroft, John D., and Marilyn Gamble. *Theory and Practice of Histological Techniques*. 6th ed. Oxford: Churchill Livingstone Elsevier, 2008. 174-175.
- Carson, Freida L., and Christa Hladik. *Histotechnology: A Self-Instructional Text*. 3rd ed. Chicago, Ill.: American Society of Clinical Pathologists, 2009. 142-144.
- 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.
- Sheehan, Dezna C., and Barbara B. Hrapchak. *Theory and Practice of Histotechnology*. 2nd ed. St. Louis: Mosby, 1980. 168-169.
- Modifications developed by Newcomer Supply Laboratory.