ScyTek LABORATORIES INC.

Instructions For Use

MGM-IFU

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GMS Stain Kit with Periodic Acid

(Modified Gomori Methenamine-Silver Nitrate Stain for Fungus and *Pneumocystis jiroveci*)

Description and Principle

The Modified Gomori Methenamine-Silver Nitrate Stain (GMS Stain Kit) is intended for use in the histologic visualization of fungi, basement membrane and some opportunistic organisms such as *Pneumocystis jirovecii.* Periodic acid replaces traditional chromic acid as a less hazardous oxidation alternative. Background connective tissue may stain blacker in comparison with standard chromic acid oxidation.

Fungal organisms are made stainable by oxidation of polysaccharides in the fungal cell wall to aldehydes by Periodic Acid. Aldehydes bind silver ions from a methenamine silver complex and reduce the silver to a visible metallic form.

Expected Results

Fungi:	Black
P. jiroveci:	Black
Mucin:	Gray
Mycelia (inner):	Gray to Black
Hyphae (inner):	Gray to Black
Background:	Light Green

Kit Contents	Storage
1. Silver Nitrate Solution (0.2%)	2-8°C
2. Borate Methenamine Solution	2-8°C
3. Gold Chloride Solution (0.2%)	2-8°C
4. Periodic Acid Solution	2-8°C
5. Sodium Thiosulfate Solution (5%)	18-25°C
6. Light Green Solution	18-25°C

Suggested Controls *(not provided)*

Any Fungus infected tissue

Uses/Limitations

For In-Vitro Diagnostic use only.
Do not use if reagents become cloudy or precipitate
Do not use past expiration date.
Use caution when handling reagents.
Non-Sterile
Intended for FFPE sections cut at 5-10µm.
This procedure has not been optimized for frozen sections.
Frozen sections may require protocol modification.

Storage

Mixed storage conditions. Store according to individual label instructions.

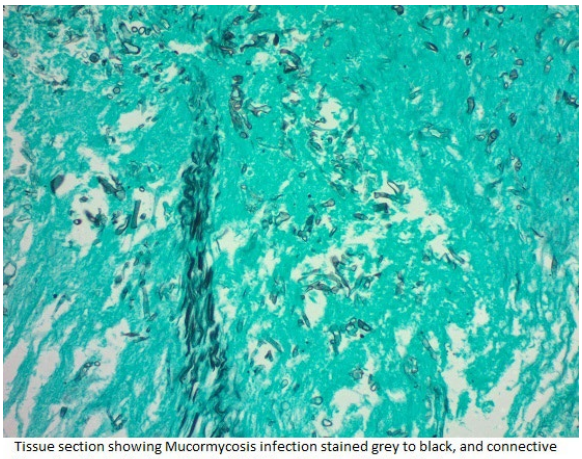
Safety and Precautions

Please see current Safety Data Sheets (SDS) for this product and components GHS classification, pictograms, and full hazard/precautionary statements.

Procedure:

1. Deparaffinize sections if necessary and hydrate to distilled water.

2. Incubate slide in Periodic Acid Solution for 10 minutes.



Tissue section showing Mucormycosis infection stained grey to black, and connective tissue (center left) stained black at 20X. Incubated in PAQ for 10 minutes at room temperature, 14 minutes in working GMS solution.

Note: If there is unwanted background staining incubate in Periodic Acid Solution for 10 minutes at 60°C. Increase incubation to 60 minutes at 60°C for Histoplasma infection and other species that may initially stain lightly.

3. Rinse thoroughly in deionized or distilled water.

4. Mix an equal amount of Silver Nitrate Solution (0.2%) and Borate Methenamine Solution for a working GMS solution.

Note: Mixed solution may not be stored for reuse later.

5. Place working GMS solution in 60° centigrade water bath and allow temperature to equilibrate.

6. Incubate slide in working GMS solution for 10-20 minutes. Using plastic forceps, dip slide in distilled water and check under a microscope for evaluation of silver impregnation. Fungi should be dark brown. If color is not sufficient, return the slide to working GMS solution for 2-3 minutes and check again.

7. Rinse in 4 changes of distilled water.

8. Incubate slide in Gold Chloride Solution for 15-30 seconds.

9. Rinse in 4 changes of distilled water.

10. Incubate slide in Sodium Thiosulfate Solution (5%) for 2 minutes.

11. Rinse in tap water followed by 2 changes of distilled water.

12. Incubate slide in Light Green Solution for 2 minutes.

13. Rinse slide quickly using absolute alcohol.

14. Dehydrate quickly in absolute alcohol (20-60 seconds), clear, and mount in synthetic resin.

References

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3. Sheehan, D.C., Hrapchak, B.B. 1980. Theory and Practice of Histotechnology, 2nd edition, CV Mosby Company, St. Louis, MO.
4. Koski, J.P. 1981. Silver methenamine-borate (SMB); Cost reduction with technical improvement in silver nitrate-gold chloride impregnation's. Journal of Histotechnology 4:115.
5. Raab, S.S. et al. 1994. Utility of Gomori methenamine silver stains in bronchoalveolar lavage specimens. Modern Pathology, June 1994, Vol. 7, No. 5, pp 599-604.
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Storage: 2° C

25° C

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