

Gomori Methenamine-Silver for Urates Stain Procedure

COMPONENTS:

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| Methenamine, 3% Aqueous Solution | Catalog #12239 |
| Silver Nitrate Solution, 5% Aqueous | Catalog #13805 |
| Sodium Borate, 5% Aqueous Solution | Catalog #13826 |
| Gold Chloride, 0.25% Aqueous Solution | Catalog #11287 |
| Sodium Thiosulfate, 2.5% Aqueous Solution | Catalog #13889 |
| Light Green, SF Yellowish Stain Solution, 0.2% Aqueous | Catalog #12202 |

APPLICATION:

This procedure is designed to demonstrate urate crystals within tissue for gouty tophi.

METHOD:

Fixation: 10% Neutral Buffered Formalin

Technique: Paraffin sections cut at approximately 5 microns

Solutions: All solutions are manufactured by Newcomer Supply, Middleton, Wisconsin, 53562

STAINING PROCEDURE: Gomori Methenamine-Silver Method for Urates

1. All glassware must be acid cleaned and thoroughly rinsed with distilled water.
2. Prepare Working Methenamine-Silver Stock Solution:
 - A. Methenamine-Silver Stock Solution:

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| Methenamine, 3% Aqueous Solution | 50 ml |
| Silver Nitrate Solution, 5% Aqueous | 2.5 ml |

Add silver nitrate slowly, mixing occasionally to dissolve milky precipitate.
 - B. Working Methenamine-Silver Solution:

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| Methenamine-Silver Stock Solution (Above) | 25 ml |
| Distilled Water | 25 ml |
| Sodium Borate, 5% Aqueous Solution | 3 ml |

Prepare fresh prior to use.
3. Preheat Working Methenamine-Silver Solution to 60°C in a water bath.
4. Deparaffinize slides thoroughly in 3 changes of xylene then dehydrate in several changes of 100% ethyl alcohol. Do not hydrate slides!
5. Place slides in preheated Working Methenamine-Silver Solution in a 60°C water bath for 30 minutes.
6. Rinse well in distilled water.
7. Place slides in Gold Chloride, 0.25% Aqueous Solution until brown coloration disappears (5-30 seconds).

8. Rinse well in distilled water.
9. Place slides in Sodium Thiosulfate, 2.5% Aqueous Solution for 2-3 minutes.
10. Wash well in running tap water for 2-3 minutes, followed by a distilled water rinse.
11. Prepare Working Light Green Solution:

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| Light Green, SF Yellowish Stain Solution, 0.2% Aqueous | 10 ml |
| Distilled Water | 50 ml |
12. Counterstain in Working Light Green Stain Solution for 1-2 minutes per desired intensity.
13. Dehydrate through graded ethyl alcohols, clear in xylene or substitute and coverslip with a compatible mounting media.

RESULTS:

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| Urates | Black |
| Background | Green |

PROCEDURE NOTES:

1. Calcium deposits may also absorb silver staining solution if they are large enough.

REFERENCES:

1. **"Histotechnology: A Self-Instructional Text"**, Carson, F., 3rd Ed., 2009, pp. 267-268.
2. **"Theory and Practice of Histotechnology"**, Sheehan, D., 2nd Ed. 1980, pp. 225-226.

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