**UW Medicine - Pathology**

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Fontana-Masson Stain for Argentaffin Granules Procedure

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| Adopted Date: 06/20/05  Review Date: 09/03/10  Revision Date: 04/12/13 |

PURPOSE

To identify the method for performing the special stain of Fontana-Masson for Argentaffin Granules.

PROCEDURE

**Fixation:**

10% buffered neutral formalin.

**Sectioning:**

Paraffin sections at 4 microns.

**Solutions:**

Use Type II de-ionized water for all solution preparation.

**Stock Silver Nitrate**

Using bleach cleaned glassware, dissolve 10gm of silver nitrate in 100ml of distilled water. To 95ml of the silver nitrate solution add ammonium hydroxide until a clear solution with no precipitate is obtained. Add, drop by drop, enough of the remaining 5ml of silver nitrate solution to cause the clear solution to become slightly cloudy. Stable for one month. Store in refrigerator.

**Working Silver Nitrate**

Stock silver nitrate solution 12.0 ml

Distilled water 36.0 ml

Make just before use. Use bleach cleaned glassware. Discard after use.

**0.2% Gold Chloride**

1% Gold Chloride Solution 10.0 ml

Distilled water 40.0 ml

**5% Sodium Thiosulfate**

Sodium thiosulfate 5 gms

Distilled water 100mls

Stable for six months. Discard after use.

**Nuclear Fast Red**

Aluminum Sulfate 5 gms

Hot Distilled water 100mls

Add 0.1gm Nuclear Fast Red to solution, cool, filter, and add a crystal of thymol to preserve

**Procedure:**

1. Deparaffinize and hydrate slides to distilled water.
2. Place slides in silver nitrate solution at 60°C for one hour.
3. Rinse in distilled water 6 times.
4. Immerse in 0.2 % gold chloride solution for ten minutes. Do not dump.
5. Rinse well in distilled water.
6. Place in 5% Sodium Thiosulfate solution for five minutes.
7. Rinse well in tap water.
8. Counterstain with Nuclear Fast Red for five minutes.
9. Rinse well in distilled water.
10. Dehydrate, clear and mount.

**Results:**

Argentaffin granules and melanin black

Nuclei pink-red

Cytoplasm pale pink

**Comments:**

The use of alcohol containing fixatives must be avoided, since alcohol dissolves argentaffin granules.

A positive argentaffin reaction means that these cells can pick up silver and reduce the silver to its visible metallic state without the aid of an extraneous reducing agent. Lille states that a catechol structure is probably responsible for the reactions of the argentaffin granules, and this diphenol is oxidized to a quinone structure as it reduces the silver.

REFERENCES

*Manual of Histologic and Special Staining Technics,* McGraw-Hill Book Co., 1960, pg. 103.

Sheehan, D.C. and Hrapchak, B.B.: *Theory and Practice of Histotechnology,*  The C.V. Mosby Co., 1980, pg. 276-277.

Written By: Director Approval:

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Histology Supervisor