**UW Medicine - Pathology**

6000-02-06-02

Jones Stain / Kidney Biopsies Procedure

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| Adopted Date: 009/22/93  Review Date: 12/03/08  Revision Date: |

PURPOSE

The demonstration of base membrane of the glomerulus on the kidney.

SCOPE

After exposure to a periodic acid solution, aldehyde groups are produced from the carbohydrate components of basement membranes. The released aldehydes then reduce the silver from the Methenamine-silver complex to visible metallic silver. The gold chloride tones the section, and the sodium thiosulfate removes excess unreacted gold and silver.

PROCEDURE

**Fixative:**

10% buffered neutral formalin

**Microtomy:**

1.5 micron plastic sections

2 micron paraffin sections

**Reagents:**

1. 2% Periodic Acid

Distilled Water 50ml

Periodic Acid 1gm

1. Stock Methenamine

Distilled Water 50ml

Methenamine 1.5gm

1. Stock Silver Nitrate

Distilled Water 50ml

Silver Nitrate 2.5gm

1. Stock Sodium Borate

Distilled Water 50 ml

Sodium Borate 2.5gm

1. Working Silver Solution

Stock Methenamine 50ml

Stock Silver 2.5ml

Stock Sodium Borate 6ml

Stir to mix.

1. 0.5% Gold Chloride

Distilled Water 50ml

Gold Chloride 0.25gm

1. 5% Sodium Thiosulfate

Distilled Water 200ml

Sodium Thiosulfate 10gm

**Procedure:**

1. Place cooled plastic section slides or paraffin slides that have been hydrated to water in 2% periodic acid for 15 minutes. Place 2 coplin jars filled with distilled water in preheated 60C water bath.
2. Distilled water wash 5 minutes.
3. Place in freshly prepared working Methenamine silver solution in 60C water bath for 27 minutes. Check slides to see if capillary loops inside glomerulus are black; if not, place back in silver, checking at 5 minute intervals. When capillary loops are black, proceed to next step. Basement membranes around glomeruli and tubules will go black first, while capillary loops take longer.
4. Rinse slides in each warmed distilled water.
5. Dip in gold chloride 3 to 10 times until tissue is no longer golden, but grey.
6. Rinse in distilled water.
7. Place in 5% sodium thiosulfate for 2 1/2 minutes.
8. Water wash 5 minutes.
9. Gill's hematoxylin for 3 minutes (paraffin 1 minute).
10. Water wash.
11. Blue ammonia water.
12. Water wash 1 to 3 minutes.
13. Counterstain in eosin 4 minutes (paraffin 30 seconds)
14. Dehydrate rapidly. Clear and mount.

**Results:**

Basement membranes - black

Nuclei - blue

Other tissue elements - varying shades of pink

REFERENCE

Sheehan, Hrapchak: Theory and Practice of Histotechnology, St. Louis, C.V. Mosby Co., 1980, pp186-187.

Written By: Director Approval:

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Procedure / Policy Title: Jones Stain / Kidney Biospies Procedure

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Medical Director Medical Director Signature Date Reviewed

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| **STAFF NAME**: (printed) | **STAFF SIGNATURE** | **DATE REVIEWED** |
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| Jael Johnston |  |  |
| James Godkin |  |  |
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