**UW Medicine - Pathology**

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Jones Stain / Kidney Biopsies Procedure

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| Adopted Date: 009/22/93Review Date: 12/03/08Revision Date: 4/16/13 |

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. 1.0% Gold Chloride (RTU)

 50 ml- Working Solution

 (Do not dump, good until gold color starts to fades)

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 10 minutes. Place 1 coplin jar filled with distilled water in preheated 60C water bath.
2. Wash in tap water for 1-2 minutes.
3. Place in freshly prepared working Methenamine silver solution in 60C water bath for 45 minutes. Check slides to see if capillary loops inside glomerulus are black; if not, place back in silver, checking at 5 minute intervals (60 minutes maximum). 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. Tone in 1% gold chloride (RTU) until sections are no longer golden, but gray to black. Can take from 30 seconds to several minutes, agitating slides will speed process.
6. Wash in tap water for 1-2 minutes.
7. Place in 5% sodium thiosulfate for 2 1/2 minutes.
8. Water wash 1-2 minutes.
9. Gill's hematoxylin for 5 minutes, filter before use.
10. Water wash.
11. One quick dip in 0.5% acid alcohol
12. Wash briefly in tap water.
13. Bluing Reagent (Richard Allen) for 15-20 dips.
14. Wash in tap water.
15. Counterstain in eosin with phloxine for 2 ½ to 3 minutes.
16. Dehydrate rapidly. Clear and mount.

**Results:**

Basement membranes - black

Nuclei - blue

Other tissue elements - varying shades of pink

Capillary loops shades of gray to black

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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