ELASTIC TISSUE FIBERS - WEIGERT’S RESORCIN-FUCHSIN

**PURPOSE:** A “progressive” staining technique to demonstrate elastic fibers.

**PRINCIPLE:** The complex formed from the basic fuchsin, an iron resorcin lake, binds to the elastic fibers, resulting in the blue-black staining. The nuclear detail is stained with an iron hematoxylin which will not over differentiate in the acidic elastic stain solution.

**CONTROL:** Artery or skin

**FIXATIVE:** 10% formalin or any well fixed tissue.

**TECHNIQUE:** Cut paraffin sections at 4m or 5m.

**EQUIPMENT:** Rinse glassware in distilled water: coplin jars.

**REAGENTS:**

**Resorcin-fuchsin Stain**

<table>
<thead>
<tr>
<th>Component</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic fuchsin</td>
<td>2.0 gm</td>
</tr>
<tr>
<td>Resorcinol</td>
<td>4.0 gm</td>
</tr>
<tr>
<td>Distilled water</td>
<td>200.0 ml</td>
</tr>
</tbody>
</table>

In a 500 ml beaker, bring solution to a strong boil, add:

- 29% Ferric chloride 25.0 ml
- Hydrochloric acid 4.0 ml

Stir and continue to boil 2-5 min. Cool and filter, discard filtrate. Dry precipitate and filter paper. Return to beaker, add:

- 95% alcohol 200.0 ml
- Weigert’s Hematoxylin: See Masson’s Trichrome
- Van Gieson’s Solution: See EVG

**SAFETY:** Wear gloves, goggles and lab coat. Work in well ventilated area, work under fume hood. Avoid contact and inhalation.
Connective Tissue

Weigert’s Elastic

Hydrochloric acid: strong irritant to skin, eyes and respiratory system. Target organ effects via inhalation on skin, respiratory, reproductive and fetal systems. Corrosive.

Basic fuchsin (pararosaniline) is a known carcinogen. Wear gloves, goggles, particle mask and lab coat, while preparing solution. Work under the hood, keep hot, uncapped, solutions under the hood.

Picric acid: toxic, can become explosive if allowed to become dry.

Iodine: dermal sensitizer, irritant to eyes, skin and respiratory system.

Procedure:
1. Deparaffinize and hydrate to water.
2. Weigert’s working hematoxylin (fresh), 10 minutes.
3. Wash in tap water.
4. Scott’s Bluing, 30 seconds.
5. Wash in running tap water, 5 minutes, rinse in distilled water.
6. Resorcin-fuchsin solution:
   a. microwave, 30 seconds
   b. allow to stand at room temperature, 1.5 hours.
   c. repeat for a total staining time of 3 hours. Save solution.
7. Rinse off excess stain in 95% alcohol.
8. Wash in tap water, rinse in distilled.
9. Van Gieson solution, 1 minute.
10. Dehydrate quickly through alcohols and xylene, coverslip.

Results:
Elastic fibers blue-black
Collagen pink-red
Nuclei pale blue-black
Other yellow

Notes:
1. When microwaving resorcin-fuchsin solution, place coplin jar in 500 ml beaker containing approximately 200 ml distilled water. This will help to keep the solution from boiling over due to the high alcohol content.
2. Pour the resorcin-fuchsin stain back into the solution bottle.
REFERENCES:
Crookham, J, Dapson, R, Hazardous Chemicals in the Histopathology Laboratory, 2nd ED, 1991, Anatech
Safety and Compliance In the Histology Laboratory: Biohazards to Toxic Chemicals, Fredenburgh J, Grizzle W., NSH Symposium, Oct. 1993, Philadelphia

Prepared: ___________________________ By: ________________

Approved: ___________________________ By: ________________

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PROCEDURE CARD

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RESULTS:
Elastic fibers blue-black
Nuclei pale blue-black
Collagen pink-red
Other yellow

NOTES:
1. When microwaving recorcin-fuchsin solution, place coplin jar in 500 ml beaker containing approximately 200 ml distilled water, to keep the solution from boiling over.
2. Pour the recorcin-fuchsin stain back into the solution bottle when staining is complete.

Weigert’s Hematoxylin
See Masson’s Trichrome

Resorcin-fuchsin Stain
Basic fuchsin 2.0 gm
Resorcinol 4.0 gm
Distilled water 200.0 ml

In a 500 ml beaker, bring solution to a strong boil, add:
29% Ferric chloride 25.0 ml
Stir and continue to boil 2-5 min.

Cool and filter, discard filtrate. Dry precipitate and filter paper. Return to beaker, add:
95% alcohol 200.0 ml
Heat carefully. Stir constantly, dissolve precipitate, discard filter paper. Cool, filter, restore volume to 200 ml with 95% alcohol, add:
Hydrochloric acid 4.0 ml
Label and date, stable for 1 year.

Van Gieson’s Solution
See EVG
**Resorcin-Fuchsin Stain**

Basic fuchsin 2.0 gm  
Resorcinol 4.0 gm  
Distilled water 200.0 ml

In a 500 ml beaker, bring solution to a strong boil, add:

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Heat carefully. Stir constantly, dissolve precipitate, discard filter paper. Cool, filter, restore volume to 200 ml with 95% alcohol, add:

Hydrochloric acid 4.0 ml

Label and date, stable for 1 year.

**CAUTION:** Corrosive, flammable, carcinogen.

TECH:__________________________

DATE:__________________________

EXPIRATION:____________________