Movat-Russell Pentachrome Control Slides – Technical Memo

CONTROL SLIDES: Part 4440A Part 4440B
10 Slide/Set 98 Slide/Set

PRODUCT SPECIFICATIONS:
Tissue: Positive staining small intestine and positive staining lung.
Fixation: Formalin 10%, Phosphate Buffered (Part 1090).
Section/Glass: Paraffin sections cut at 4 microns on Superfrost™ Plus slides.
Quality Control Stain: Movat-Russell Pentachrome quality control stained slide(s) included.
Reactivity: Guaranteed product specific reactivity for one year from date of receipt. Revalidate after one year to verify continued reactivity.
Storage: 15-30°C in a light deprived and humidity controlled environment.

Before using unstained control slides, review the enclosed stained slide(s) to ensure that this tissue source is acceptable for testing needs.

PRODUCT DESCRIPTION:
The enclosed positive control slides are intended to verify histological techniques and reagent reactivity. The intended use is for the qualitative purpose of determining positive or negative results, and not intended for any quantitative purpose. These positive control slides are produced from human surgical or autopsy tissues under carefully controlled conditions. Quality control measures are used to deliver control slides that are as consistent as possible.

CONTROL SLIDE VALIDATION:
With Movat-Russell Modified Pentachrome Stain Kit: Part 9150A Individual Stain Solution
Solution A: Alcian Blue Stain 1%, Aqueous 250 ml Part 1006
Solution B: Ammonium Hydroxide 28-30%, ACS 50 ml Part 1006
Solution C: Hematoxylin 10%, Alcoholic 100 ml Part 1006
Solution D: Ferric Chloride 10%, Aqueous 100 ml Part 10856
Solution E: Iodine, Verhoeff, Aqueous 100 ml Part 1209
Solution F: Ferric Chloride 2%, Aqueous 250 ml Part 108553
Solution G: Sodium Thiosulfate 5%, Aqueous 250 ml Part 1389
Solution H: Crocein Scarlet 7B Stain, Aqueous 250 ml Part 13345
Solution I: Acid Fuchsin Stain, Aqueous 100 ml Part 100121
Solution J: Phosphotungstic Acid 5%, Aqueous 500 ml Part 100121
Solution K: Orange G Stain 1%, Aqueous 250 ml Part 100121
Solution L: Acetic Acid 0.5%, Aqueous 500 ml Part 100121

APPLICATION:
Newcomer Supply Movat-Russell Pentachrome Control Slides are for the positive histochemical staining of connective tissue elements, mucin, fibrin, elastic fibers, muscle, and collagen.

NEWCOMER SUPPLY VALIDATION PROCEDURE:
1. Heat dry sections in oven according to your laboratory protocol.
2. Deparaffinize sections thoroughly in three changes of xylene, 3 minutes each. Hydrate through two changes each of 100% and 95% ethyl alcohols, 10 dips each. Wash well with distilled water.
   a. See Procedure Notes #1 and #2 (page 2).
4. Wash in running tap water for 5 minutes.
5. Prepare fresh Alkaline Alcohol Solution; combine and mix well.
   a. Solution B: Ammonium Hydroxide 28-30% 5 ml
   b. Alcohol, Ethyl Denatured, 95% (10842) 45 ml
6. Place slides in fresh Alkaline Alcohol Solution for 30 minutes.
7. Wash in running tap water for 10 minutes; rinse in distilled water.
   a. See Procedure Note #3 (page 2).
8. Prepare fresh Hematoxylin Working Solution just before use in the order given; combine and mix well.
   a. Solution C: Hematoxylin 10%, Alcoholic 10 ml
   b. Alcohol, Ethyl Denatured 100% (10841) 10 ml
   c. Solution D: Ferric Chloride 10%, Aqueous 10 ml
   d. Solution E: Iodine, Verhoeff, Aqueous 10 ml
   a. Discard after successful differentiation in Step #11.
10. Rinse in several changes of distilled water.

11. Differentiate one slide at a time in Solution F: Ferric Chloride 2%, Aqueous until elastic fibers contrast sharply with the background; approximately 5-10 dips.
   a. See Procedure Note #4 (page 2).
12. Rinse in distilled water.
13. Place in Solution G: Sodium Thiosulfate 5%, Aqueous for 1 minute.
14. Wash in running tap water for 5 minutes; rinse in distilled water.
15. Prepare Crocein Scarlet-Acid Fuchsins Solution:
   a. Solution H: Crocein Scarlet 7B Stain, Aqueous 40 ml
   b. Solution I: Acid Fuchsin Stain, Aqueous 10 ml
16. Stain in Crocein Scarlet-Acid Fuchsins Solution for 1 minute.
17. Rinse in several changes of distilled water.
18. Rinse in Solution L: Acetic Acid 0.5%, Aqueous for 30 seconds.
19. Place in Solution J: Phosphotungstic Acid 5%, Aqueous; two changes of 5 minutes each.
20. Rinse in Solution L: Acetic Acid 0.5%, Aqueous.
22. Dehydrate through three changes of 100% ethyl alcohol, 10 dips each. Clear in three changes of xylene, 10 dips each; coverslip with compatible mounting medium.
   a. Do not use 95% ethyl alcohol in the dehydration step.
RESULTS:

<table>
<thead>
<tr>
<th>Component</th>
<th>Color</th>
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<tbody>
<tr>
<td>Nuclei and elastic fibers</td>
<td>Black</td>
</tr>
<tr>
<td>Collagen and reticular fibers</td>
<td>Yellow</td>
</tr>
<tr>
<td>Ground substance and mucin</td>
<td>Blue</td>
</tr>
<tr>
<td>Fibrinoid, fibrin</td>
<td>Intense red</td>
</tr>
<tr>
<td>Muscle</td>
<td>Red</td>
</tr>
</tbody>
</table>

PROCEDURE NOTES:

1. Drain slides after each step to prevent solution carry over.
2. Do not allow sections to dry out at any point during procedure.
3. It is important to completely remove Alkaline Alcohol Solution with running tap water. Failure to do so will inhibit the subsequent staining steps.
4. Do not over-differentiate in Solution F: Ferric Chloride 2%, Aqueous. If the background is completely colorless, the section may be over-differentiated. Over-differentiated sections may be restained in Hematoxylin Working Stain Solution (Step #9) provided sections have not been treated with an alcohol/dehydration step.
5. If using a xylene substitute, closely follow the manufacturer’s recommendations for deparaffinization and clearing steps.

REFERENCES:

4. Modifications developed by Newcomer Supply Laboratory.