Periodic Acid Schiff (PAS) Glycogen Control Slides – Technical Memo

CONTROL SLIDES:  
Part 4540A  10 Slide/Set  
Part 4540B  98 Slide/Set

PRODUCT SPECIFICATIONS:  
Tissue: Positive staining liver.  
Fixation: Formalin 10%, Phosphate Buffered (Part 1090).  
Section/Glass: Paraffin sections cut at 4 microns on Superfrost™ Plus slides.  
Quality Control Stain: PAS 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 Periodic Acid Schiff (PAS) Stain Kit:  
Solution A: Periodic Acid 0.5%, Aqueous 250/500 ml  
Solution B: Schiff Reagent, McManus 250/500 ml  
Solution C: Hematoxylin Stain, Harris 250/500 ml  
Solution D: Acid Alcohol 1% 250/500 ml  
Solution E: Lithium Carbonate, Saturated Aqueous 250/500 ml  
α-Amylase (for glycogen digestion) 0.05 gm  
Phosphate Buffer, pH 6.0 (for glycogen digestion) 50 ml

Individual Stain Solution  
Part 9162A/B  
Solution A: Part 12215  
Solution B: Part 13008  
Solution C: Part 1371  
Solution D: Part 12013  
Solution E: Part 10011

APPLICATION:  
Newcomer Supply Periodic Acid Schiff (PAS) Glycogen Control Slides are for the positive histochemical staining of glycogen in tissue sections, and can also be utilized as control slides for glycogen digestion steps.

PRESTAINING PREPARATION:  
1. Additional control and patient slides required for digestion steps.  
2. Heat dry sections in oven according to your laboratory protocol.

NEWCOMER SUPPLY VALIDATION PROCEDURE:  
3. 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. Digestion Step: Proceed to Step #7 if not running Digestion,  
a. Prepare Amylase Digestion Solution and mix well.  
α-Amylase 0.05 gm  
Phosphate Buffer, pH 6.0 (13312) 50 ml  
b. Prepare separate Coplin jar of Phosphate Buffer, pH 6.0.  
c. Preheat both solutions from Steps #4b and #4c to 37°C.  
d. Place slides labeled “with” in preheated Amylase Digestion Solution and slides labeled “without” in preheated Phosphate Buffer, pH 6.0.  
e. Incubate both for 60 minutes at 37°C.  
g. Proceed to Step #6.  
5. Microwave Modification: See Procedure Note #3 (page 2).  
a. Follow Steps #4a through #4c.  
b. Place slides labeled “without” in a plastic Coplin jar containing the Amylase Digestion Solution. Place slides labeled “with” in a plastic Coplin jar containing Phosphate Buffer, pH 6.0 and microwave both for 1 minute at 37°C.  
6. Wash all slides in running tap water for 5 minutes; rinse in distilled water. Combine slides for remaining steps.  
7. Place in Solution A: Periodic Acid 0.5%, Aqueous for 10 minutes.

8. Wash in three changes of tap water; rinse in distilled water.  
9. Place in Solution B: Schiff Reagent, McManus for 20 minutes.  
10. Wash in lukewarm tap water for 5-10 minutes.  
11. Stain with Solution C: Hematoxylin Stain, Harris, 1 to 5 minutes, depending on preference of nuclear stain intensity.  
12. Wash in tap water for 2-3 minutes.  
13. Differentiate in Solution D: Acid Alcohol 1%; 1-2 quick dips.  
14. Wash in tap water for 1 minute.  
15. Blue in Solution E: Lithium Carbonate, Saturated Aqueous; 3-4 dips.  
16. Wash in several changes of tap water; rinse in distilled water.  
17. Dehydrate in two changes each of 95% and 100% ethyl alcohol. Clear in three changes of xylene, 10 dips each; coverslip with compatible mounting medium.

RESULTS:  
Glycogen digestion  
Absence of magenta  
Glycogen  
Magenta  
Acid & neutral epithelial mucin  
Magenta  
Nuclei  
Blue

With and without glycogen digestion
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. The suggested microwave procedure has been tested at Newcomer Supply. This procedure is a guideline and techniques should be developed for use in your laboratory.
4. Sigma α-Amylase from Porcine Pancreas (A3176) is the α-Amylase used in the digestion steps.
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.