

## Periodic Acid Schiff (PAS) Stain

### Reagents

1. Periodic Acid (Fisher Scientific, cat. #A223)
2. Schiff's Reagent (Fisher Scientific, cat. #SS32) **Note: this should be stored at 4°C**
3. Hematoxylin 560 (Surgipath, cat. #3801571)
4. Scott's tap water (Sigma, cat. #S5134-6X100ML)

### Preparation of Reagents

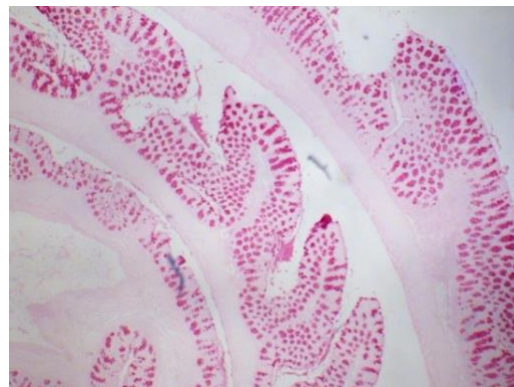
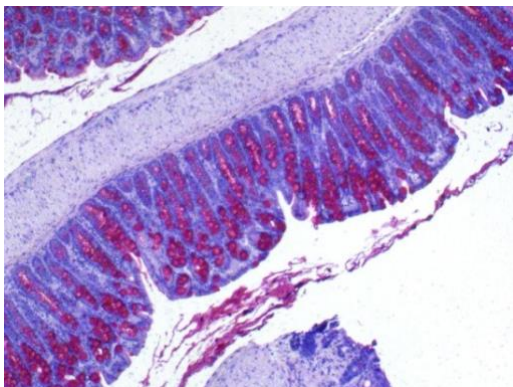
1. 1% Periodic Acid (1 g of Periodic Acid in 100 mL of Milli-Q water)
2. Schiff's Reagent: remove from freezer before periodic acid incubation to adjust to room temperature

### Procedure

1. Place slides in 1% Periodic Acid for *5 min*
2. Wash **3 times** in DI water (*10 dips each*) and then wash **1 time** in Milli-Q water (*10 dips*)
3. Immerse in Schiff's Reagent for *15 min* and then wash under running tap water for *10 min*
4. Immerse in Gill's Hematoxylin for *1 min* and then wash **3 times** in DI water (*10 dips each*)
5. Immerse in Scott's Tap Water for at least *30 sec* minimum and then wash **3 times** in DI water (*10 dips each*)
6. Dehydrate and clear

### Notes

- Control tissue: colon (mucin staining), liver (glycogen), kidney (basement membranes)
- Expected appearance:
  - Pink: mucosubstances, glycogen, basement membrane
  - Blue: nuclei
- Hematoxylin step may be omitted to see stronger distinction in basement membranes.



Examples showing bright fuchsia color in goblet cells of colon after hematoxylin nuclear counterstain (left) and with no hematoxylin counterstain (right).

Fu DA and Campbell-Thompson M. Periodic Acid-Schiff Staining With Diastase. *Methods Mol Biol.* 2017;1639:145-149. PMID: [28752454](https://pubmed.ncbi.nlm.nih.gov/28752454/). doi: [10.1007/978-1-4939-7163-3\\_14](https://doi.org/10.1007/978-1-4939-7163-3_14).