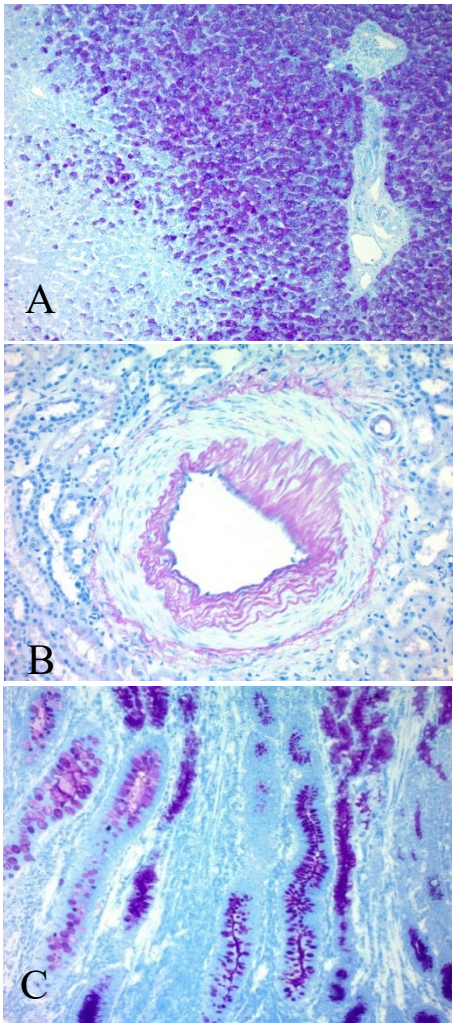
P.O. Box 3286 - Logan, Utah 84323, U.S.A. - Tel. (800) 729-8350 - Fax (435) 755-0015 - www.scytek.com

Glycogen, Elastin, Mucin Stain Kit

Description: This stain kit utilizes a sulfation procedure and Toluidine Blue O to give specific metachromatic staining of Glycogen, Elastin, and Mucin (acidic and neutral) in formalin-fixed paraffin-embedded sections. Similar methods have previously been studied and referenced as Aldehyde Bisulfite Toluidine (ABT) and Permanganate Bisulfite Toluidine (PBT) staining[1, 2]. Glycogen may be visualized with a contrasting background as an improvement upon PAS staining.

Results:
Glycogen, Elastin, Mucin: Metachromatic pink to purple.
Background: Blue
Mast cell granules and other normally metachromatic tissue elements may also stain metachromatically.



A) Glycogen staining at 20X on Human Liver. Incubation – 15 mins in PAQ, 5 mins in TBO.
B) Elastin staining at 20X on Human Kidney**.** Incubation – 10 mins in PPE, 15min in TBO.
C) Mucin staining at 20X on Human Stomach. Incubation – 5 mins in PAQ, 5 mins in TBO

Uses/Limitations:
For Research Use Only.
Histological applications.
Do not use past expiration date.
Use caution when handling these reagents.

Control Tissue: Liver, Muscle, GI tract, Skin, etc.

Kit Contents:

Item #	Kit Contents	-1 Kit	-2 Kit	Storage
PAQ	Periodic Acid Solution (1%)	125 ml	30ml	2-8° C
PPE	Potassium Permanganate Solution (1%)	125 ml	30ml	18-25°C
SLF	Sulfation Reagent	125 ml	30ml	18-25°C
TBO	Toluidine Blue Solution, pH 1.0	125 ml	30ml	18-25°C
STR	Stabilization reagent	125 ml	30ml	18-25°C

Precautions:
Avoid contact with skin and eyes.
May be harmful if swallowed.
Follow all Federal, State, and local regulations regarding disposal.
Wear protective clothing.

Procedure:

1. Deparaffinize sections and hydrate to distilled water.
2. Apply either Periodic Acid Solution (1%) for 5-15 minutes **or** Potassium Permanganate Solution for 10 minutes based on desired staining.

Storage: 2° C 25° C
Mixed Storage Conditions.
Separate Contents.

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Note: Potassium Permanganate is critical to stain elastin.

Periodic Acid provides optimal glycogen and mucin staining

3. Rinse in distilled water.
4. Apply Sulfation Reagent for 30 minutes.
5. Quickly rinse in 2 changes distilled water. Rinsing beyond this amount may reduce staining.
6. Apply Toluidine Blue Reagent for 5-15 min based on desired staining intensity. *Note: We prefer 5-10 minutes for mucin and glycogen and 15 minutes for elastin.*
7. Rinse in distilled water.
8. Apply Stabilization Reagent for 2 minutes.
9. Rinse in **Absolute Alcohol**. Do not rinse in water, doing so may invalidate results.
10. Dehydrate in Absolute Alcohol.
11. Clear, and mount in **solvent-based** synthetic resin. Not compatible with aqueous-based mounts.

Staining Notes:

Specificity and intensity of certain histological elements may be changed by the oxidation and sulfation used (alternative reagents not supplied). The other following tissue elements may be specifically highlighted with the following procedural modifications:

Glomerular Basement Membrane in Kidney: Oxidize with Periodic Acid 5% for 15 min. Use provided sulfation reagent.

Pneumocystis Carinii and other fungi: Use provided oxidizer. Sulfate with mixture of concentrated sulfuric and acetic acid for 10 minutes:

1 part sulfuric acid
3 parts glacial acetic acid
Instructions: Carefully pour acetic acid followed by sulfuric acid into a clean staining jar and mix well.

References:

1. Makovitzky J, Richter S. The relevance of the aldehyde bisulfite toluidine blue reaction and its variants in the submicroscopic carbohydrate research. Acta Histochem. 2009;111(4):273-91. doi: 10.1016/j.acthis.2008.11.027. Epub 2009 Jan 20. PMID: 19157525; PMCID: PMC7172417.
2. Richter S, Makovitzky J. Topo-optical visualization reactions of carbohydrate-containing amyloid deposits in the respiratory tract. Acta Histochem. 2006;108(3):181-91. doi: 10.1016/j.acthis.2006.01.002. Epub 2006 Mar 15. PMID: 16542712.
3. Malinin GI. Metachromatic staining of sodium bisulfite addition derivatives of glycogen. J Histochem Cytochem. 1970 Nov;18(11):834-41. doi: 0.1177/18.11.834. PMID: 4100992.
4. KRAMER H, WINDRUM GM. Sulphation techniques in histochemistry with special reference to metachromasia. J Histochem Cytochem. 1954 May;2(3):196-208. doi: 10.1177/2.3.196. PMID: 13163394.

Storage: 2° C – 25° C

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