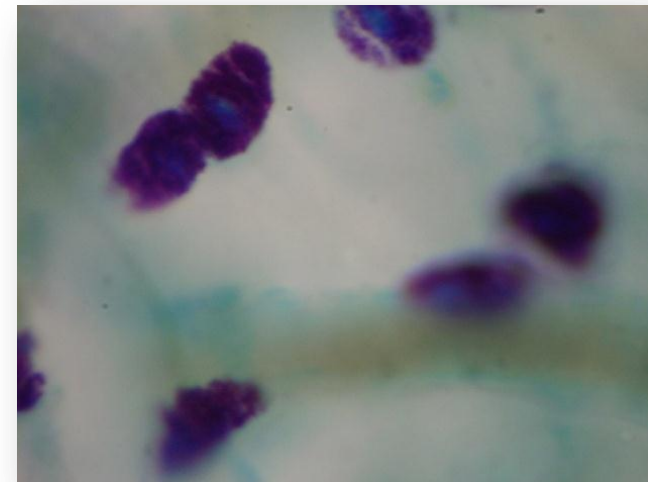


Special Stain

322 Histological Techniques

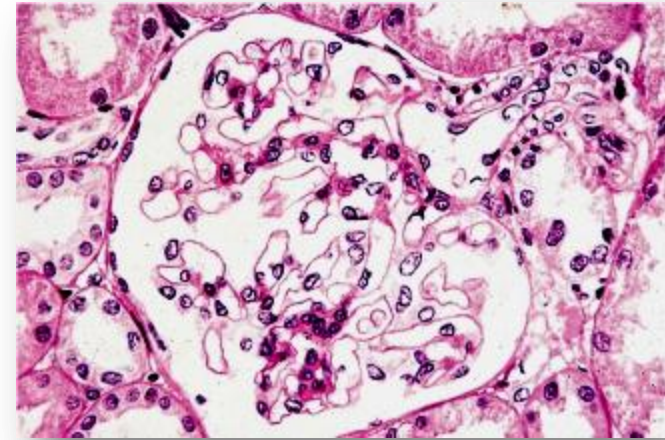
Metachromasia

- ▶ **What is it ?** → Absorb certain wavelength of light and emit different wavelength
- ▶ **Why Metachromasia?** → Polyanions of tissues bind with dye molecules result in polymer or dimers of dye molecules → appear as different color rather than expected (methylene blue gives red or purple color)
- ▶ **What are metachromatic substances?** → Ionized SO_4 , PO_4 of cartilage
- ▶ **Where you find it?** → Mast cell granules (heparin) & RER of Plasma cells



Periodic Acid Schiff

- ▶ **PAS positive substances**
 - Carbohydrate (glycogen) or carbohydrate rich molecules, Basement membrane, reticular fibers
- ▶ Periodic acid cleaves bond between carbon atoms → form Aldehyde group
- ▶ Aldehyde binds with Schiff to produce magenta or pink color

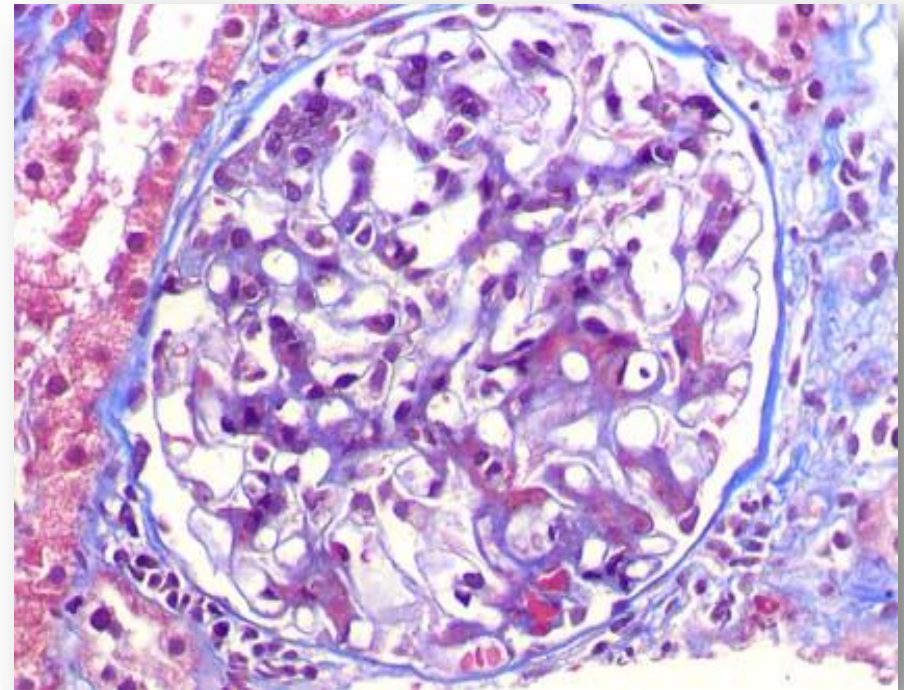


Massons Trichrome

- ▶ is primarily to demonstrate collagen and muscle in normal tissue or
- ▶ to differentiate collagen and muscle in tumors

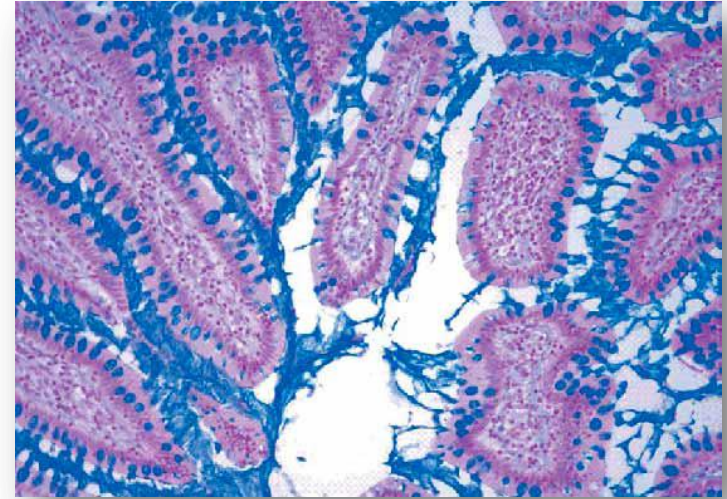
Type of sample

- ▶ liver biopsies,
- ▶ renal biopsies,
- ▶ dermatopathology,
- ▶ cardiac biopsies
- ▶ muscle and nerve biopsies.



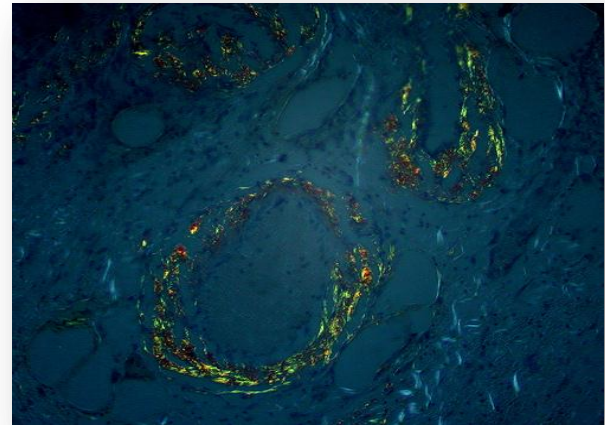
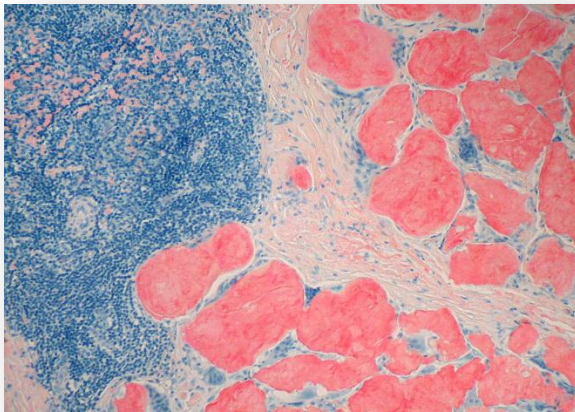
Alcian Blue

- ▶ Alcian blue used to visualize acid mucopolysaccharides or acidic mucins.
- ▶ The staining procedure is performed at pH of 2.5 and 0.5 respectively.
- ▶ Positive staining is perceived as blue.
- ▶ To detect acidic mucin in neoplasms, inflammatory conditions, Paget's disease and lupus erythematosus,



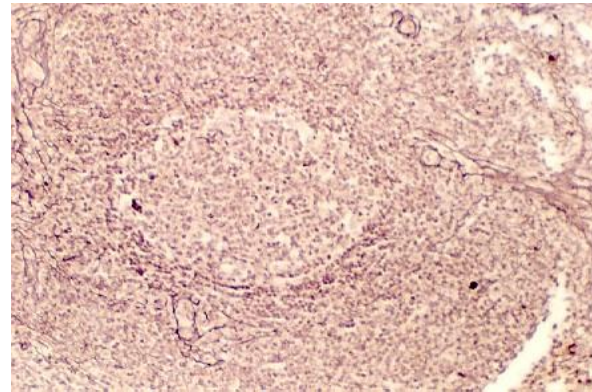
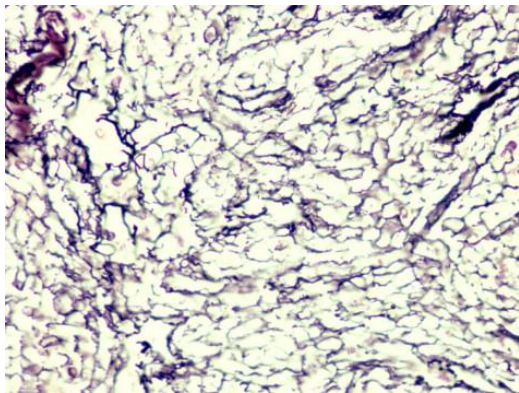
Congo Red

- ▶ Detection of Amyloid
- ▶ Examination of tissue sections suspected of involvement of amyloidosis must be performed under both light microscopy and polarized light.
- ▶ When polarized, amyloid has a characteristic of apple green birefringence.



Reticular Fiber Stain

- ▶ sometimes called "Weigert's Stain"
- ▶ stains reticular fibers black, usually stains collagenous fibers purple



Quality Control

- ▶ Proper quality control for the special staining is mandatory. We must run a known positive control with every patient sample being tested with a special stain.
- ▶ This control is the check system for the reagents used and for the technique performed by us.
- ▶ The control must be reviewed to insure the positive expected results prior to the release of the patient slides.
- ▶ The slides of the special stain procedures are read by the pathologist and the special stain results are included in the pathology report.

