**PERIODIC ACID SCHIFF STAIN (PAS)**

- Kidney: PAS stain marks the glomerular basement membrane (green arrows), the tubule basement membranes (red arrow), and the brush border of proximal convoluted tubule (yellow arrow).
- Newly formed cartilage (B, blue arrow) and thyroid ciliated (B and C, yellow asterisks) stain positively with the PAS stain.
- Autoimmune thyroidal adenitis: PAS+ mucous secretion is detected in normal, uninvolved glands (red arrow), but is absent in glands (yellow arrow) associated with inflammatory cell (green asterisk).

**IN VIVO MOLECULAR IMAGING OF ATHEROSCLEROTIC PLAQUES**

- Magnetic Resonance Detection Of Labeled Antibody To Oxidized LDL Receptor LOX-1 In Vivo. Aortic atherosclerotic plaques were induced in LDLR-/- mice on an atherogenic diet. The plaques were probed by liposomes decorated with anti-LOX-1 antibody linked to gadolinium and DIL fluorescence markers.
- (A-D): MRI at T1 after iv injection of 150 ml of LOX-1 antibody probe consistently detected strong post-contrast signal on atherosclerotic plaques at 24 hr (red arrows in C).
- (E,G): Frozen sections studied by fluorescence microscopy localizes the fluorescent probes on aortic wall (In Frame E, white arrows indicate LOX-1 antibody binding to atherosclerotic plaques as yellow fluorescence).

**THE ALDEHYDE FUSCIN STAIN IDENTIFIES INSULIN-SECRETING BETA CELLS IN PANCREATIC ISLETS**

- A) Insulin-producing beta cells of normal pancreatic islets stain deep purple with the aldehyde fuscin stain.
- B) Pancreas of non-obese diabetic mice with glycosuria has invasive insulitis and depletion of aldehyde fuscin-positive beta cells (arrow points to a residual beta cell).

**CO-LOCALIZATION OF IMMUNE COMPLEX AND DENDRITIC CELLS IN AUTOIMMUNE ORCHITIS**

A) Red arrows indicate unique clusters of T cells and innate cells (dendritic cells, red arrows), and the brush border of proximal convoluted tubule (yellow arrow). B) Testis autoantigens and autoantibody also form immune complexes on the surface of seminiferous tubules (outlined white) - detectable as “granular” patches of complement C3d deposition (green fluorescence), juxtaposed against the immune complex deposits are CD11c+ dendritic cells (red fluorescence).

**TRICROME STAIN FOR TISSUE FIBROSIS**

- Magnetic Resonance Detection Of Labeled Antibody To Oxidized LDL Receptor LOX-1 In Vivo. Aortic atherosclerotic plaques were induced in LDLR-/- mice on an atherogenic diet. The plaques were probed by liposomes decorated with anti-LOX-1 antibody linked to gadolinium and DIL fluorescence markers.
- (A-D): MRI at T1 after iv injection of 150 ml of LOX-1 antibody probe consistently detected strong post-contrast signal on atherosclerotic plaques at 24 hr (red arrows in C).
- (E,G): Frozen sections studied by fluorescence microscopy localizes the fluorescent probes on aortic wall (In Frame E, white arrows indicate LOX-1 antibody binding to atherosclerotic plaques as yellow fluorescence).

**MISSION STATEMENT**

The Research Histology Core supports all research projects that depend on tissue sections of high quality. The core prepares a large number of paraffin and frozen tissue sections for over 80 investigators of essentially all research disciplines at UVA. Most tissue sections are used for routine H and E histological sections, prepared by the core. Other tissue sections are used in more sophisticated studies by investigators, as illustrated here.