A215 Lab

Urinary: Gross Structures & Histology
• Renal Capsule
  • Fibrous covering of kidney

• Renal Cortex
  • Outer region, BUT, has inward projections into the medulla called **renal columns** (columns are extensions of the cortex)
  • Appears “granular” because contains the **glomeruli**

• Renal Medulla
  • Consists of **renal pyramids**
    • Darkly stained upside down triangles
    • Each pyramid drains into a **minor calyx**
Nephron

• Contains:
  – Renal Corpuscles
  – Proximal Convoluted Tubules (PCT’s) - w/ microvillus border
  – Nephron Loop (Loop of Henle)
  – Distal Convoluted Tubules (DCT’s)
    • macula densa
Kidney

• Composed of over one million nephrons (filtering systems) located in the cortex.
  – Cortex – contains renal corpuscles, the components of the nephron where filtration of blood STARTS
    • Renal corpuscle = glomerulus + glomerular capsule + capsular space
  – Medulla - inner region lacking renal corpuscles
• Renal Corpuscle
  – glomerulus
  – glomerular capsule
  – Capsular space
PCT vs. DCT

• **Proximal Convoluted Tubule** (PCT)
  – Simple cuboidal WITH MICROVILLI!
    • Microvilli create “fuzzy” lumen
  – Outnumber DCT’s 7:1 (most tubules you see will be proximal)

• **Distal Convoluted Tubule** (DCT)
  – Simple cuboidal NO MICROVILLI!
    • Has CLEAR lumen
  – Nuclei appear to bulge into lumen
Macula Densa

- Specific feature within Distal Convoluted Tubule (DCT) that contacts the glomerular wall (and an associated afferent arteriole)
- Plate of darkly stained, closely packed cuboidal cells in DCT wall
Kidney Blood Flow

• **Arteries**
  – Renal Arteries
  – *(Segmental arteries)*
  – Interlobar Arteries
  – Arcuate Arteries
  – Interlobular Arteries
  – Afferent arterioles
  – Glomerulus
  – Efferent arterioles
Kidney Blood Flow cont.

- **Capillaries**
  - Peritubular Capill. or Vasa Recta

- **Veins**
  - Interlobular veins
  - Arcuate veins
  - Interlobar veins
  - Renal Veins

*What region of kidney would peritubular capill. Reside? Vasa Recta?*
Transport and Storage

- Transitional Epithelium lined
- ureters
  - 2 layers of smooth muscle in muscularis
- urinary bladder
  - 3 layers of smooth muscle in muscularis
Adrenal Gland

• Located superiorly to kidneys and surrounded by a mass of adipose tissue

• 2 Regions
  – **Cortex** (outer layer)
  – **Medulla** (inner layer)
Label all boxes with P or D (for PCT or DCT)