

# Lab 9: The Urinary System

---

## Urinary System Histology:

### Slide 1-2-1 Kidney: Bowman's Capsule (Simple Squamous Epithelium)

- **Renal Corpuscle** (is a combination of these two structures, each are simple squamous epithelium).
  - **Bowman's Capsule** — the first place urine is found.
  - **Glomerulus** — a "ball of capillaries" receiving blood from the afferent arteriole.
- **Proximal Convoluted Tubule** — simple cuboidal epithelium with microvilli ("fuzzy lumens").
- **Distal Convoluted Tubule** — simple cuboidal epithelium (no microvilli) ("clear lumens").

### Slide 1-3-1 Urinary Bladder: Transitional Epithelium ("Urothelium")

- **Lumen** — urine stored here.
- **Transitional Epithelium** — large "**Umbrella cells**" (with 1 or 2 nuclei) at apical surface.
- **Smooth Muscle** — also called the "**Detrusor Muscle**".

### Slide 1-3-2 Ureter: Transitional Epithelium ("Urothelium")

- **Lumen** — urine stored here.
- **Transitional Epithelium** — large "**Umbrella cells**" (with 1 or 2 nuclei) at apical surface.
- **Smooth Muscle** — remember all parts of the urinary system are "**retroperitoneal**".

---

## Urinary System Gross Anatomy:

- **Kidney**
    - **Capsule of the Kidney**
    - **Renal Hilum** — the "dent" in the organ where all the tubes come and go.
      - **Renal Artery**
      - **Renal Vein**
      - **Ureter**
    - **Renal Cortex** — 85% of the nephrons found here (the other 15% are juxtamedullary).
    - **Renal Medulla**
      - **Renal Lobule**
        - **Renal Pyramids**
        - **Renal Papilla**
        - **Renal Columns**
      - **Minor Calyx** — the "space for urine" around the tip of each renal pyramid.
      - **Major Calyx** — the "space for urine" each minor calyx flows into.
      - **Renal Pelvis** — the "space for urine" each major calyx flows into.
  - **Ureter** — the "space for urine" the renal pelvis flows into.
  - **Urinary Bladder** — also called the "Detrusor Muscle"... (*Latin for "thrust downward"*).
    - **Trigone** — a triangle formed by the left and right ureter and the single urethra.
  - **Female Urethra** — about 4 cm long.
  - **Male Urethra** — about 20 cm long.
    - **Prostatic Urethra** — runs through center of the prostate gland.
    - **Membranous Urethra** — runs through urogenital diaphragm (same location as female urethra).
    - **Spongy (Penile) Urethra** — runs through ventral (lower) side of penis through corpus spongiosum.
-