# Histology of Kidney Tubules

## Proximal Convoluted Tubule
- Longer compared to DCT, numerously seen on slide
- Tubular cell of PCT
  - Acidophilic cytoplasms
    - Numerous Mitochondria
  - Apical membrane
    - Numerous microvilli
      - Called as brush border under the slide
    - Numerous canaliculi between brush border
      - Will form pinocytic vesicles thru invagination of apical membrane
    - Function to reabsorb macromolecule
      - Cell are very large in size, therefore can only be seen 3-5 nuclei in transverse section
  - Basolateral membrane
    - Numerous interdigitation
    - Has Na ATPase Pump
    - Numerous mitochondria arranged parallel to basal membrane – for active transport

## Loop of Henle
1. Cortical nephron
   - Thick descending limb
   - Thin descending limb
   - Thick ascending limb
2. Juxtamedullary nephron
   - Thick descending limb
   - Thin descending limb
   - Thin ascending limb
   - Thick ascending limb
   - This nephron plays important role of hypertonicity of medullary interstitium
   - Begins with 60mc of diameter then suddenly become s 12mc, at the end enlarge back
     - Thick → Thin → Thin → Thick
   - Thin segment
     - Simple squamous
     - Large lumen
     - Only small portion of nuclei protrudes into lumen
   - Thick segment
     - Simple cuboidal
     - Smaller lumen

## Distal Convoluted Tubule
- Lined by simple cuboidal epithelium
- Difference from PCT
  - No
    - Brush border
    - Canaliculi
  - Has more interdigitation
    - With numerous mitochondria
    - For active reabsorption
  - More nuclei seen on slide → smaller size of cell
- Macula Densa
  - Near the touch point of DCT with renal pole
  - Place in which
    - Cells become columnar
    - Nuclei closely packed with each other
    - Well-developed golgi apparatus
  - Very sensitive to
    - Ionic content
    - Water volume
  - If there is increased amount of salt and water sends signal to
    - Mesangial cells to constrict
    - Granular cells to release Renin

## Collecting Tubule
- Collecting all DCTs from different nephrons
- Lumen is dilated nearer to the renal papilla
- Tubular cells of CT
  - Cuboidal and becoming Columnar as descends to renal papilla
- Stained very weakly by HnE stain