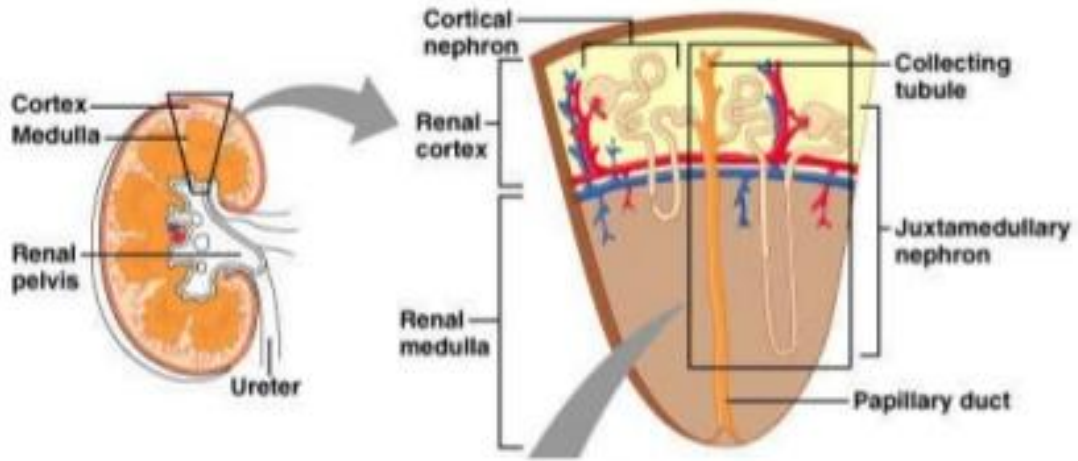
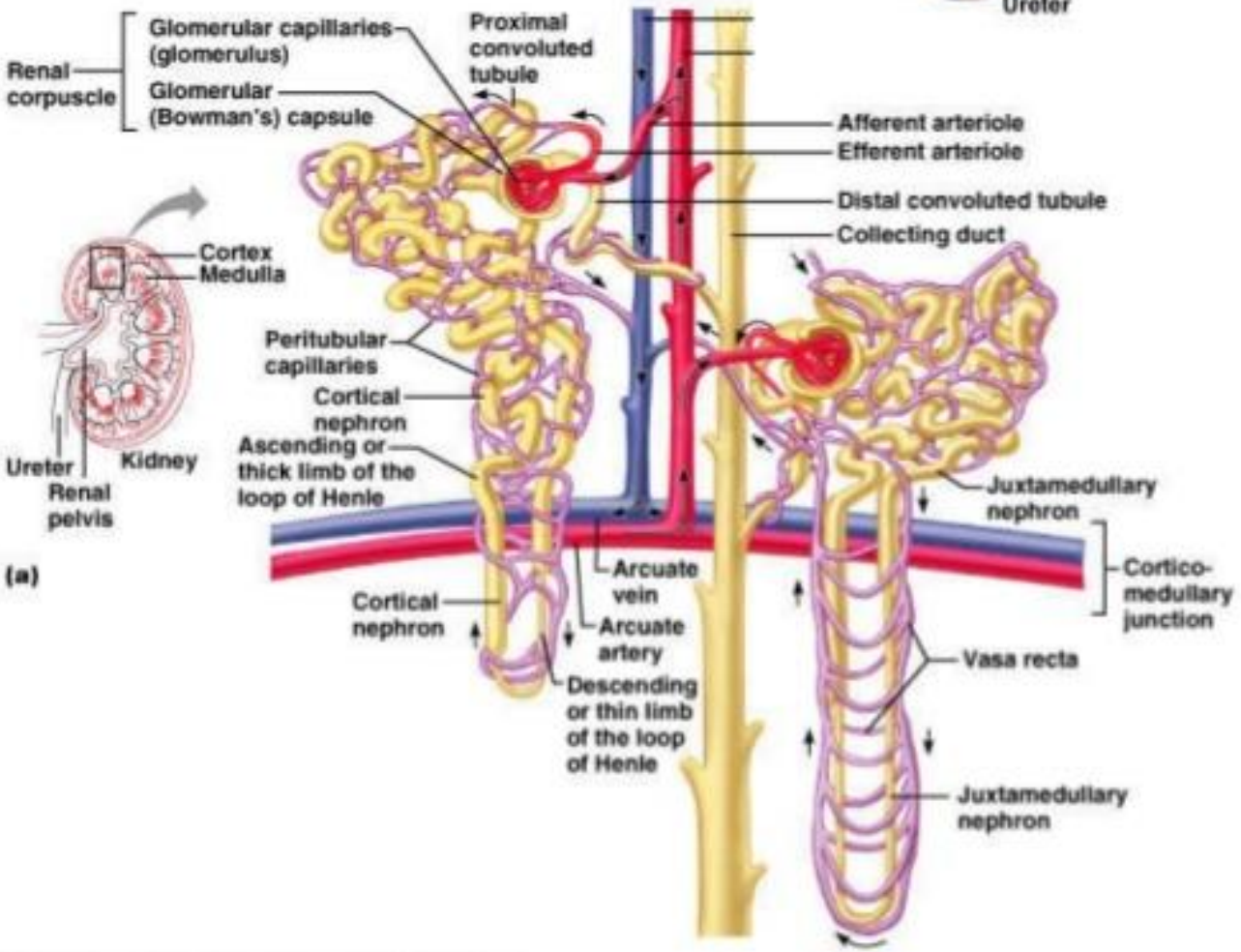
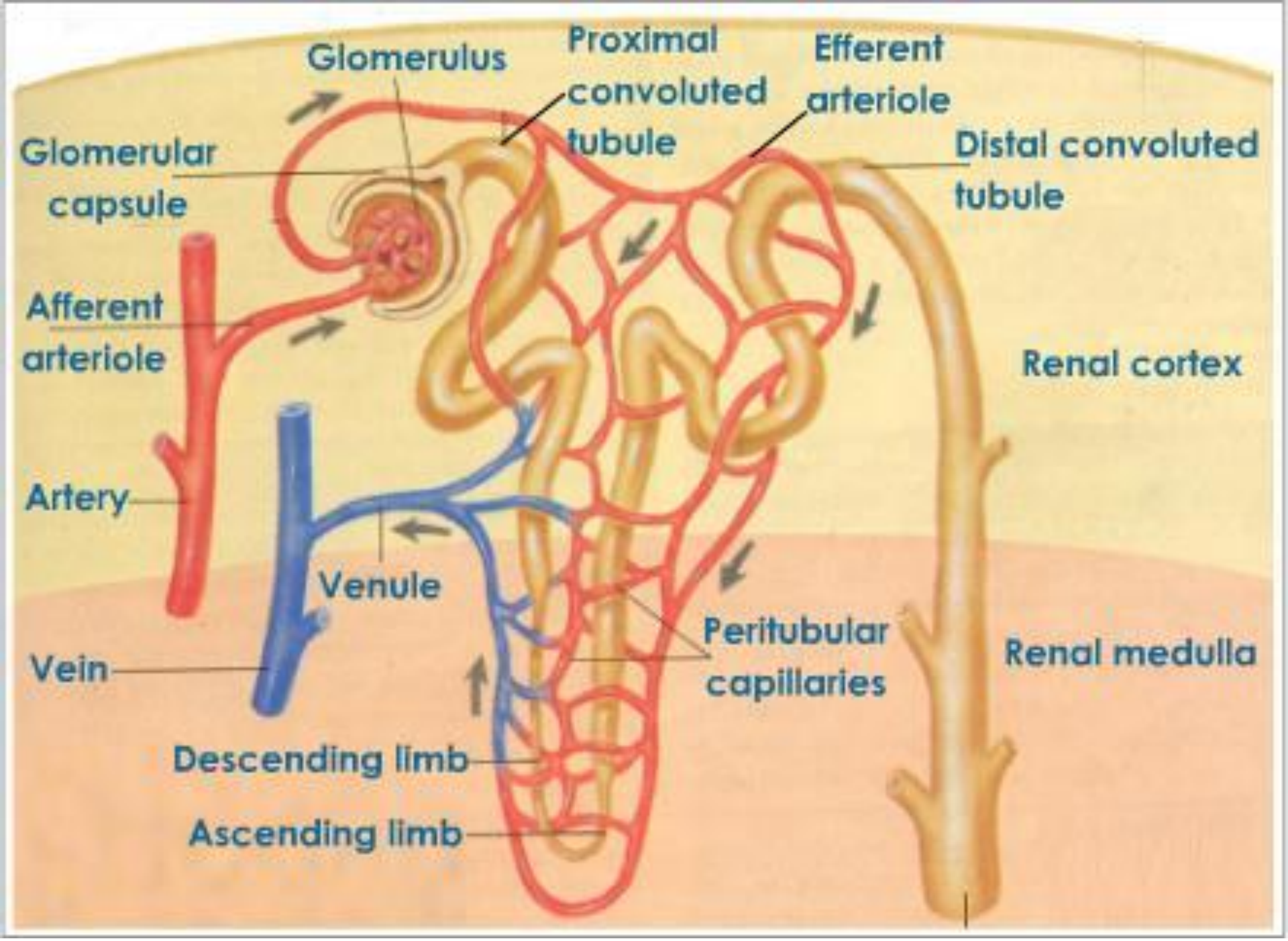
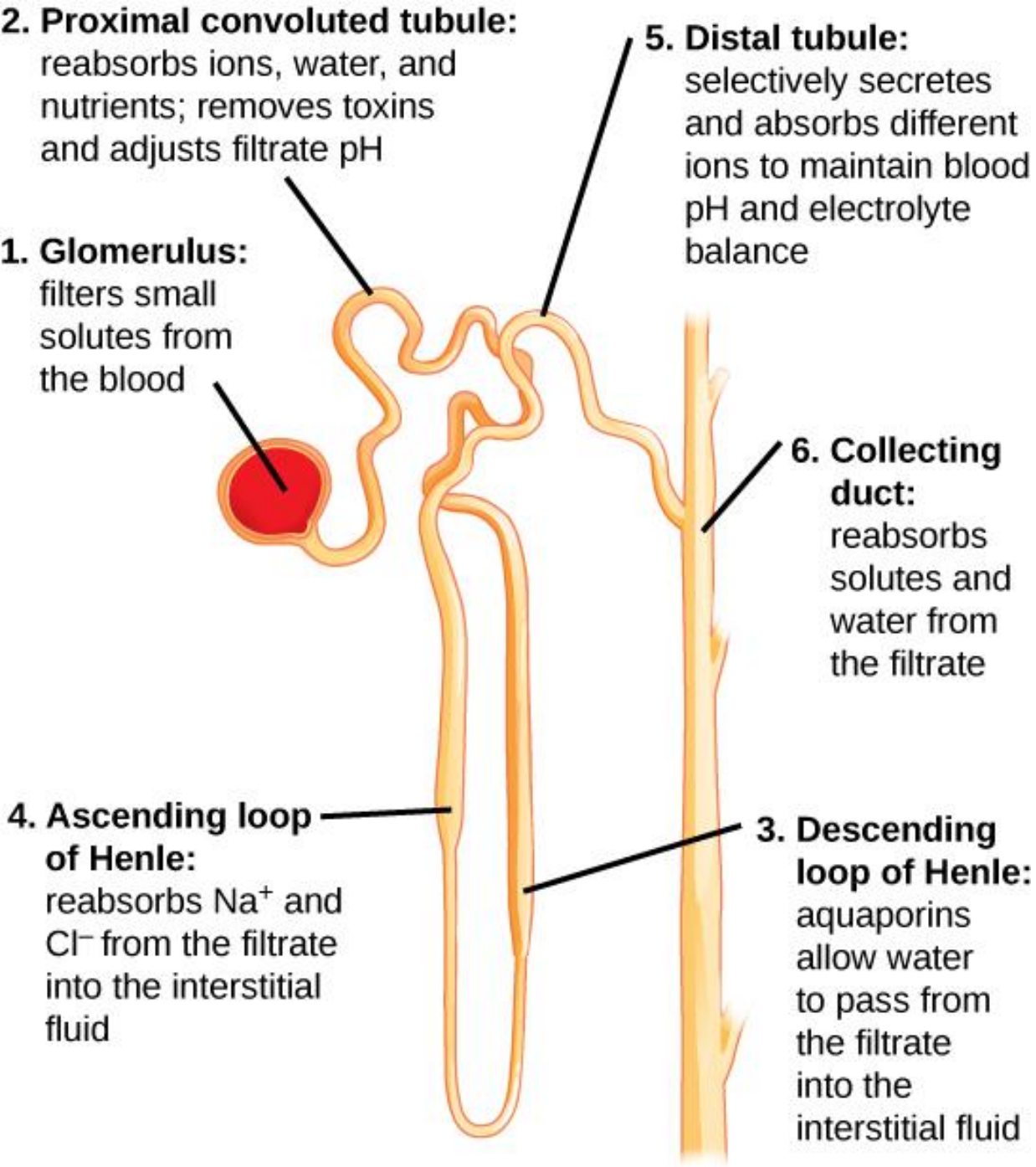
Classes of nephrons

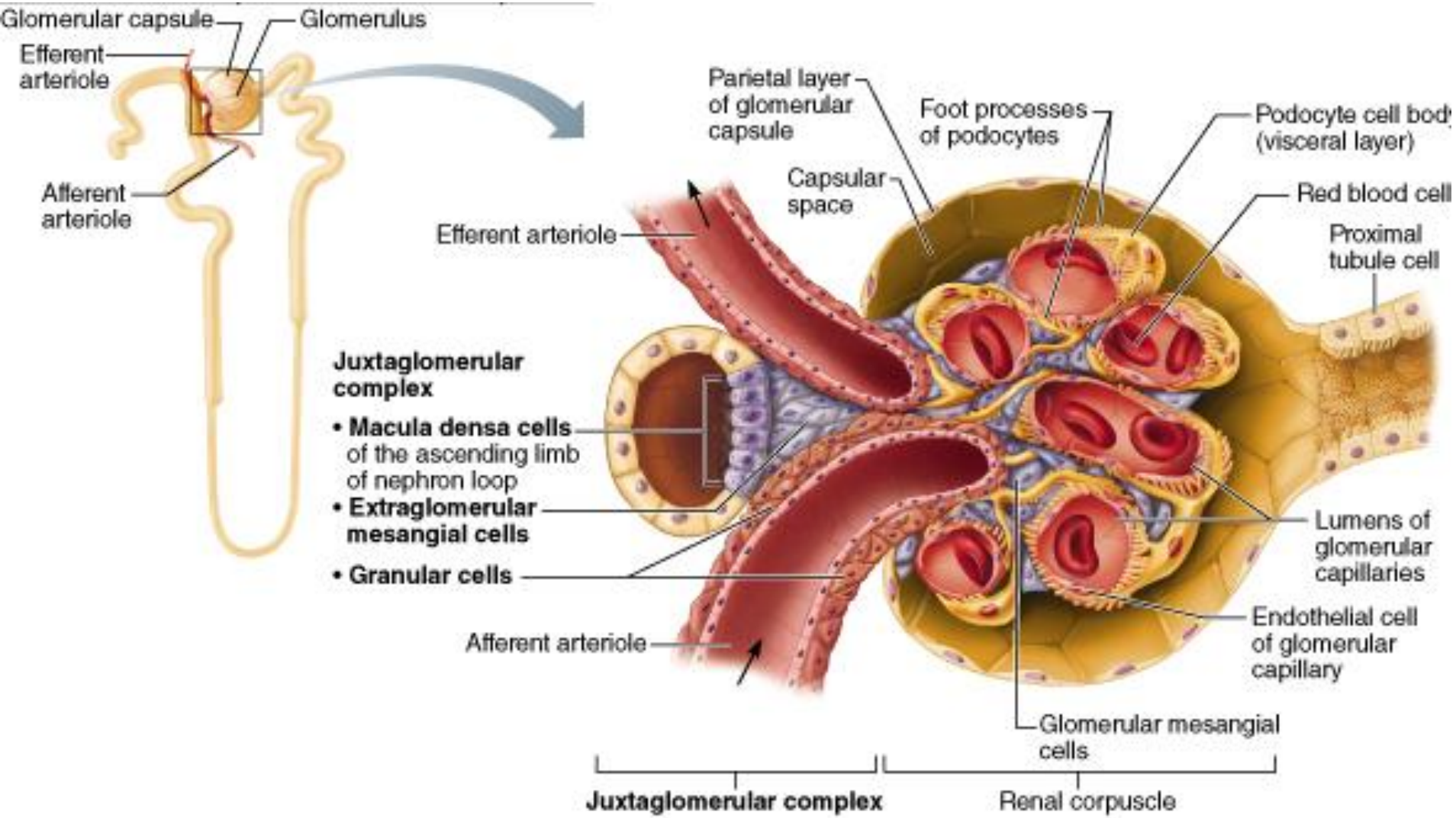


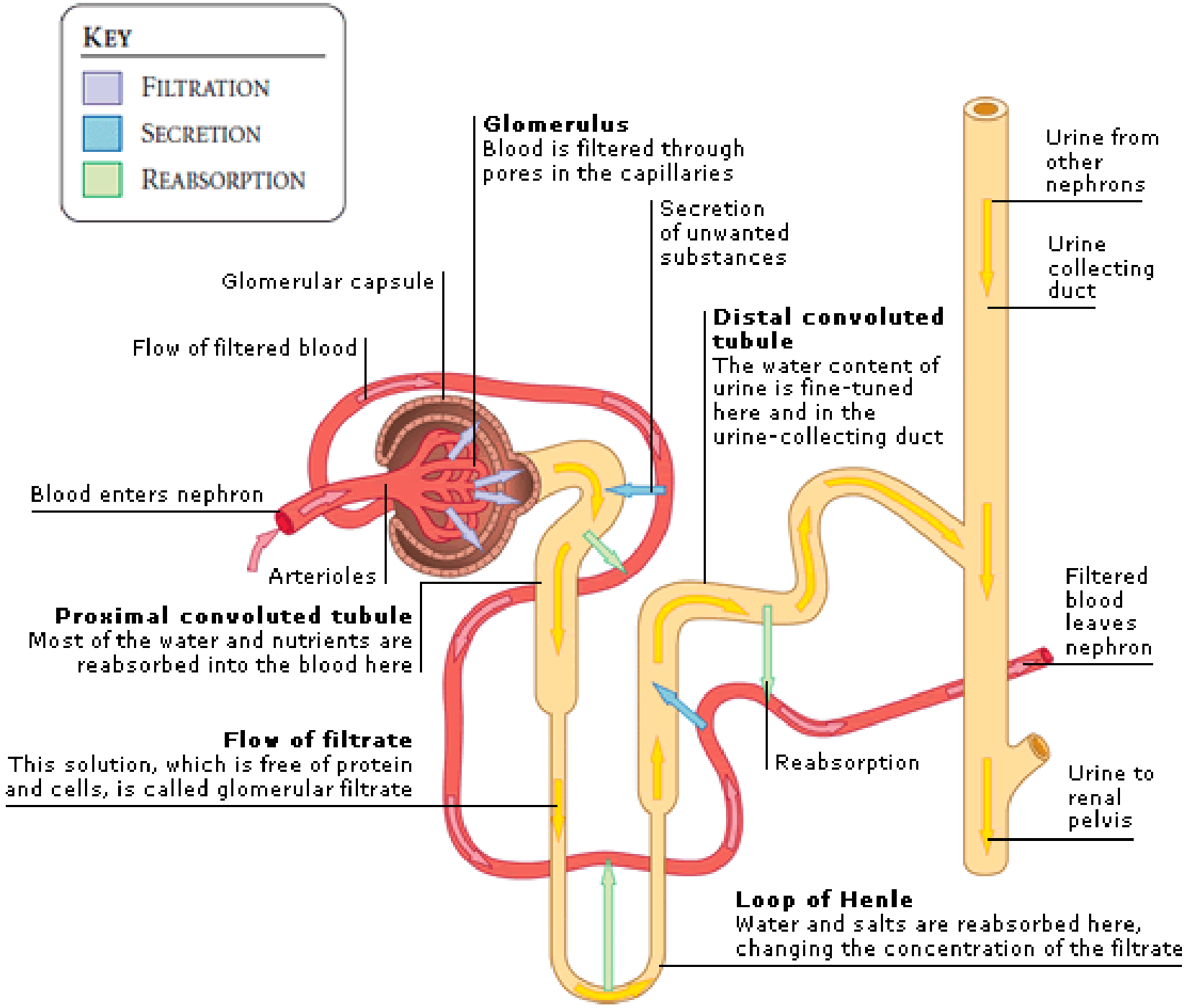


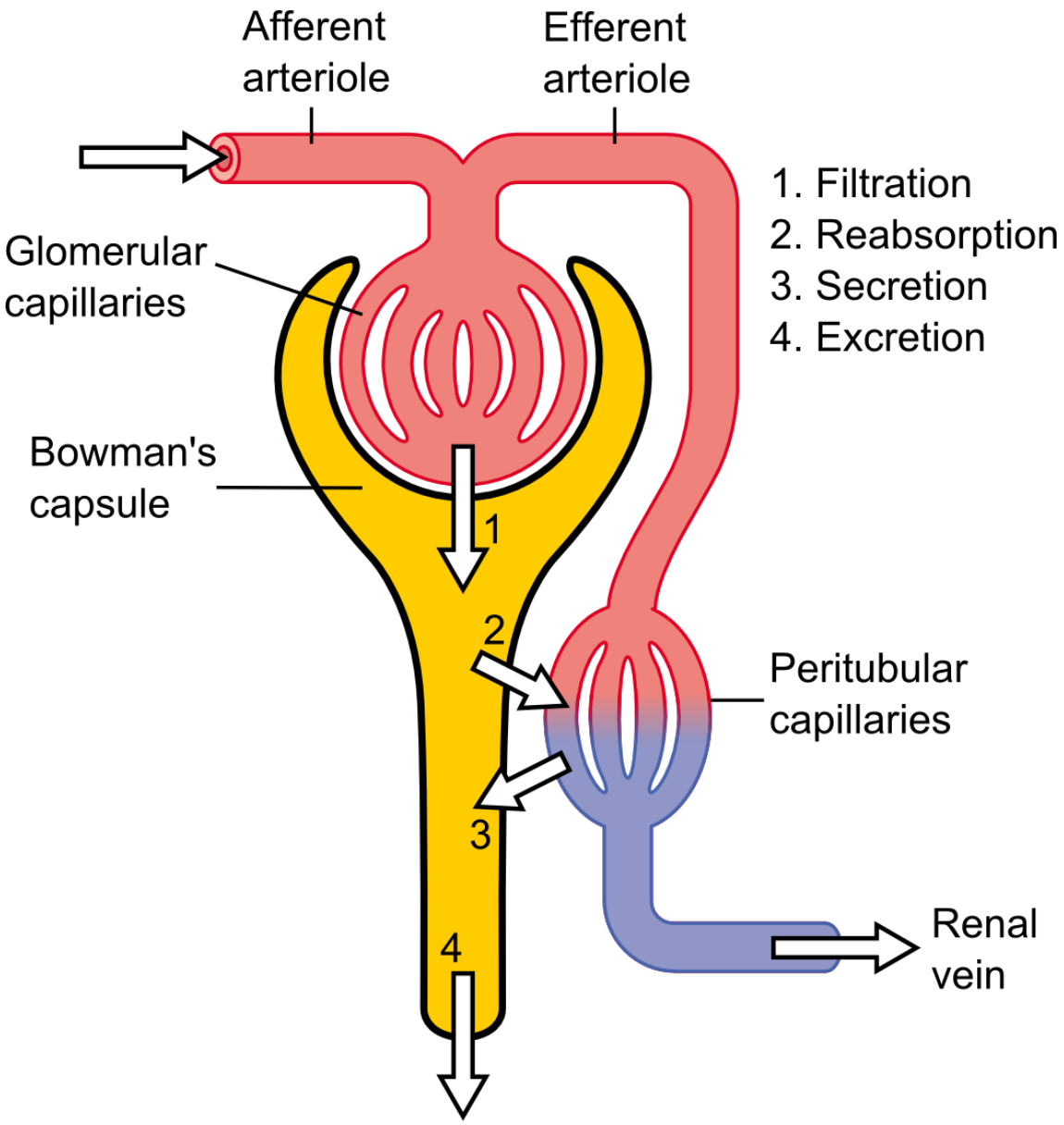
- Cortical nephrons
  - 85% of all nephrons
  - Almost entirely within cortex
- Juxtamedullary nephrons
  - Renal corpuscles near cortex-medulla junction


Glomerulus
Proximal convoluted tubule
Efferent arteriole
Glomerular capsule
Distal convoluted tubule
Afferent arteriole
Renal cortex
Artery
Venule
Peritubular capillaries
Renal medulla
Vein
Descending limb
Ascending limb


2. Proximal convoluted tubule: reabsorbs ions, water, and nutrients; removes toxins and adjusts filtrate pH
5. Distal tubule: selectively secretes and absorbs different ions to maintain blood pH and electrolyte balance
1. Glomerulus: filters small solutes from the blood
6. Collecting duct: reabsorbs solutes and water from the filtrate
4. Ascending loop of Henle: reabsorbs Na^+ and Cl^- from the filtrate into the interstitial fluid
3. Descending loop of Henle: aquaporins allow water to pass from the filtrate into the interstitial fluid


Glomerular capsule
Glomerulus
Efferent arteriole
Afferent arteriole
Parietal layer of glomerular capsule
Foot processes of podocytes
Podocyte cell body (visceral layer)
Capsular space
Red blood cell
Efferent arteriole
Proximal tubule cell
Juxtaglomerular complex
• Macula densa cells of the ascending limb of nephron loop
• Extraglomerular mesangial cells
• Granular cells
Lumens of glomerular capillaries
Endothelial cell of glomerular capillary
Afferent arteriole
Glomerular mesangial cells
Juxtaglomerular complex
Renal corpuscle


KEY
FILTRATION
SECRETION
REABSORPTION
Glomerulus
Blood is filtered through pores in the capillaries
Secretion of unwanted substances
Urine from other nephrons
Urine collecting duct
Glomerular capsule
Flow of filtered blood
Distal convoluted tubule
The water content of urine is fine-tuned here and in the urine-collecting duct
Blood enters nephron
Arterioles
Proximal convoluted tubule
Most of the water and nutrients are reabsorbed into the blood here
Filtered blood leaves nephron
Flow of filtrate
This solution, which is free of protein and cells, is called glomerular filtrate
Reabsorption
Urine to renal pelvis
Loop of Henle
Water and salts are reabsorbed here, changing the concentration of the filtrate



Excretion = Filtration – Reabsorption + Secretion