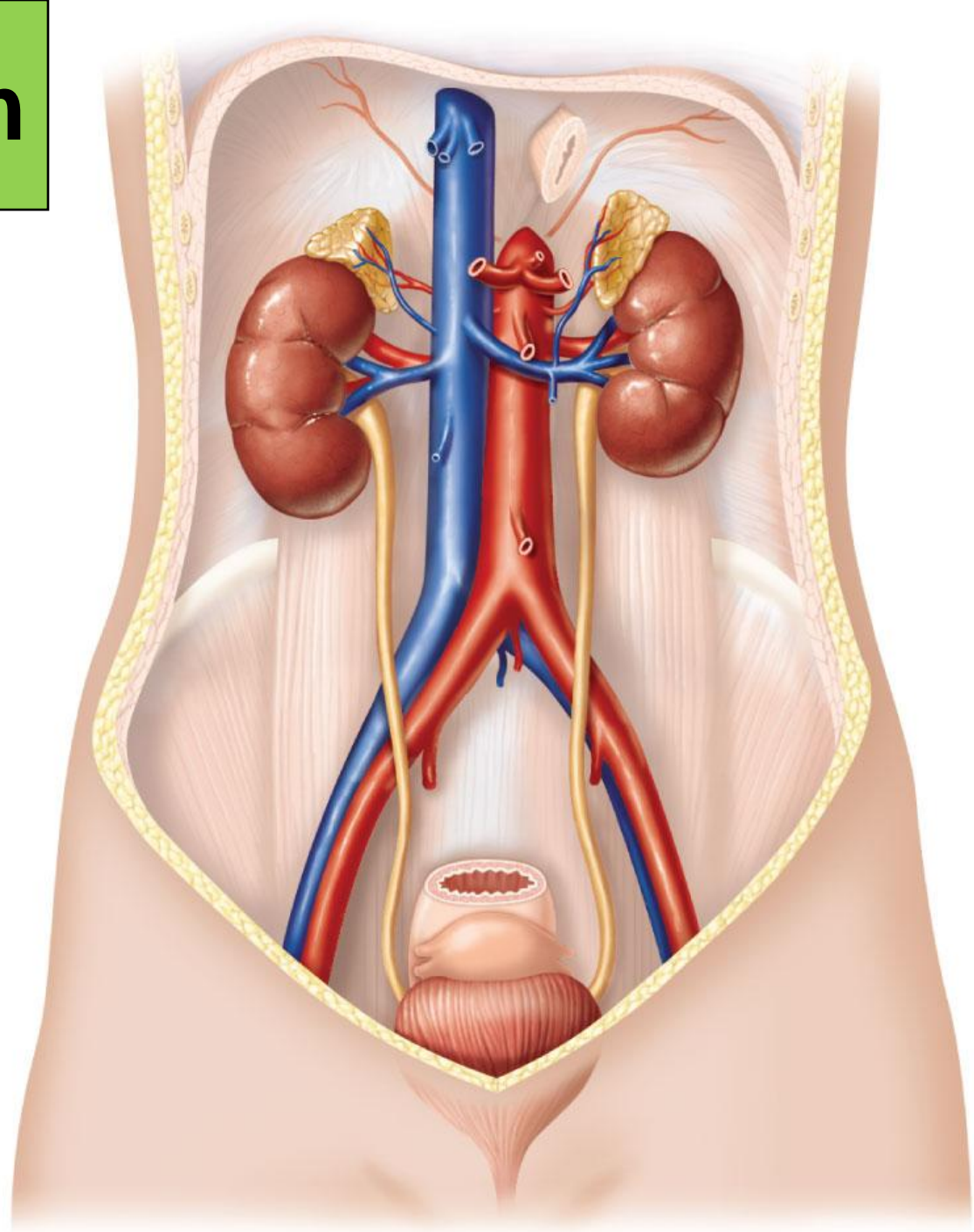


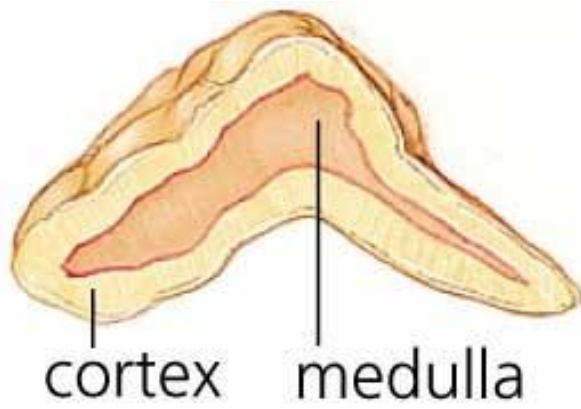
Urinary System

1. *Kidneys*
2. *Ureters*
3. *Urinary bladder*
4. *Urethra*



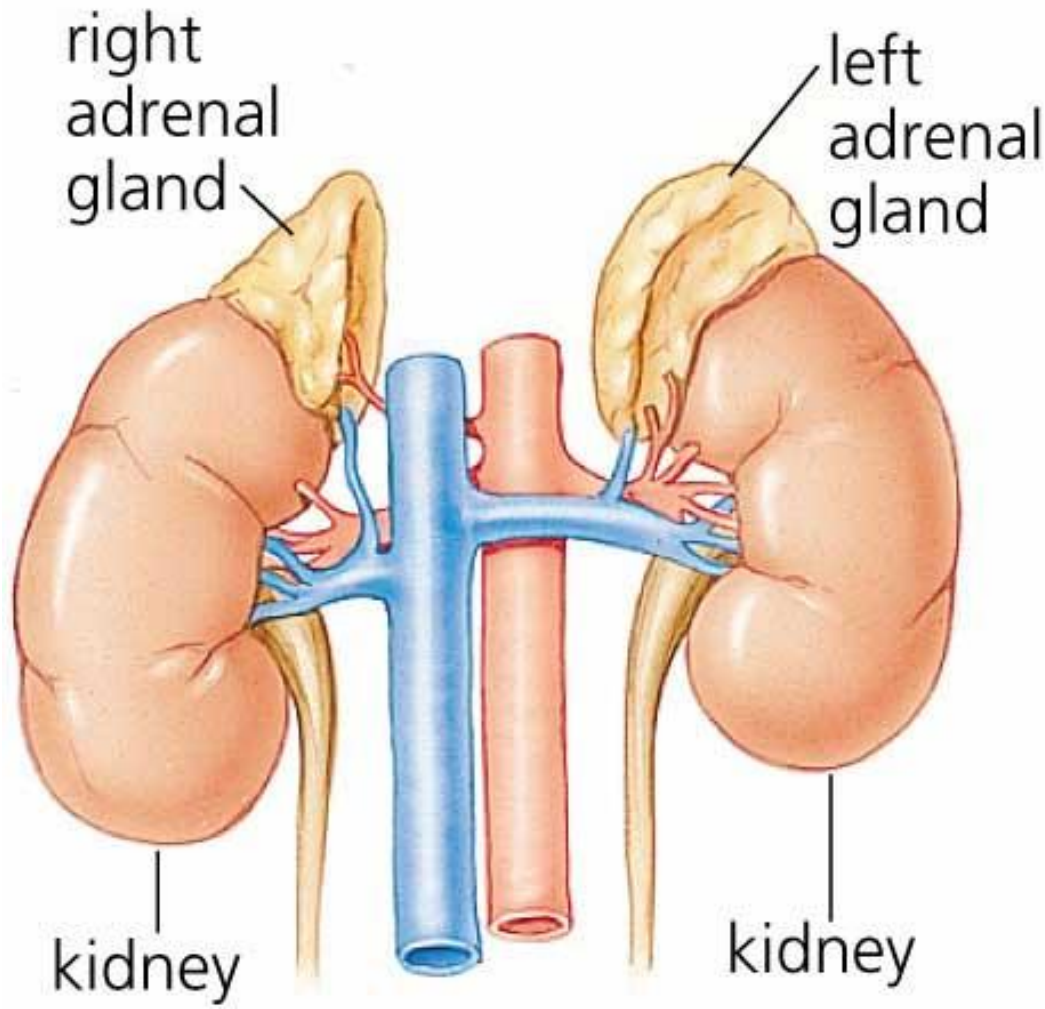
Functions of the Urinary System

- **Primary functions:**
 - **Filter blood plasma,**
 - **Regulating blood volume and pressure,**
 - **Regulate blood osmolarity.**
- **Secondary functions:**
 - Produce renin,
 - Produce EPO,
 - Regulate pH,
 - Metabolism of vitamin D.



Secrete:

- **Aldosterone**
- **Cortisol**
- **Epinephrine**
- **Norepinephrine**
- **Other hormones**



Formed in the _____



Travels thru the _____
in the _____



Drips out of the _____
into the _____



Flows thru the _____



Flows thru the _____



Flows thru the _____

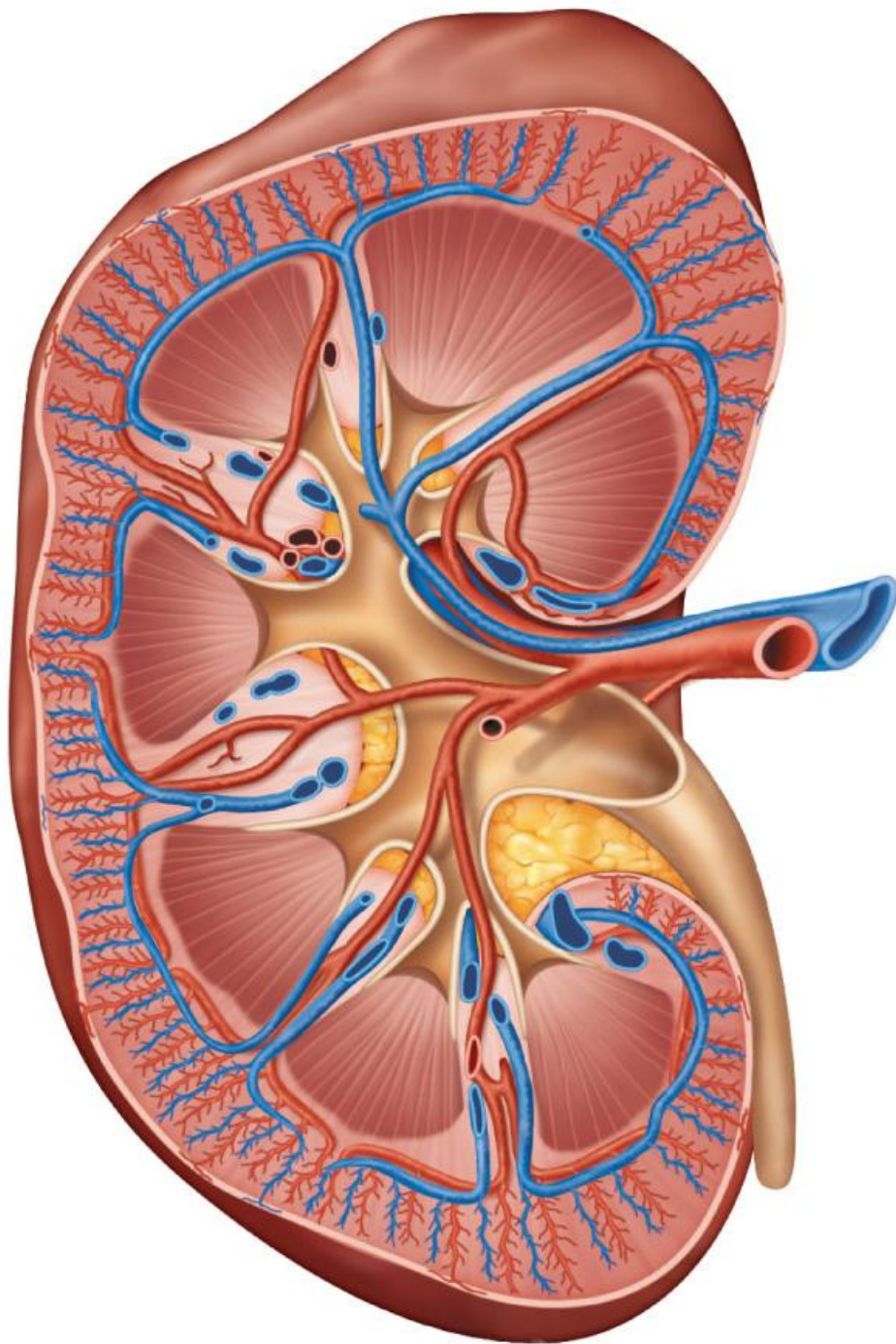


Flows thru the _____



Flows thru and is
stored in the _____





Abdominal aorta



Renal artery



Segmental artery



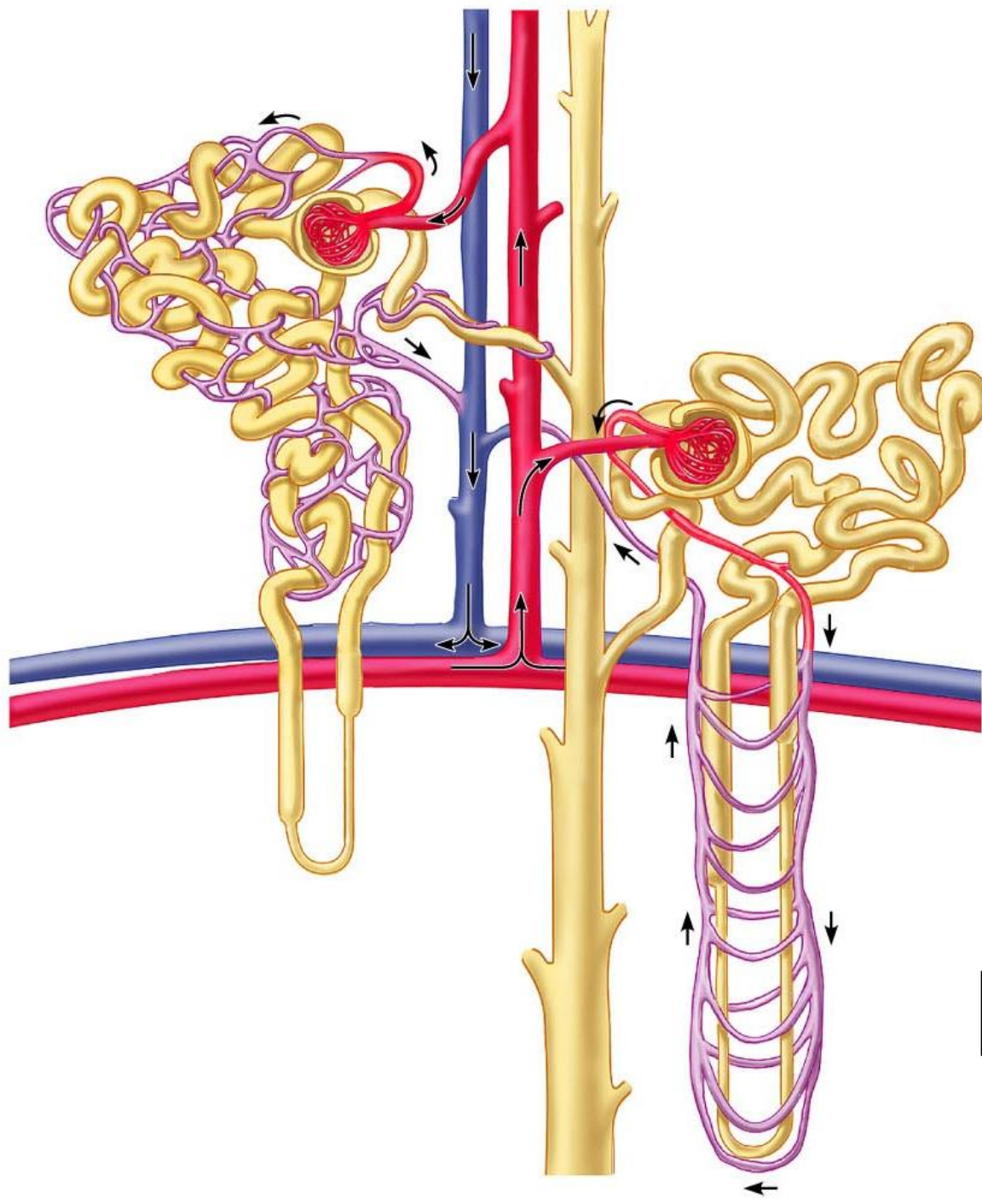
Interlobar artery



Arcuate artery



Cortical radiate artery



Arcuate artery

Cortical radiate artery

Afferent arteriole

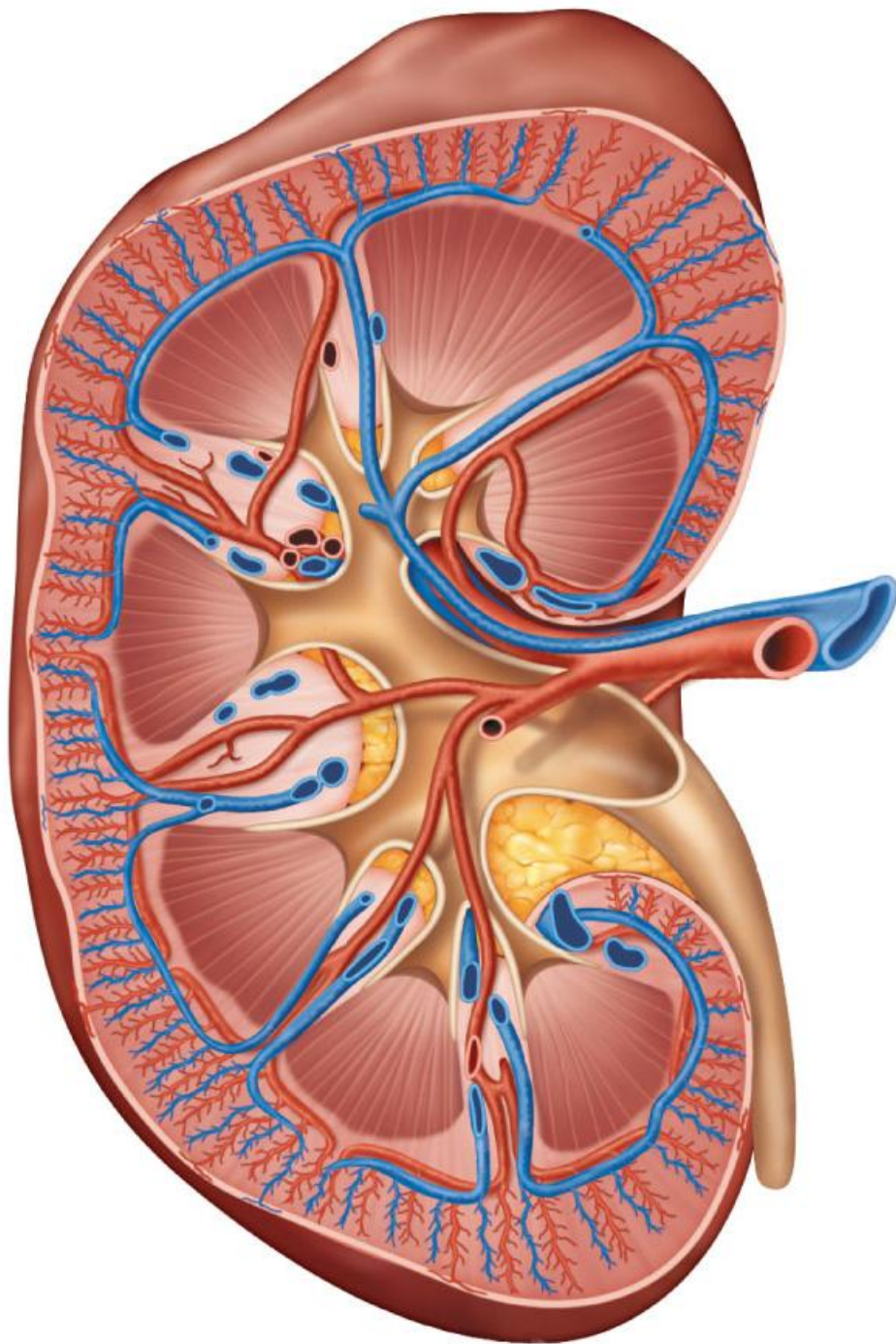
Glomerulus

Efferent arteriole

**Peritubular Capillaries
or Vasa Recta**

Cortical radiate vein

Arcuate vein



Cortical radiate vein



Arcuate vein



Interlobar vein



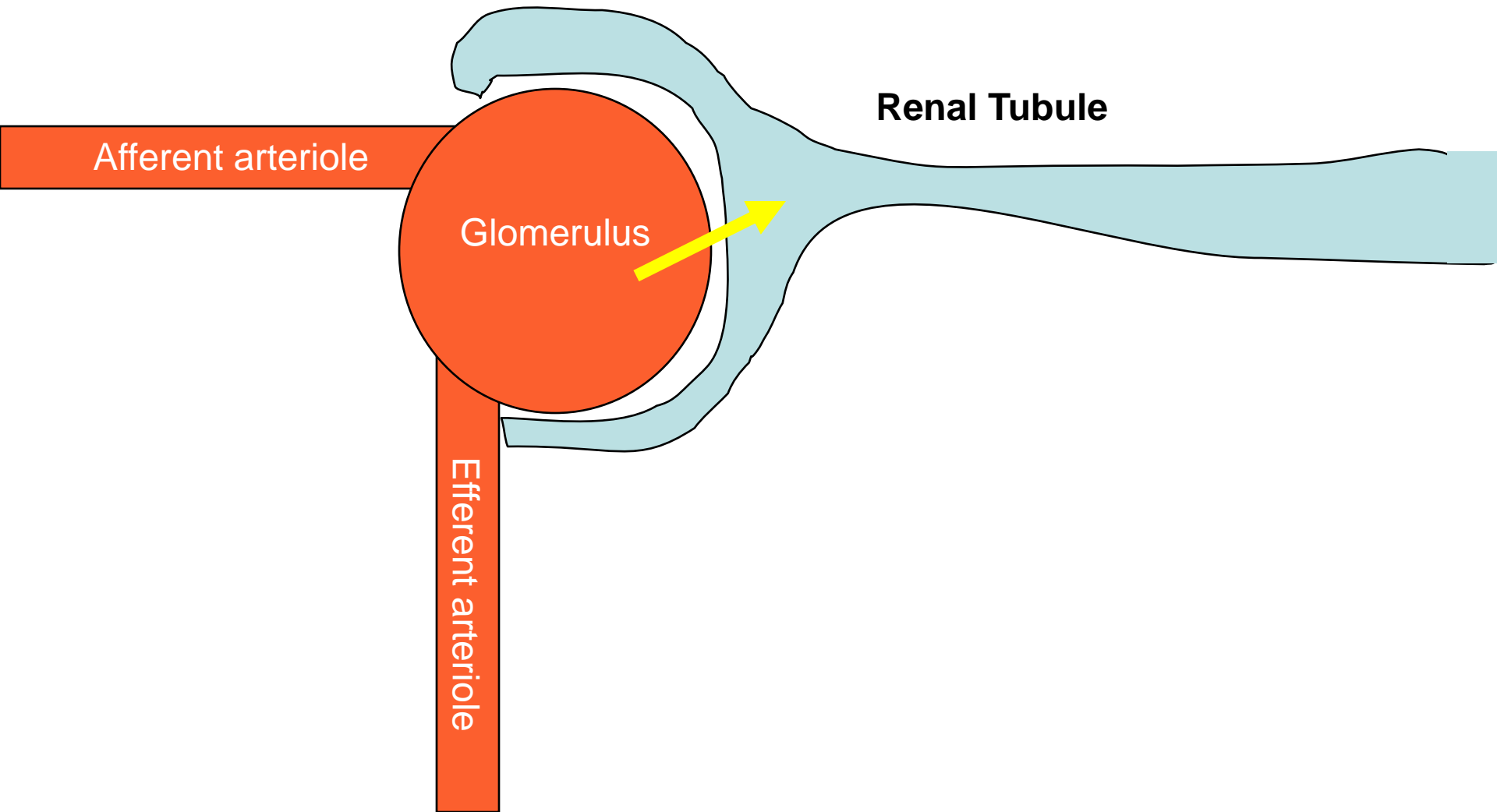
Renal Vein



Inferior vena cava

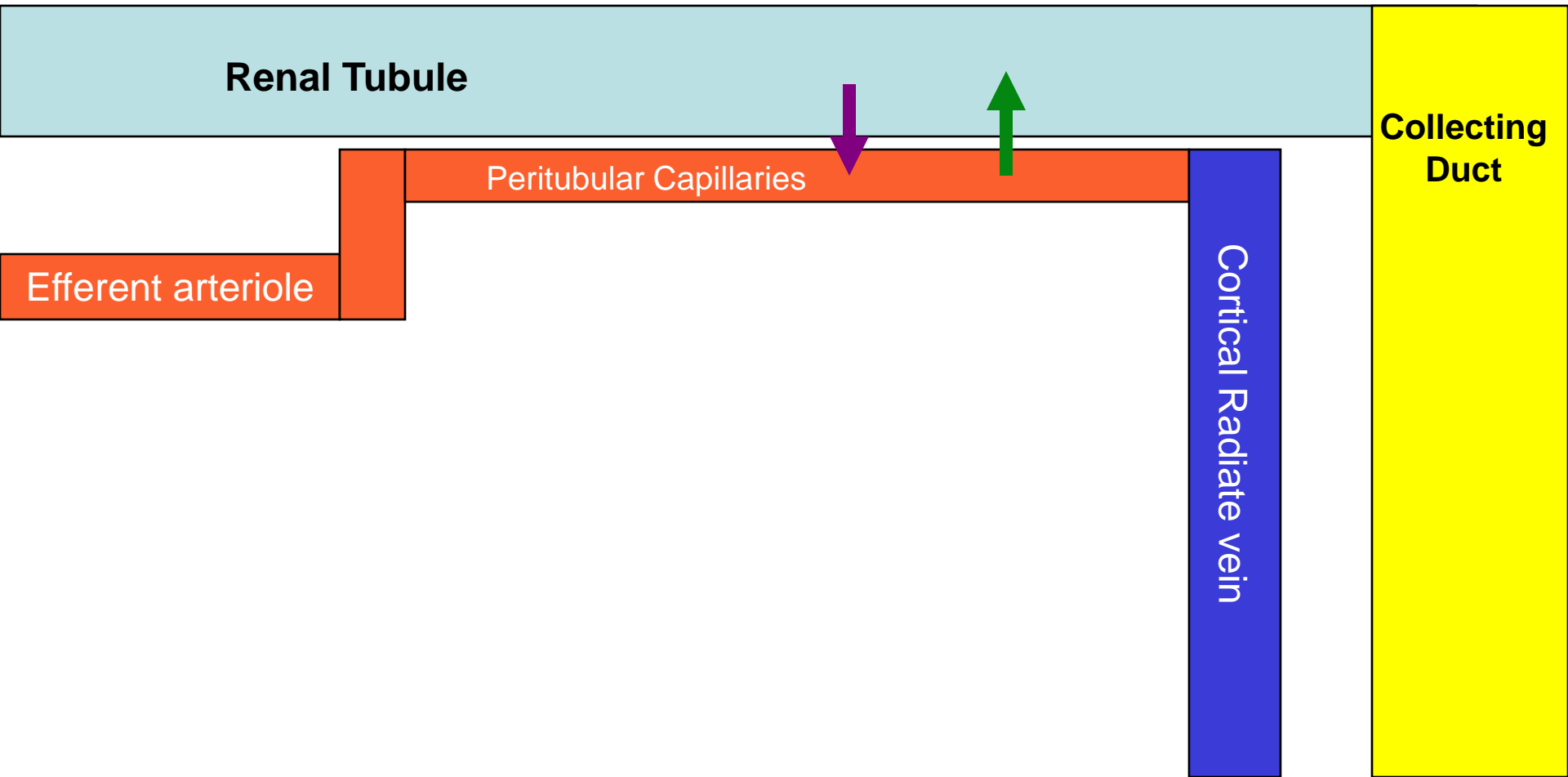
How the kidneys regulate blood volume and chemistry – The basic mechanism

Part 1



How the kidneys regulate blood volume and chemistry – The basic mechanism

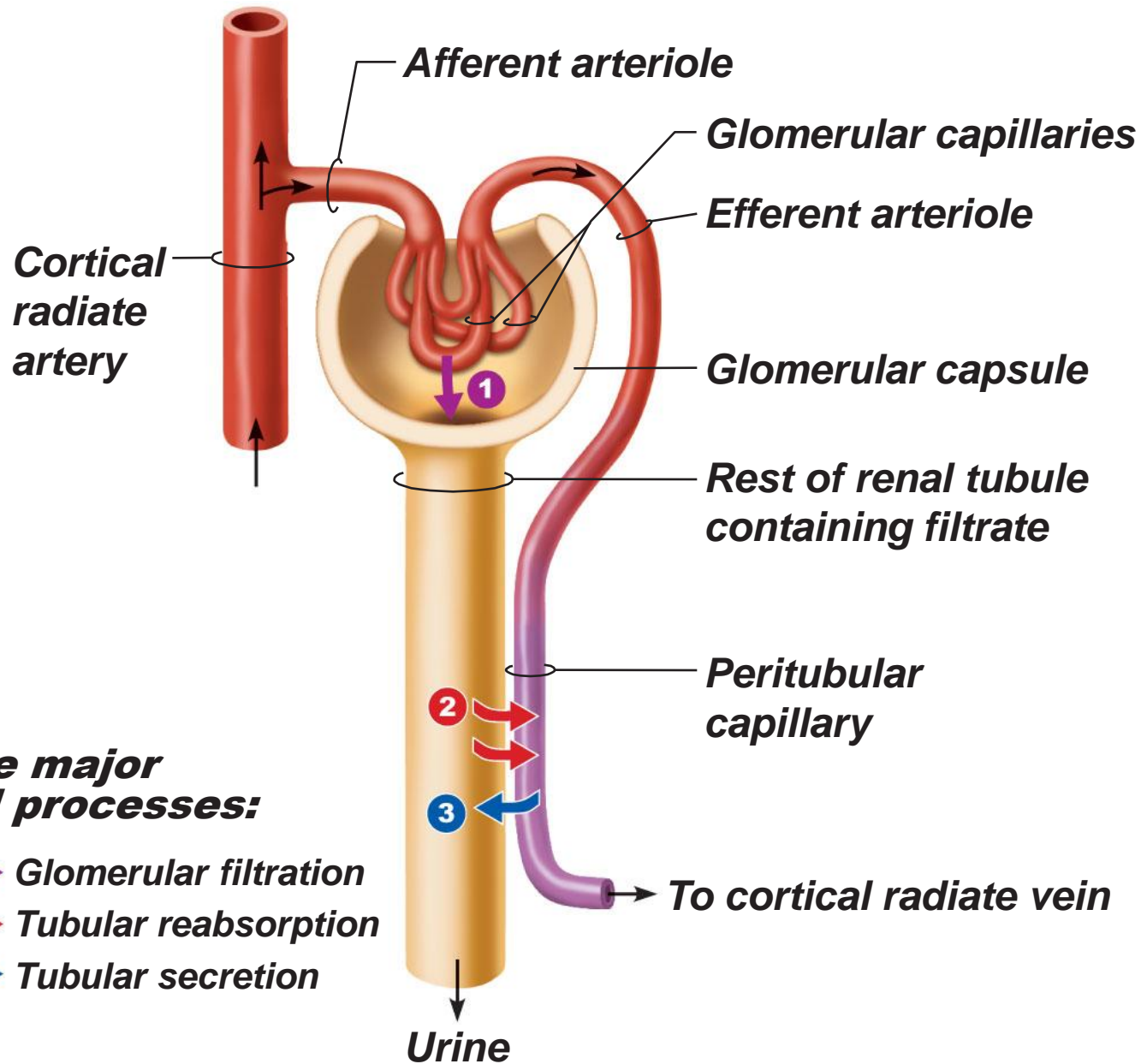
Part 2

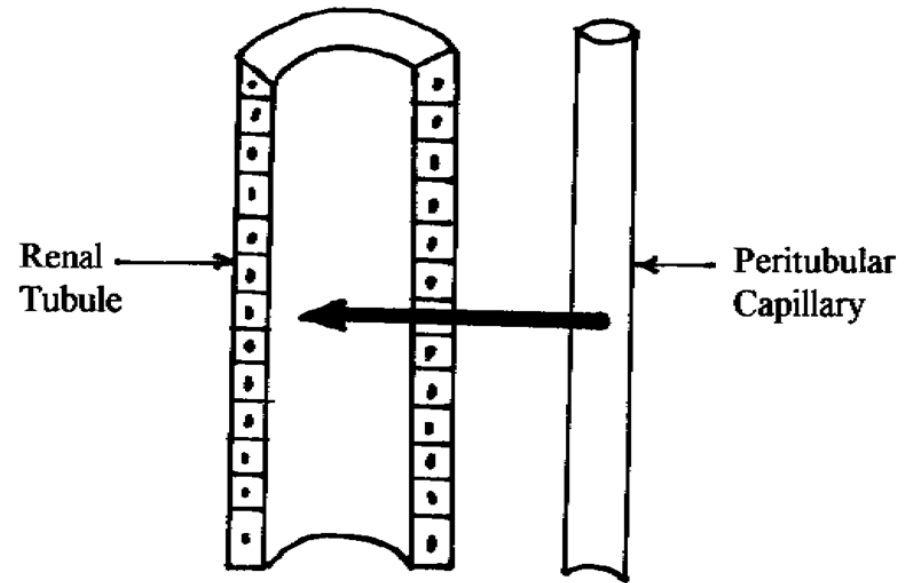
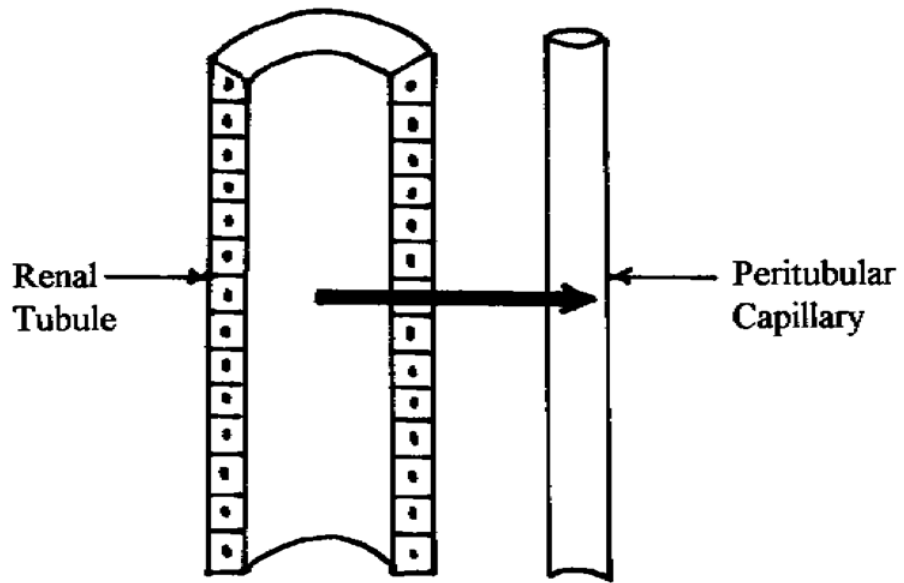


How the kidneys regulate blood volume and chemistry – The basic mechanism
Part 3

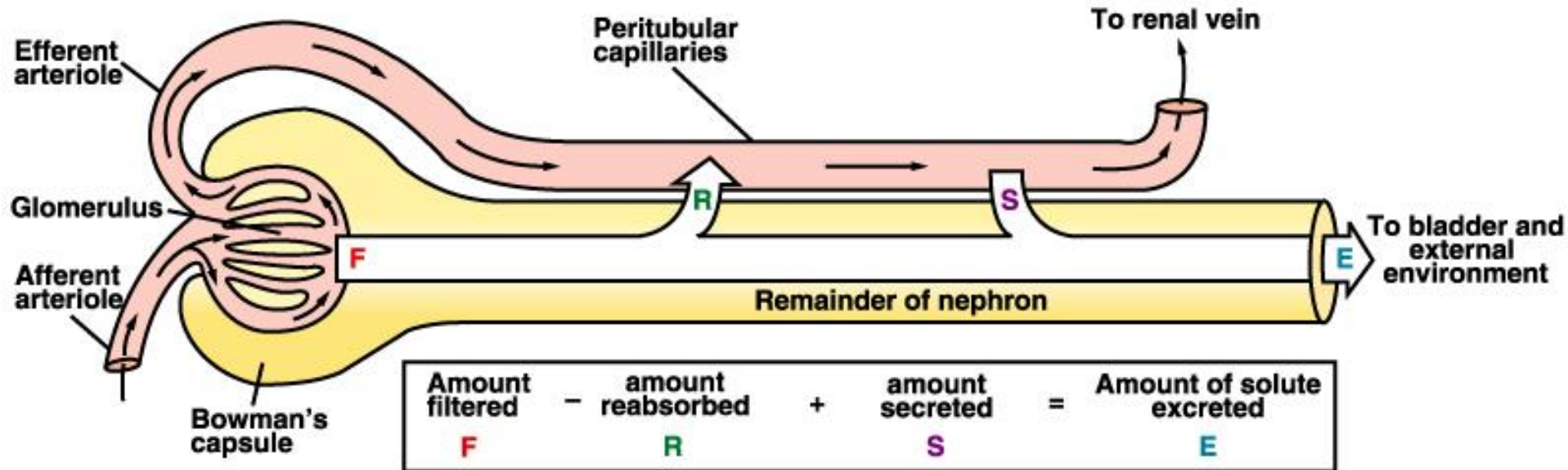
***By regulating how much water we reabsorb,
we regulate blood...***

***By regulating what chemicals we reabsorb and
what we secrete, we regulate blood...***



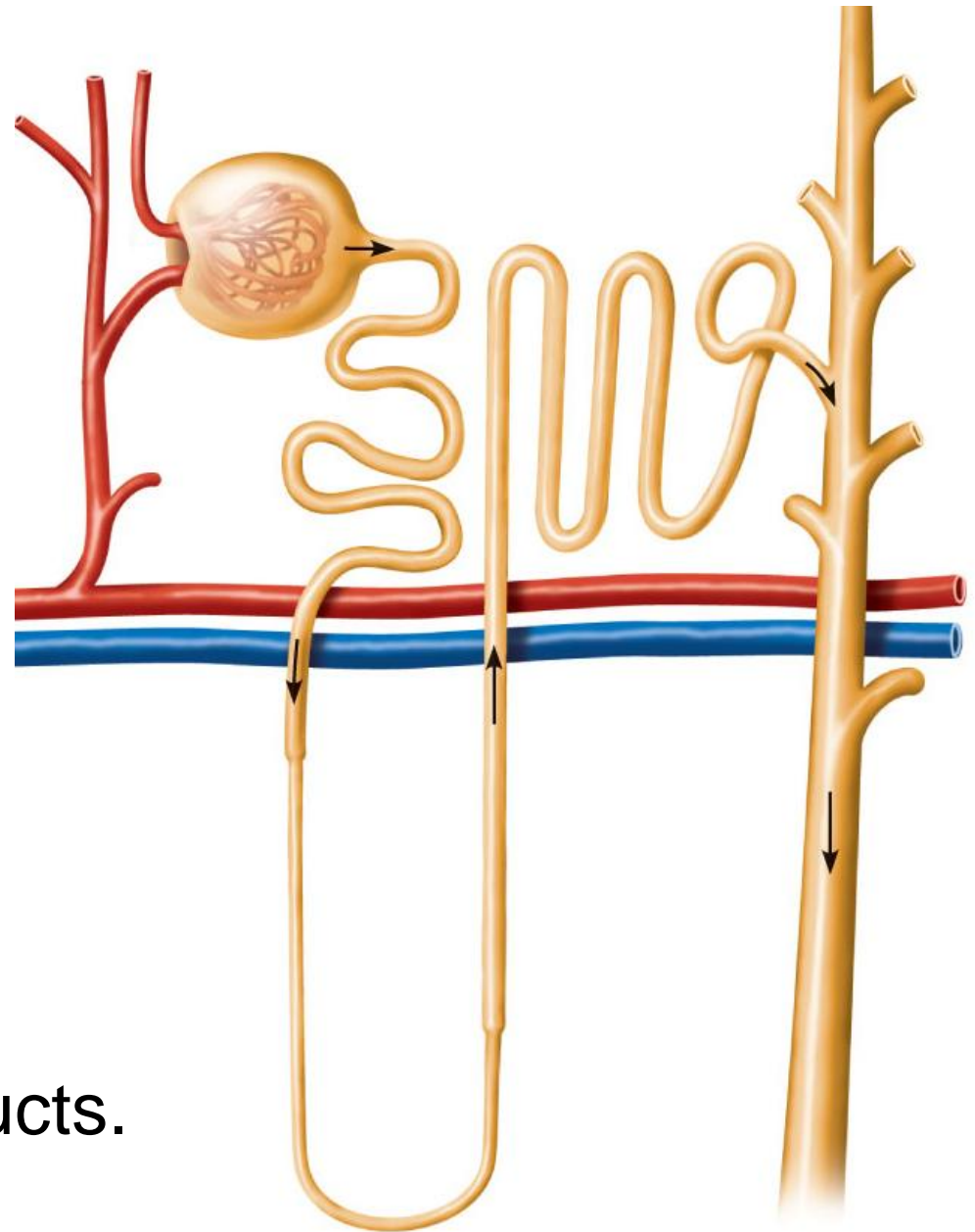


Renal Math



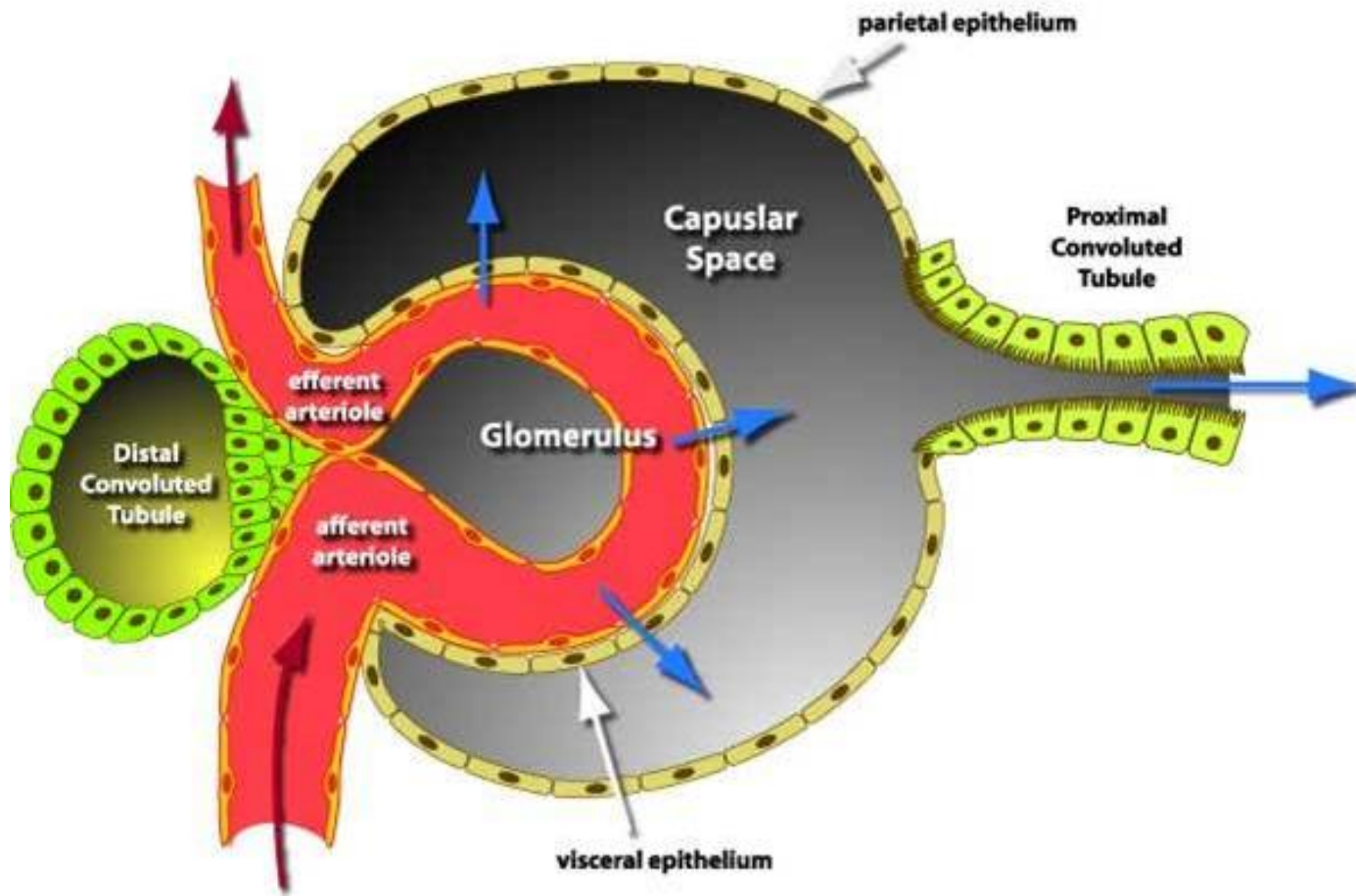
Nephron

- 1 million per.
- 6 parts
 - G
 - GC
 - PCT
 - LH
 - DCT
- Empty into collecting ducts.



Glomerular Capsule

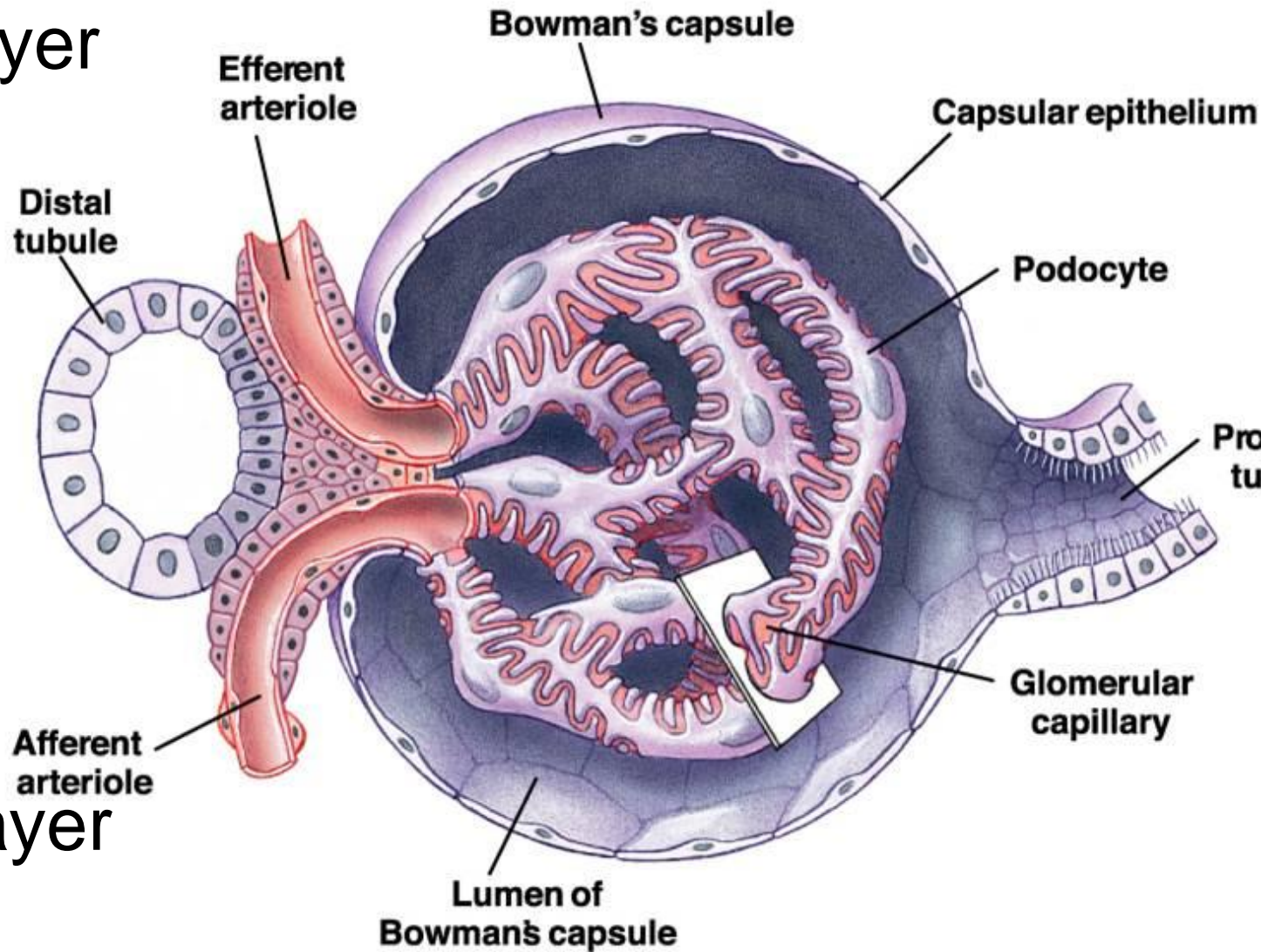
- 2 layers
- Encloses the glomerulus.
- Receives filtered blood (filtrate)



Glomerular Capsule

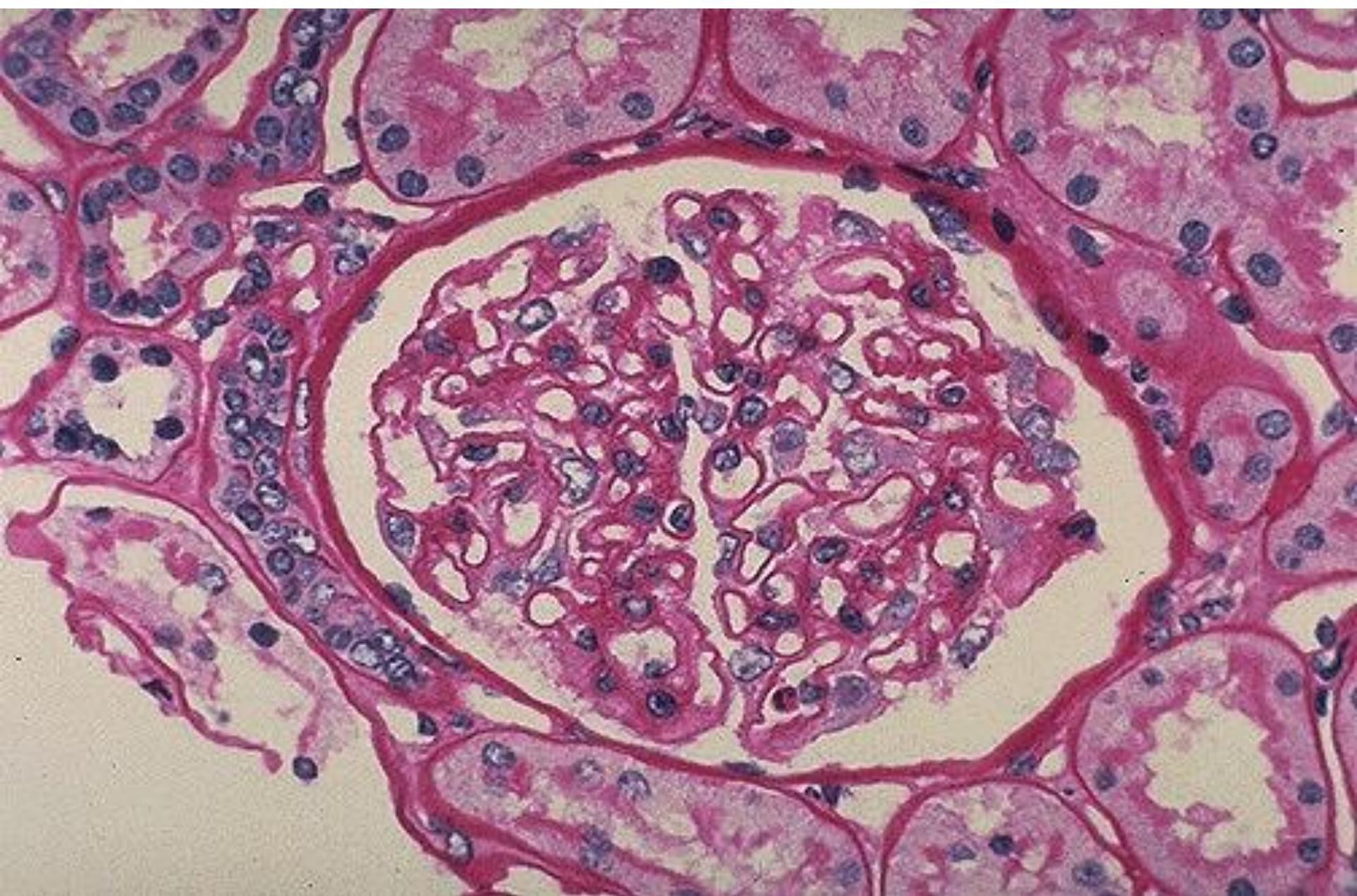
- **Parietal layer**

- Simple squamous
- Contains filtrate.



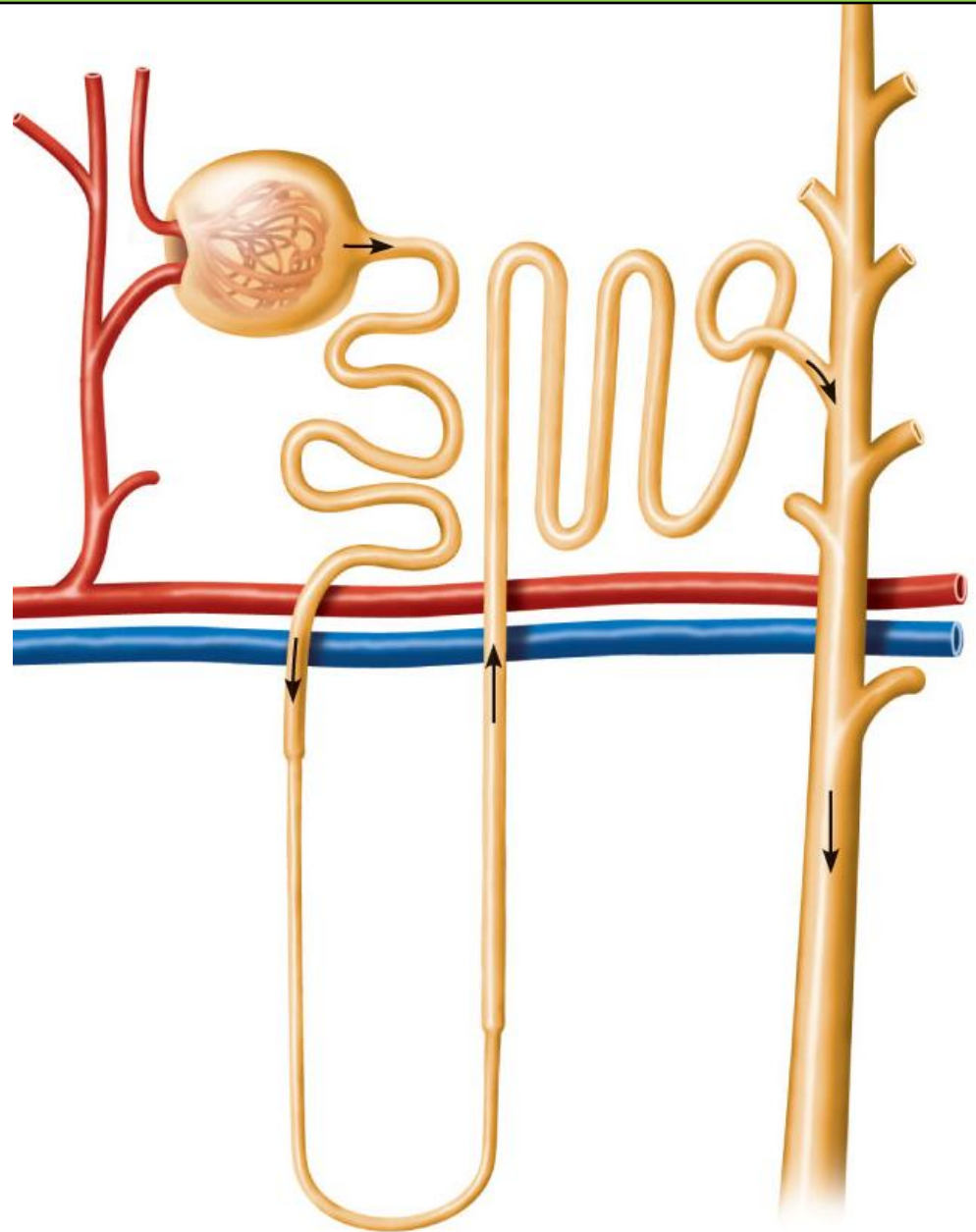
- **Visceral layer**

- Filters
- Made of podocytes.



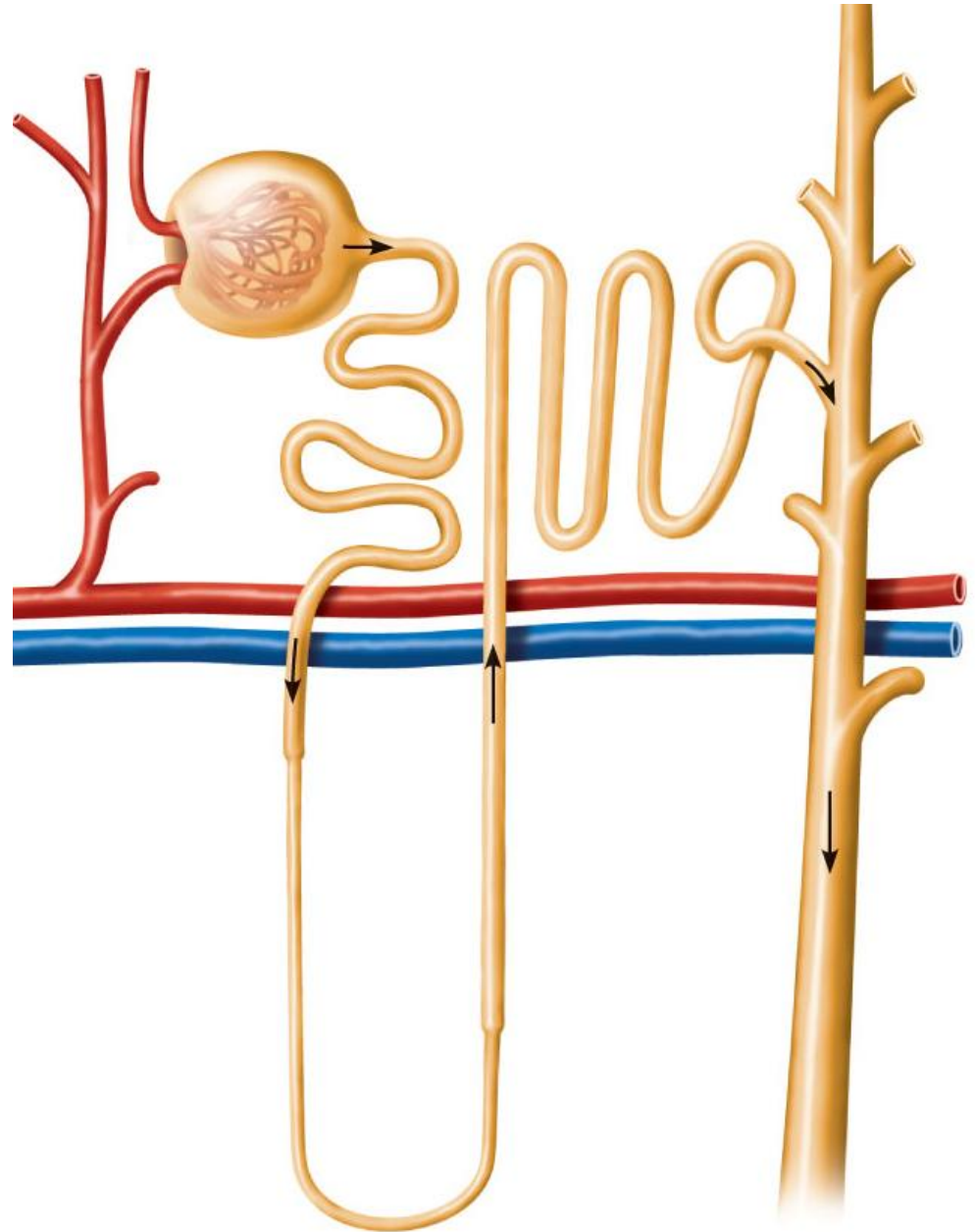
Proximal Convoluted Tubule

- Primary site of...
- Receives filtrate from...
- Very twisty.
- Simple cuboidal.
- Lots of microvilli.
- Lots of mitochondria.



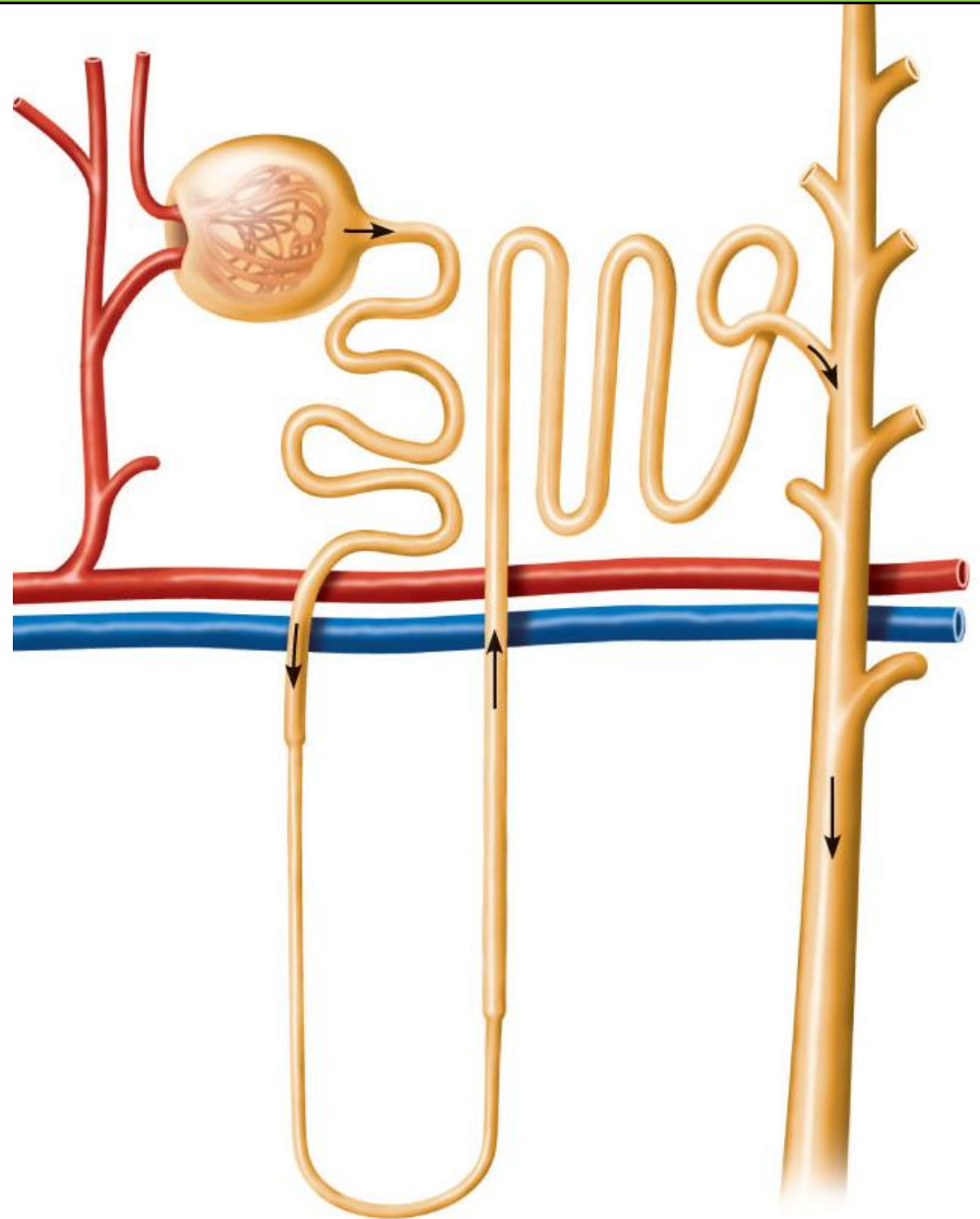
Loop of Henle

- Receives filtrate from...
- 2 regions
 - Descending
 - Simple squamous
 - Ascending
 - Simple cuboidal
- Creates a conc. gradient in the renal medulla



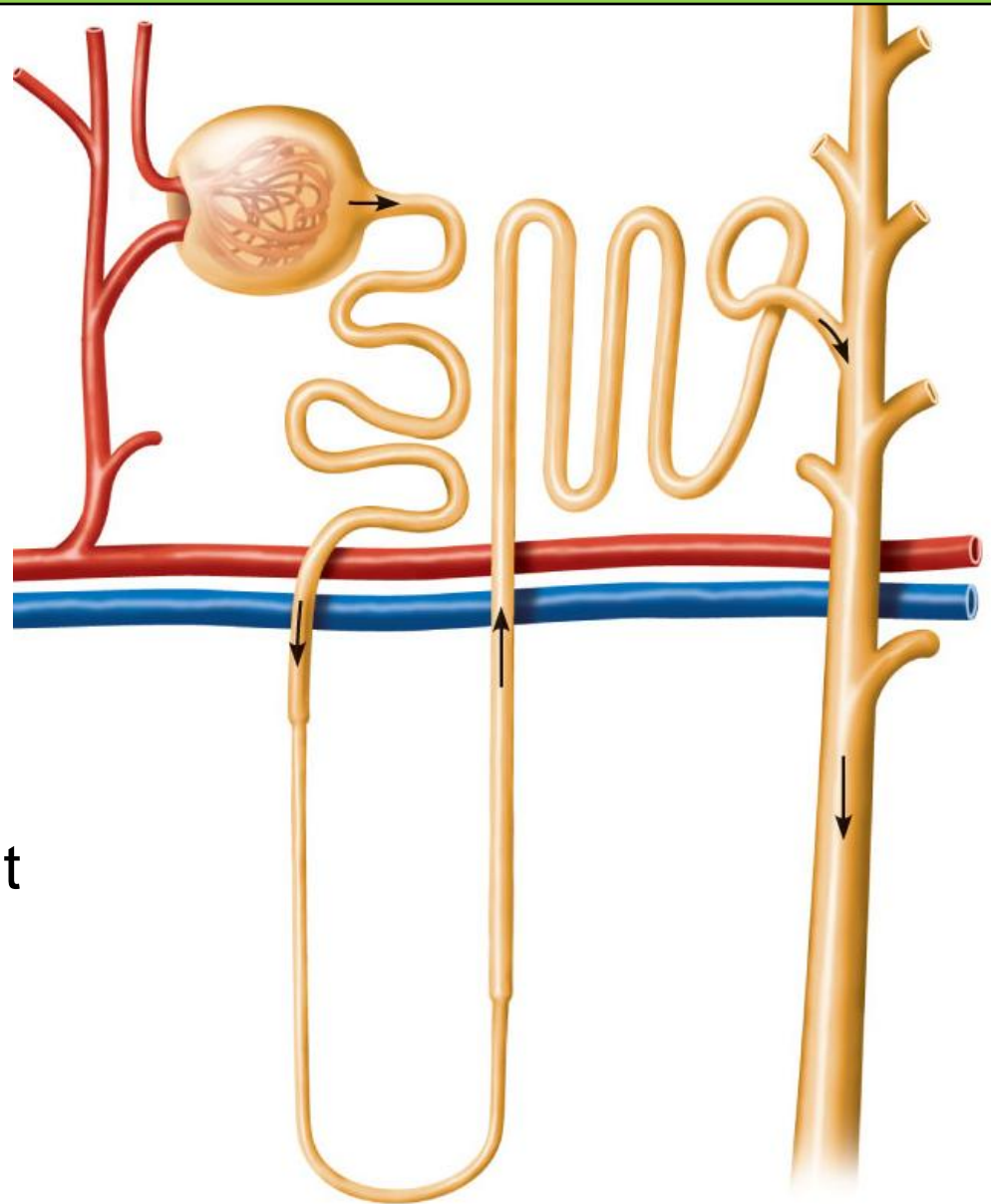
Distal Convoluted Tubule

- Receives filtrate from...
- Site of hormonal adjustment of water & salt secretion/reabsorption.
- Simple cuboidal
- Fewer microvilli and mitochondria.

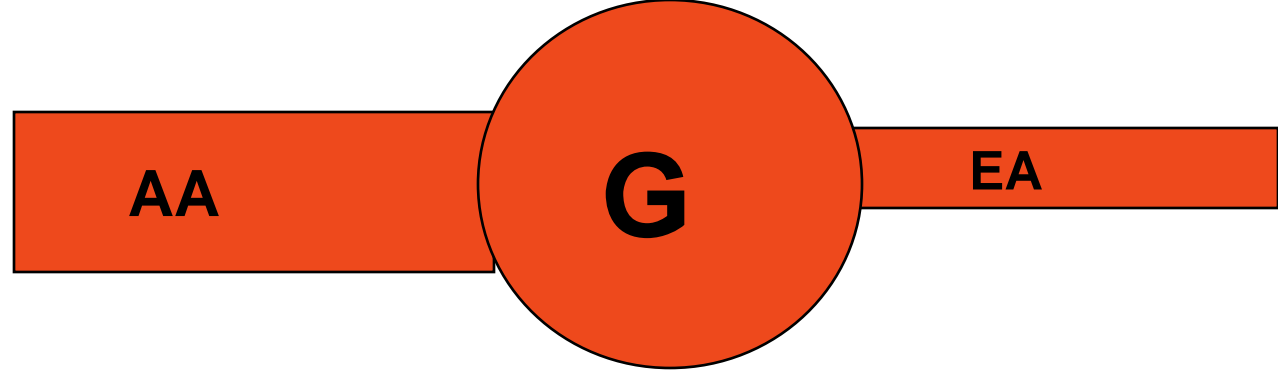


Collecting Duct

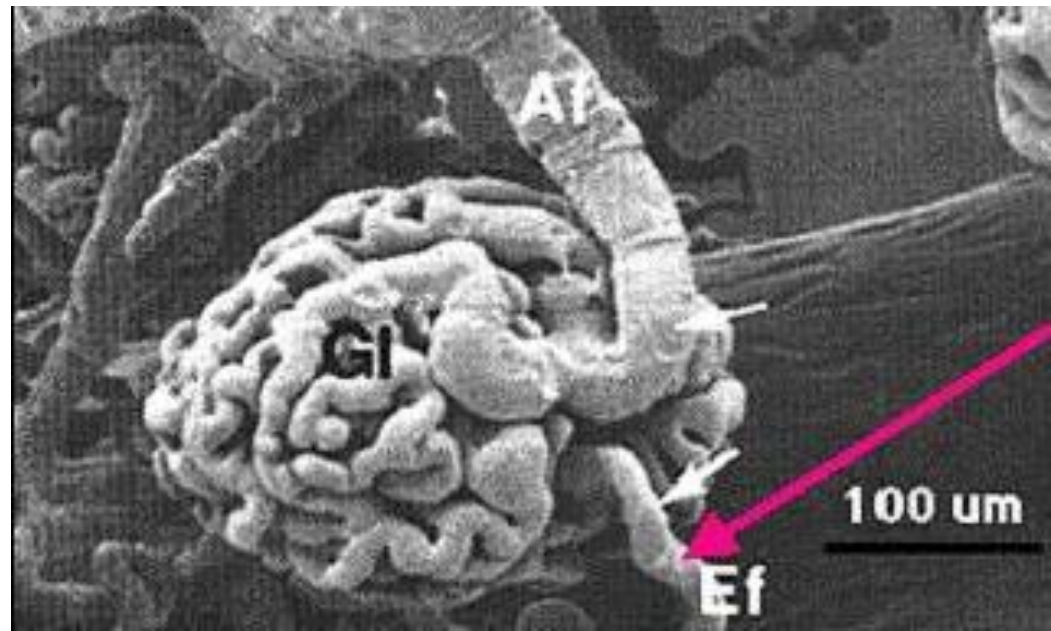
- Receives urine from several...
- Extends through the renal medulla and empties into...
- Simple cuboidal and columnar.
- Site of hormonal adjustment of water reabsorption.



Glomerulus

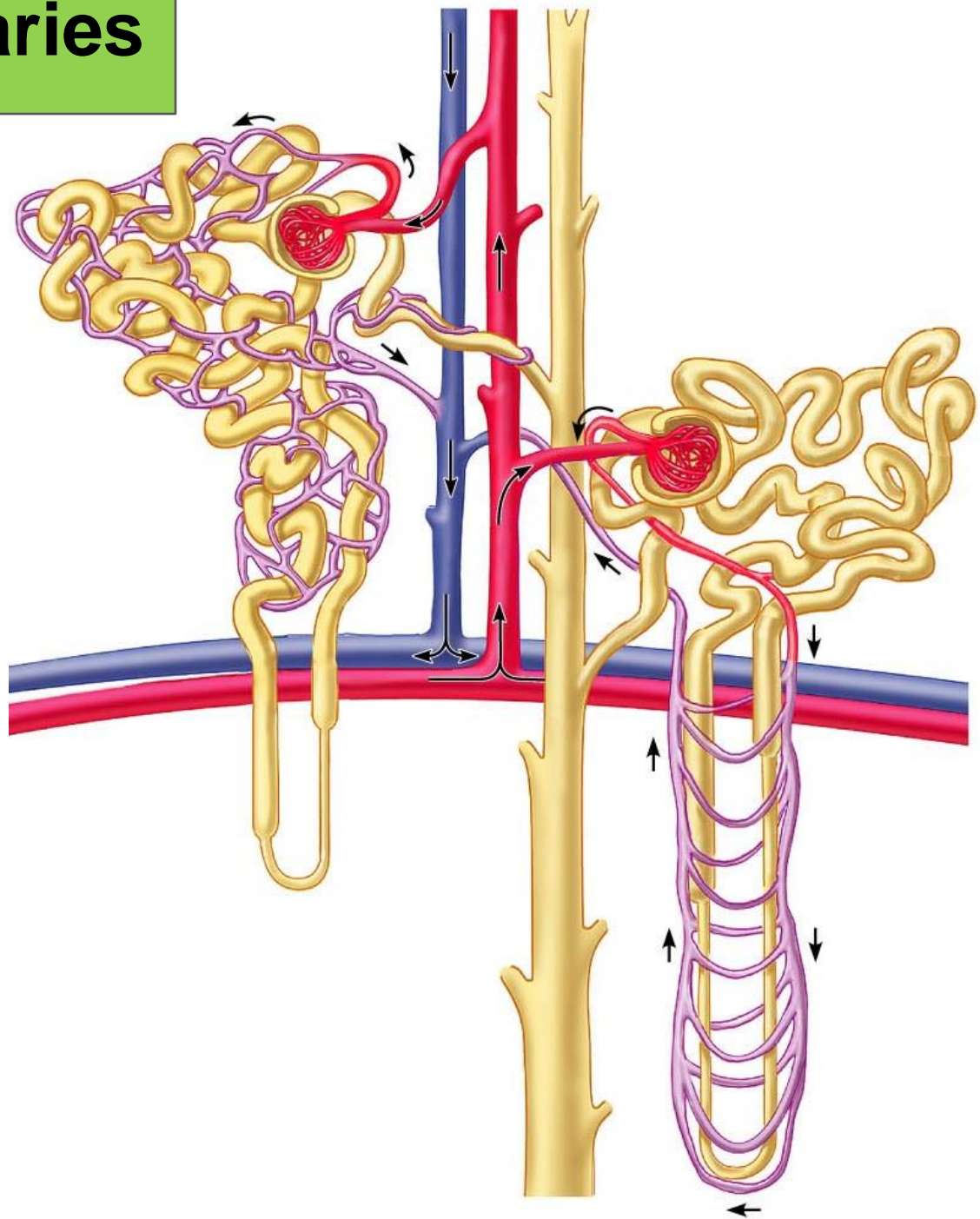


- Site of...
- *How are glomerular capillaries different?*
- High BP
 - *What creates it?*
 - *Why is this important?*



Peritubular Capillaries

- *How'd they get their name?*
- *They receive blood from the...*
- *What happens at them?*
- *What's good about their BP and their OP?*



Vasa Recta

- *How'd they get their name?*
- *They receive blood from the...*
- *What happens at them?*

