**Functions**

**Main Functions:**
- Production of urine
- Filtration of blood
- Reabsorption of filtered substances (Adjusting salt of water excretion to maintain a constant fluid volume and osmolarity)
- Excretion of metabolic waste, such as urea (from protein metabolism), nitrogen, CO₂
- Water and acid-base balance

**Endocrine Functions**
- Kidney is an endocrine organ

**Endocrine functions of the kidney**

**Calcitriol:** Stimulates Ca²⁺ binding protein, sends it to the basal lamina; activates ARF transporter; releases Ca²⁺ to send to blood

**Erythropoietin (erythropoietin):** Essential for erythropoiesis

**Flavin hormone:** Activates angiotensin

**Functional segments of the nephron**

Trace the flow of blood through the kidney

- **Abdominal aorta**
  - Renal a.
  - Interlobar a.
  - Arcuate a.
  - Interlobular a.

- Afferent arterioles
- Renal capsule