

Organs with Endocrine Functions



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Organs with endocrine functions

- Pineal gland.
- Thymus gland.
- Kidney.
- Heart.
- GIT.

Pineal Gland

- It secretes melatonin hormone.

Functions:

1- It inhibits the onset of puberty by ↓ of gonadotropin releasing hormone (GRH).

2-It has a role in circadian rhythm (secreted in dark).

3- Sleep. Melatonin has a role in induction of sleep.

4-It has antioxidant effect.

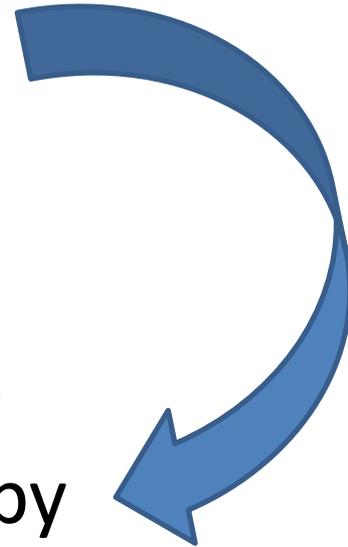
Thymus Gland

Location :

- It is situated in front of trachea below the thyroid gland.
- It is small in new born infants and gradually enlarges till puberty and then decreases in size.
- It secrete 2 hormones: thymosin & *thymine*, hormones.

Functions:

- 1- It is site of development of T-lymphocyte.
- 2- It suppresses the neuromuscular activity by inhibiting the acetylcholine release.



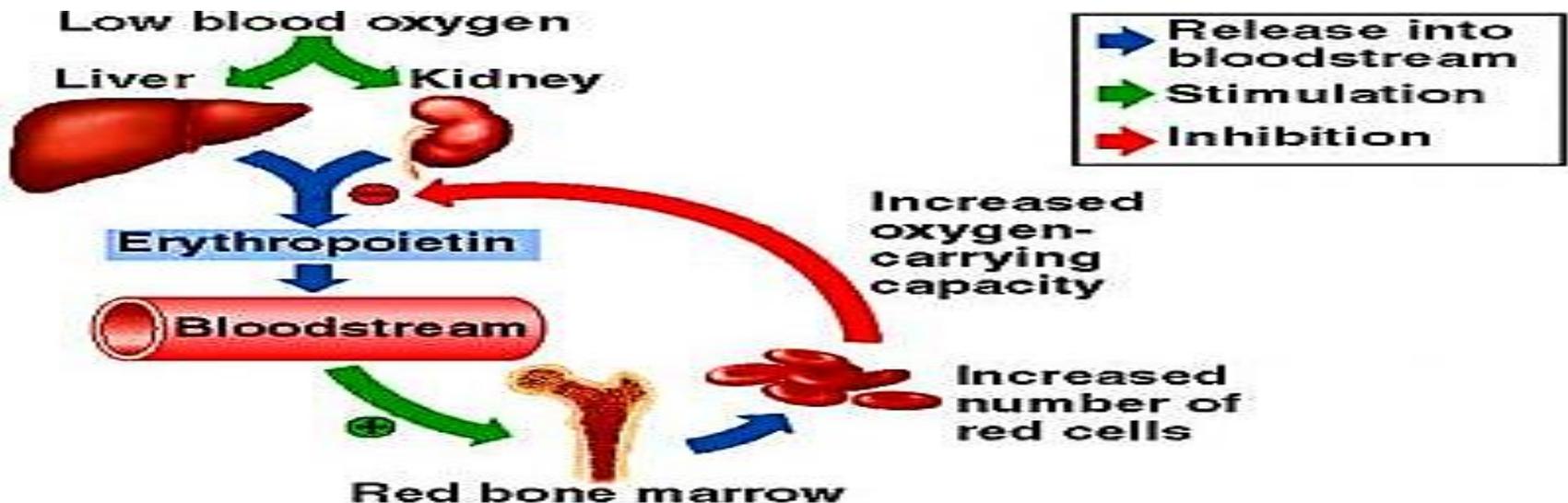
Kidney

A-Secretion of the Erythropoietin Hormone:

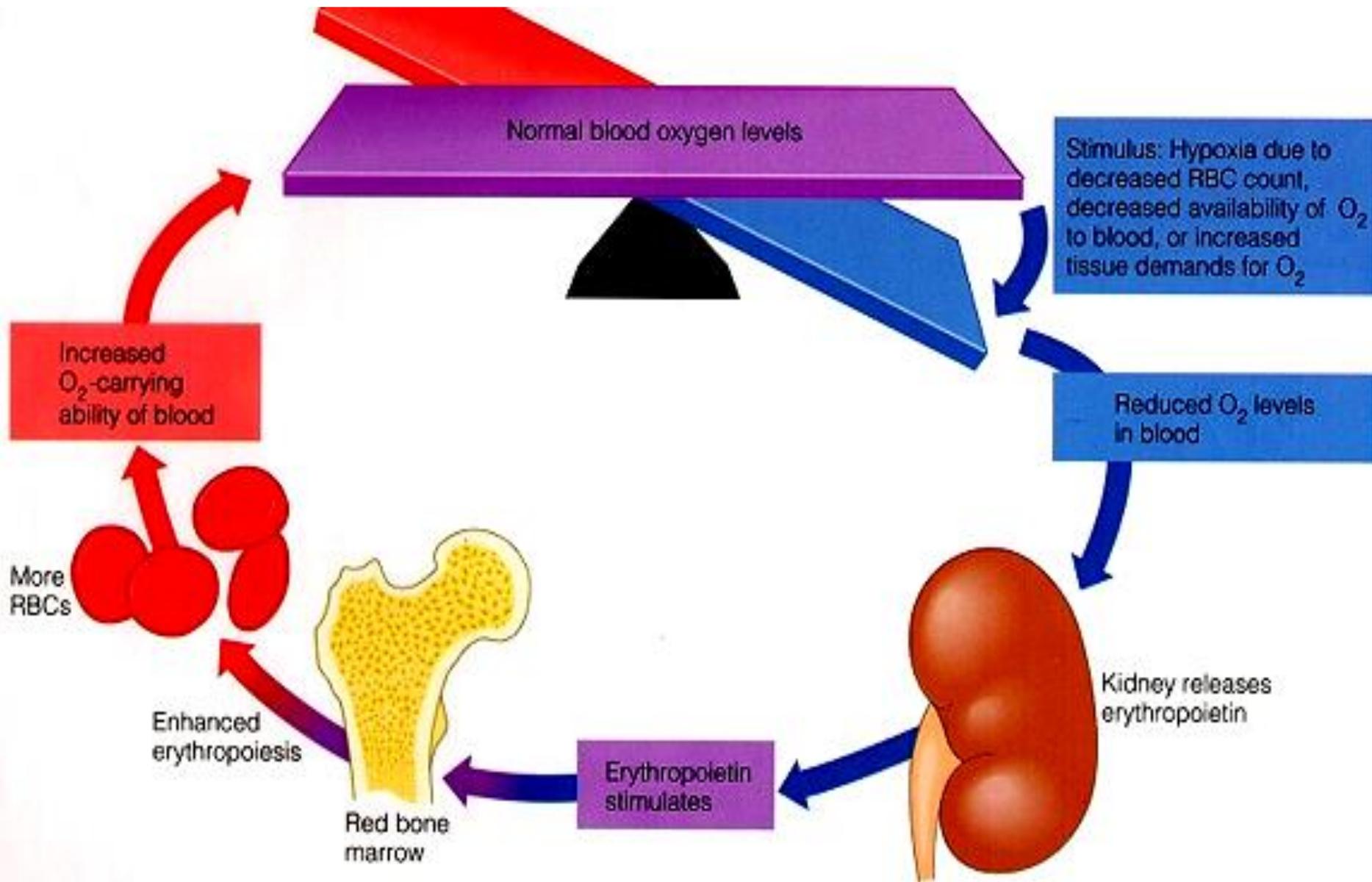
-Site of secretion: It is secreted 85 % from the kidney and about 15 % from the liver.

-Stimulus: It is stimulated by: Hypoxia, androgen, anemia and alkalosis.

-Function: production of R.B.Cs..



A-Secretion of the Erythropoietin Hormone



B-Secretion of Prostaglandin Hormones

There are 2 types of prostaglandin (PG), and they act **locally** in the kidney:

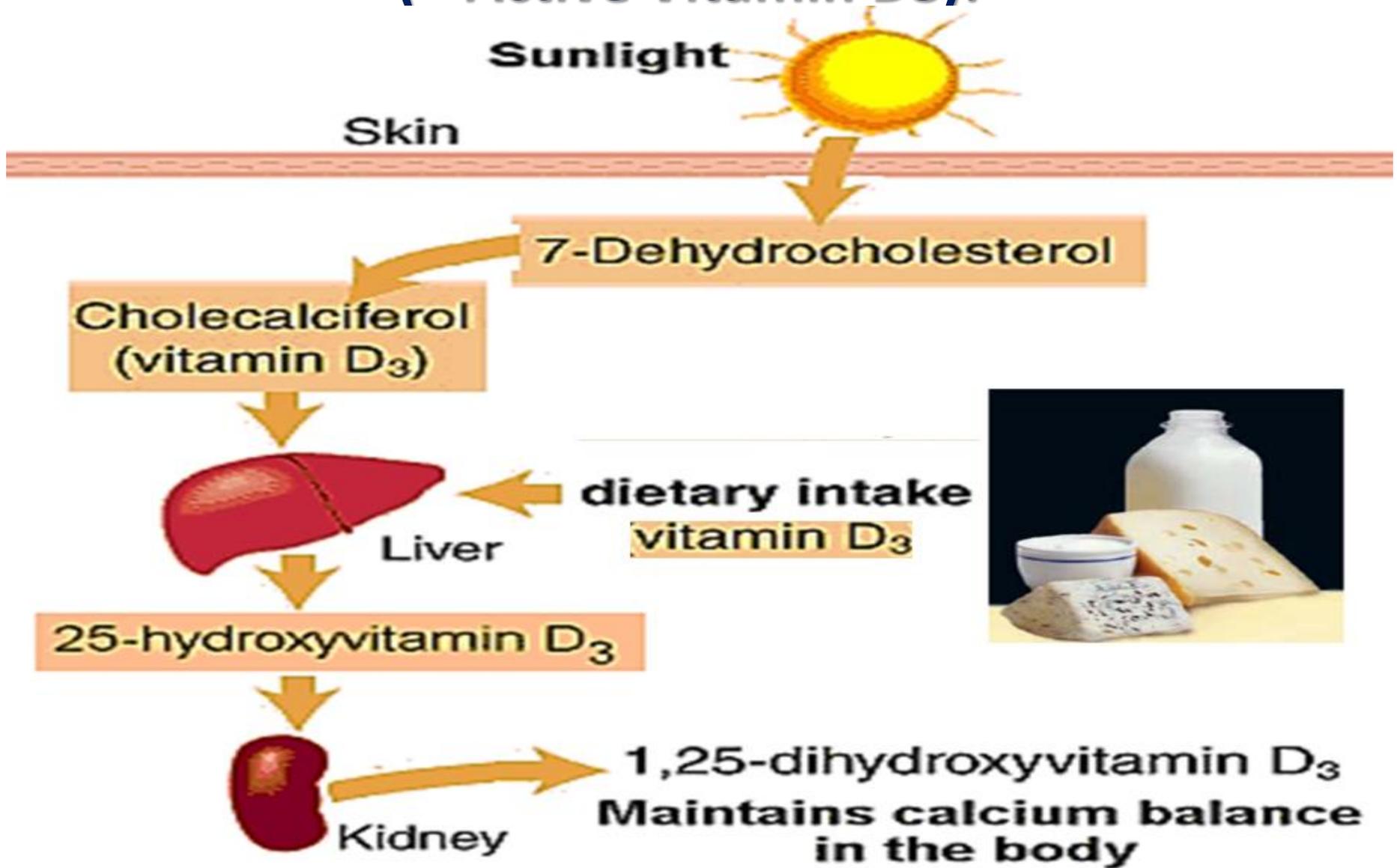
1-PG I₂ (= prostacyclin):

causes vasodilatation and play role in the autoregulation of GFR & RBF and prevent renal damage.

2-PG E₂: causes vasoconstriction.

C-Formation of 1, 25 Dihydroxycholecalciferol

(= Active Vitamin D3):

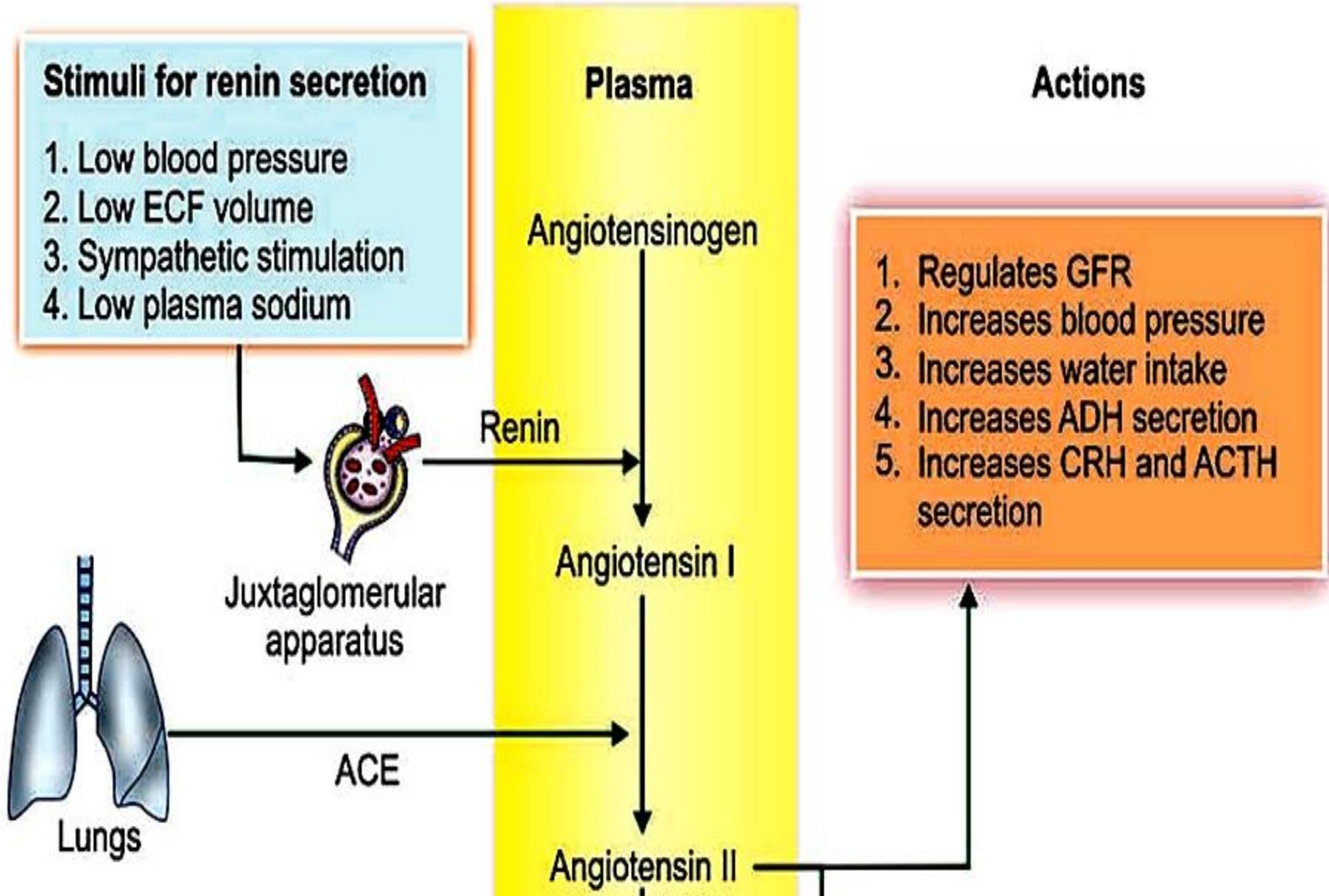


C-Formation of 1, 25 Dihydroxycholecalciferol (= Active Vitamin D3):

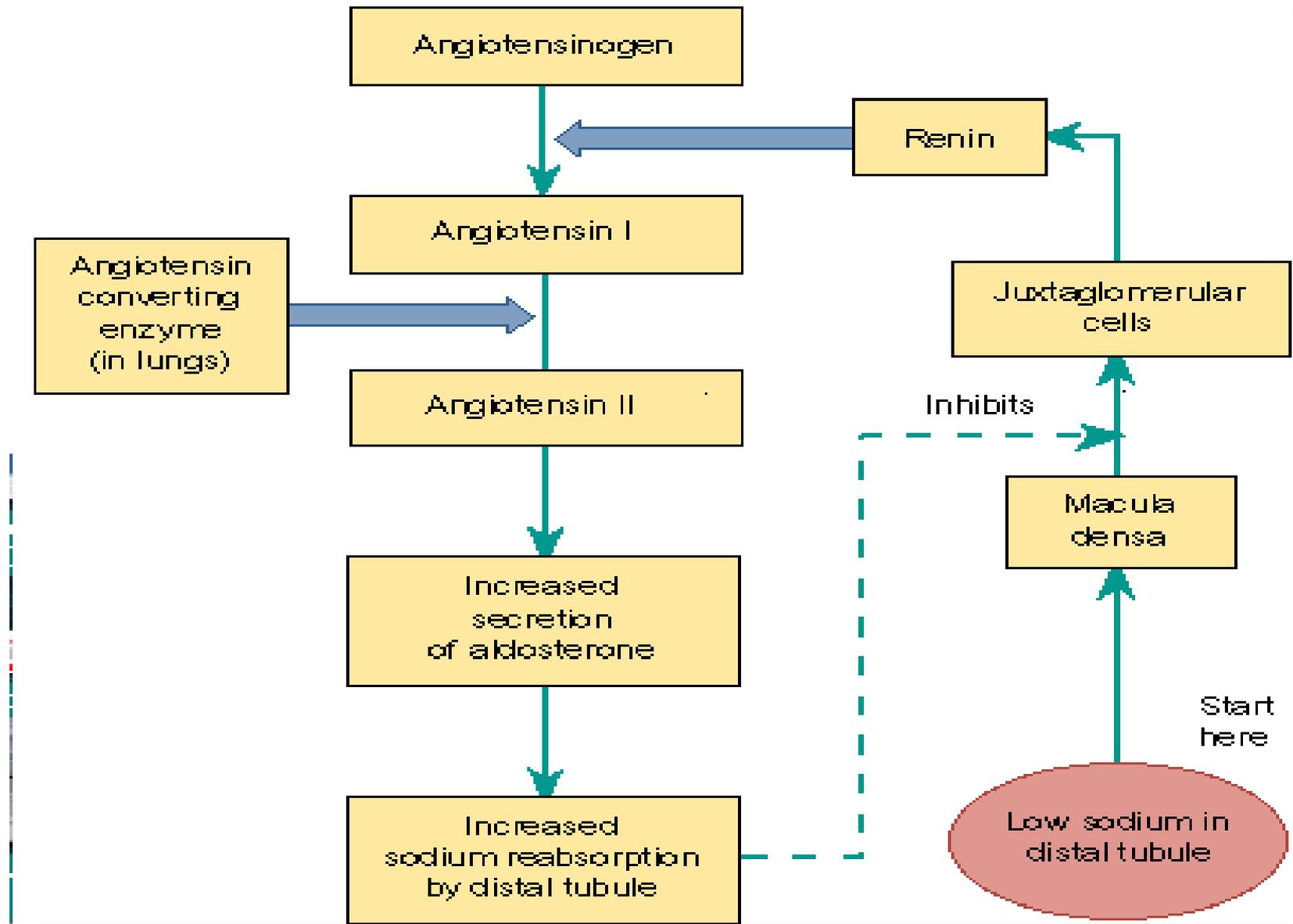
-Functions:

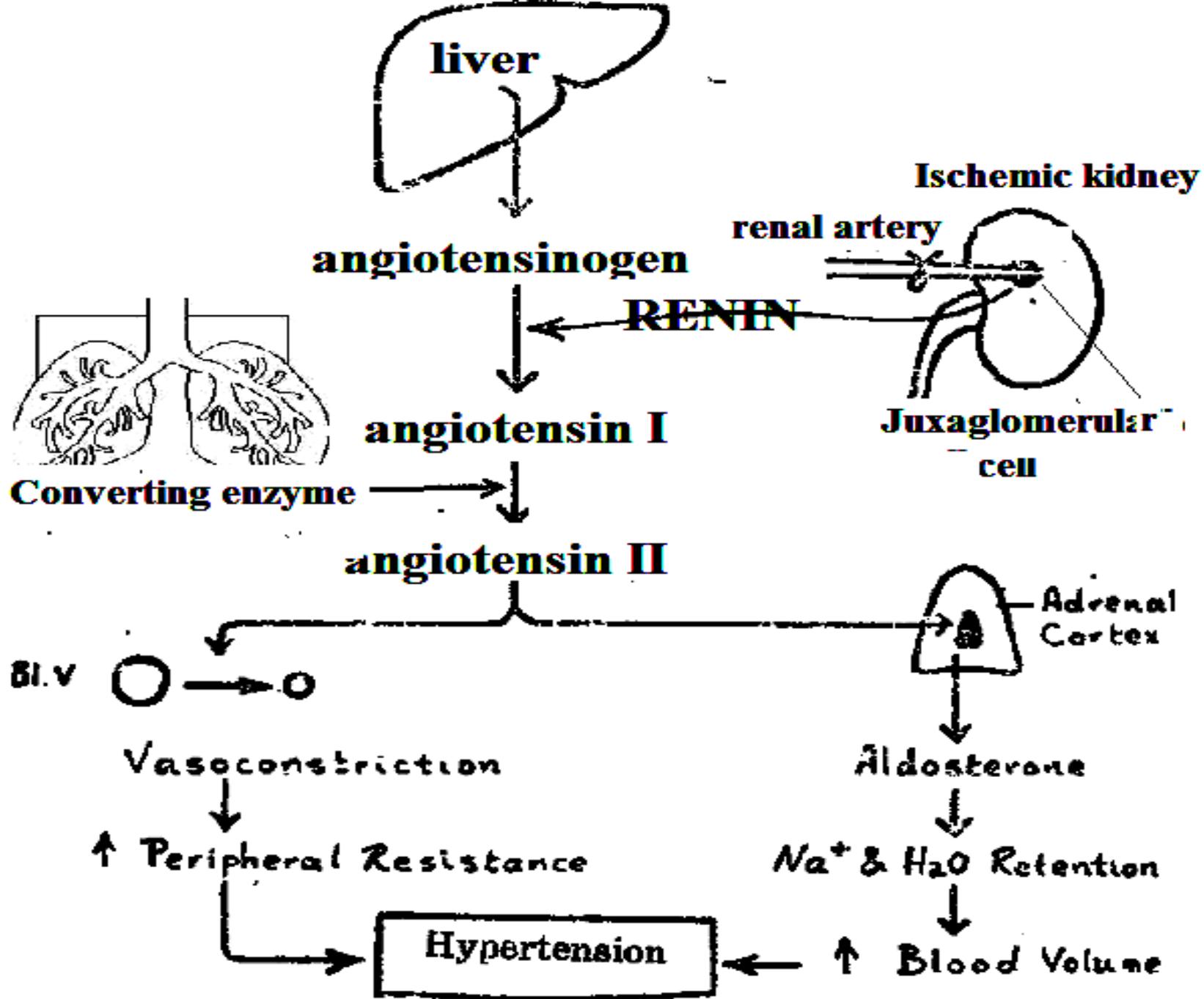
- 1-On intestine & On kidney:** : It increases the absorption of calcium and phosphorus.
- 2-On bone:** It increases the bone formation and bone mineralization. So, chronic renal failure is associated with bone fragility.
- 3-On parathyroid gland:** It inhibits the synthesis of parathormone.

D-Secretion of Renin Hormone



Renin- Angiotensin System:





Heart

-Atrial natriuretic peptide

- Site of secretion: from atria of the heart.

- Stimulus: overstretch of the atria by excessive blood volume.

-Function:

1. It increases the sodium excretion by kidneys. by the collecting ducts (which help to compensate for the excess blood volume).
- 2- It lowers the blood pressure by: VD.

GIT

1-Gastrin Hormone:

- 1-Increase of gastric secretion.
- 2-Increase of gastric motility.
- 3- Increased small and large intestinal motility.

2-CCK-PZ Hormone:

- 1- Pancreatic juice secretion (small in volume, poor in alkali and rich in enzyme).
- 2-Stimulation of evacuation of gall bladder
- 3-Increase of intestinal motility.
- 4-Decrease of gastric secretion and motility.

GIT

3-Secretin Hormone:

- 1- Stimulation of pancreatic duct secretion (H_2O and HCO_3).
- 2- Stimulation of mucus secretion from duodenum.
- 4-Increase of intestinal motility.
- 5-Decrease of gastric secretion and motility.