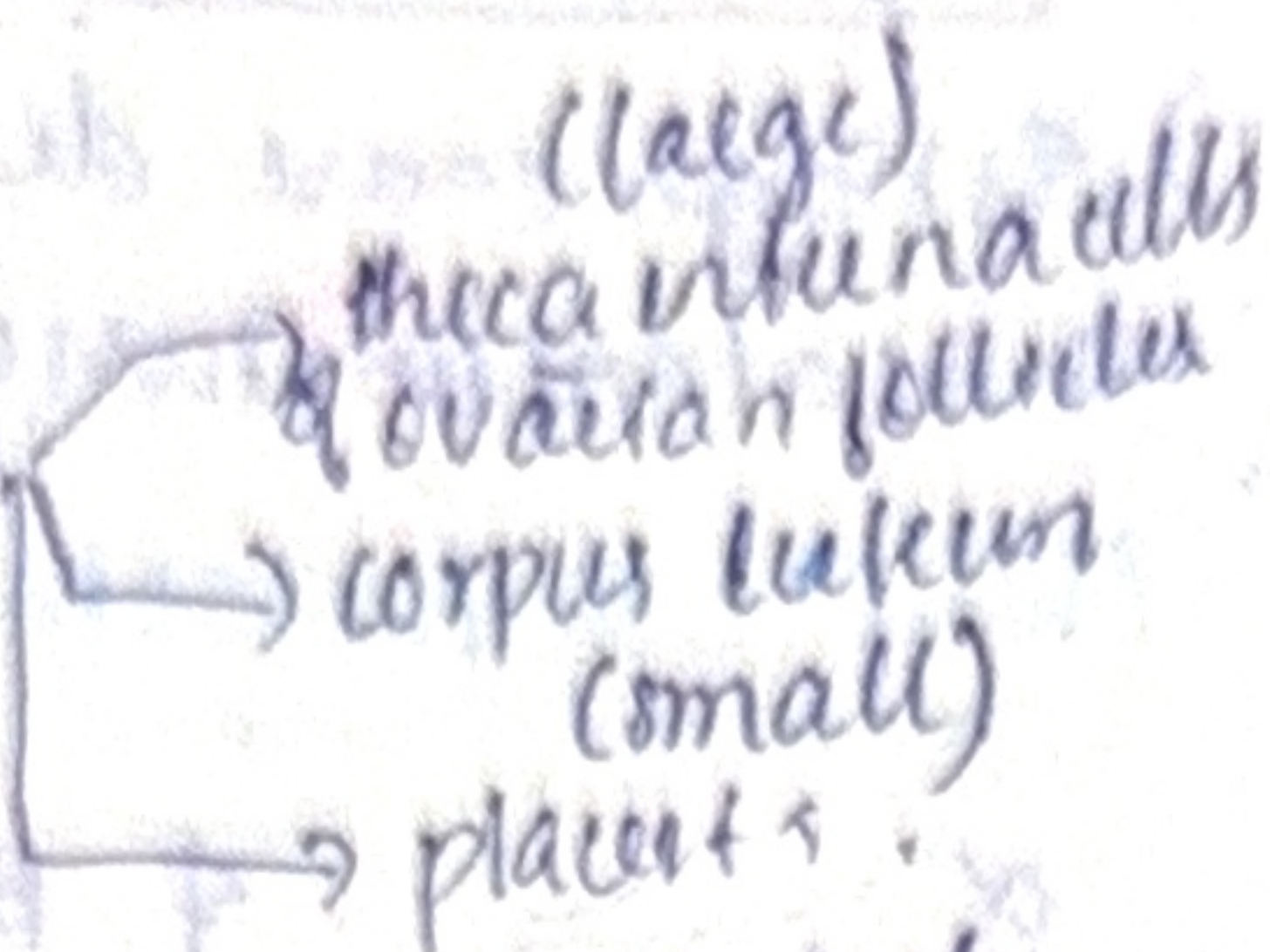


OVARIAN HORMONES:

ESTROGEN:

source of secretion



→ derived from androgens, particularly.

Androstenedione secreted theca interna cells

↓ migrated to theca cells

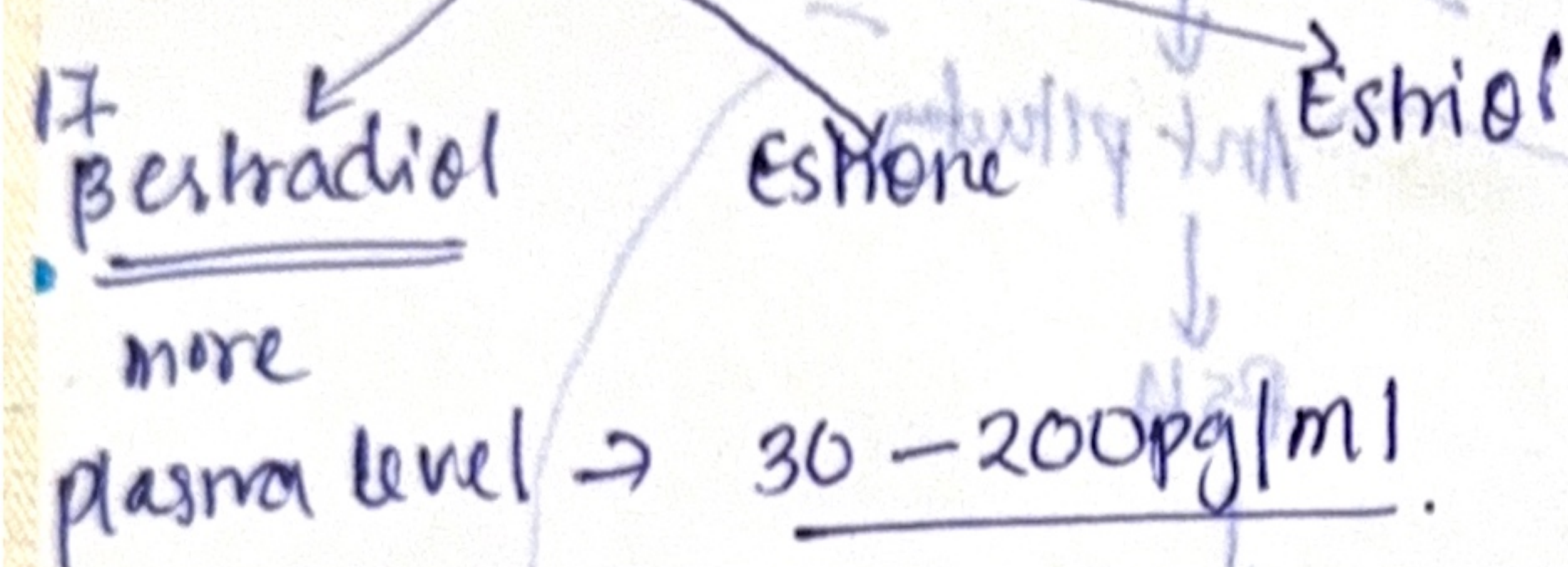
↓ where it is converted into

estrogen $\xrightarrow{\text{by enzyme Aromatase}}$

→ A small quantity by Adrenal cortex.

Pregnant → by Placenta.

DIFFERENT FORMS: 3 forms in plasma.



SYNTHESIS IS

Pathway for synthesis of estrogen.

Acetate $\rightarrow$ cholesterol $\rightarrow$ Pregnenolone

↓
estrogen $\leftarrow$ Testosterone $\leftarrow$ Progesterone

During syn of estrogen progesterone & testosterone are synthesized 1st, then before leaving the ovaries, almost all the testosterone & much of progesterone converted to estrogen.

TRANSPORT: by plasma protein - Albumin.

The binding with protein is loose so it will be released easily.

METABOLISM: → degraded in liver.

Uterine estradiol $\rightarrow$ estrogen (estriol) (InActive)

FUNCTION OF ESTROGEN:

To promote cellular proliferation and tissue growth in sexual organs of tissues.

EFFECT ON UTERUS:

- ↑ the blood supply to endometrium.
- Deposition of glycogen & fats in endometrium.
- Enlargement of uterus to double due to proliferation of endometrial cells.
- ↑ in the spontaneous activity of the uterine muscle & their sensitivity to oxytocin.
- ↑ in the contractility of the uterine muscle.
- Proliferation & dilation of blood vessels in endometrium.

EFFECT ON OVARIAN FOLLICLES:

⇒ It promotes growth of ovarian follicles by ↑ the proliferation of follicular cells.

EFFECT ON FALLOPIAN TUBE:

- ↑ the activity of cilia, so the movement of the ovum facilitates.
- Enhances the proliferation of glandular tissue in fallopian tube.
- ↑ the no and size of the epithelial cells.

EFFECT ON VAGINA:

⇒ Reduce the pH of vagina - making it more acidic.

- ⇒ the layer of vaginal epithelium by proliferation
- ⇒ change the epithelium from cuboidal into stratified type. because it is more resistant to trauma & infection.

EFFECT ON SECONDARY SEXUAL CHARACTER female

- (i) Hair distribution - on pubic Area
- (ii) skin → become soft & smooth.
- (iii) Body shape → shoulder become narrower, hip borders. → fat deposition.
- (iv) pelvis → Broadening of pelvis with ↑ transverse diameter.
- (v) voice → high pitch voice.

EFFECT ON BREAST:

- (i) development of stromal tissue of breast
 - (ii) Growth of an extensive ductile system
 - (iii) deposition of fat in ductile system.
- ↓
- prepare the breast for lactation.

EFFECT ON BONES:

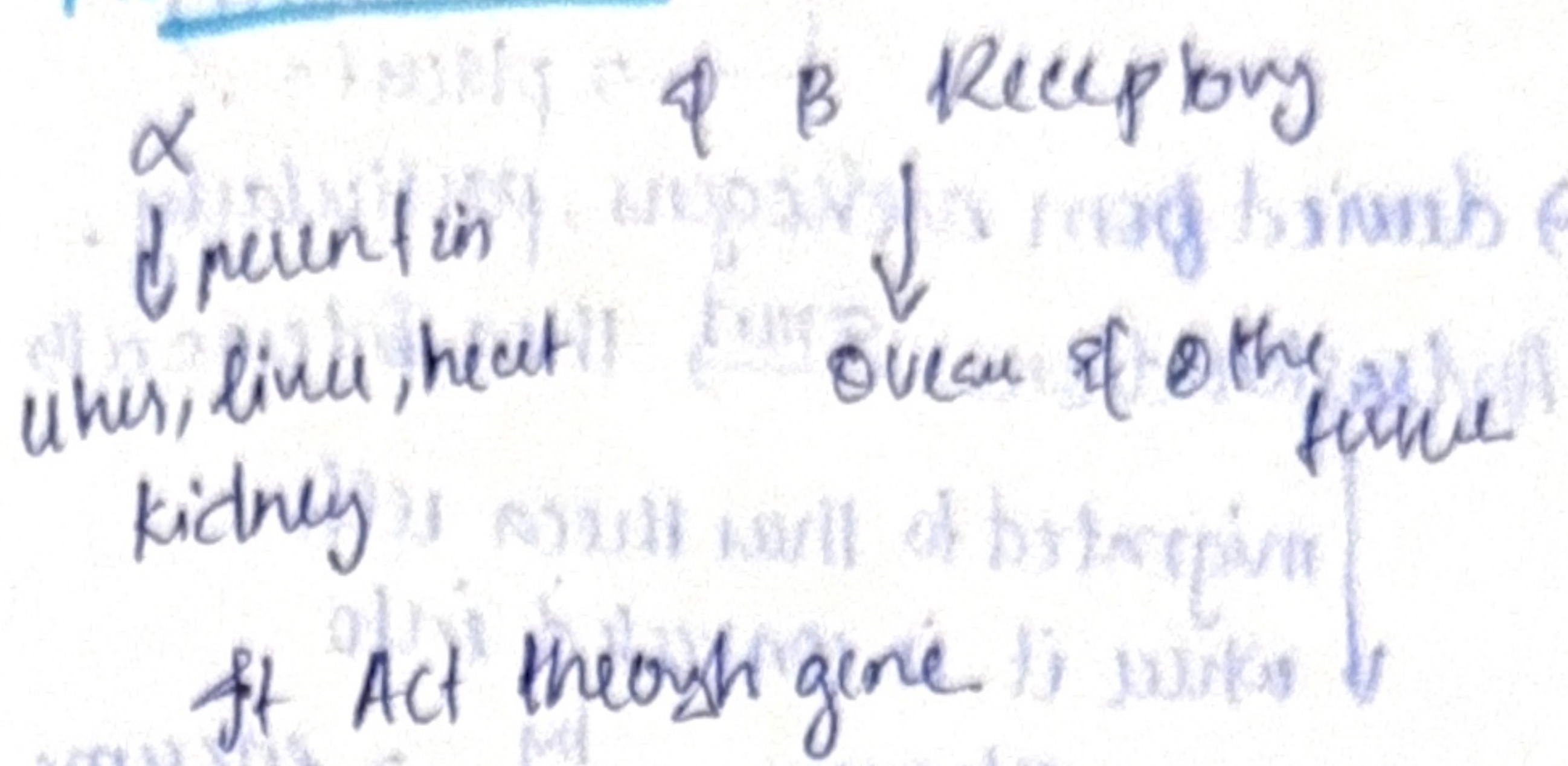
- ↑ the osteoblastic Activity.
- ↑ GR.
- ⇒ early fusion of the epiphysis with the shaft.
- ⇒ In old age → lead to osteoporosis

EFFECT ON METABOLISM:

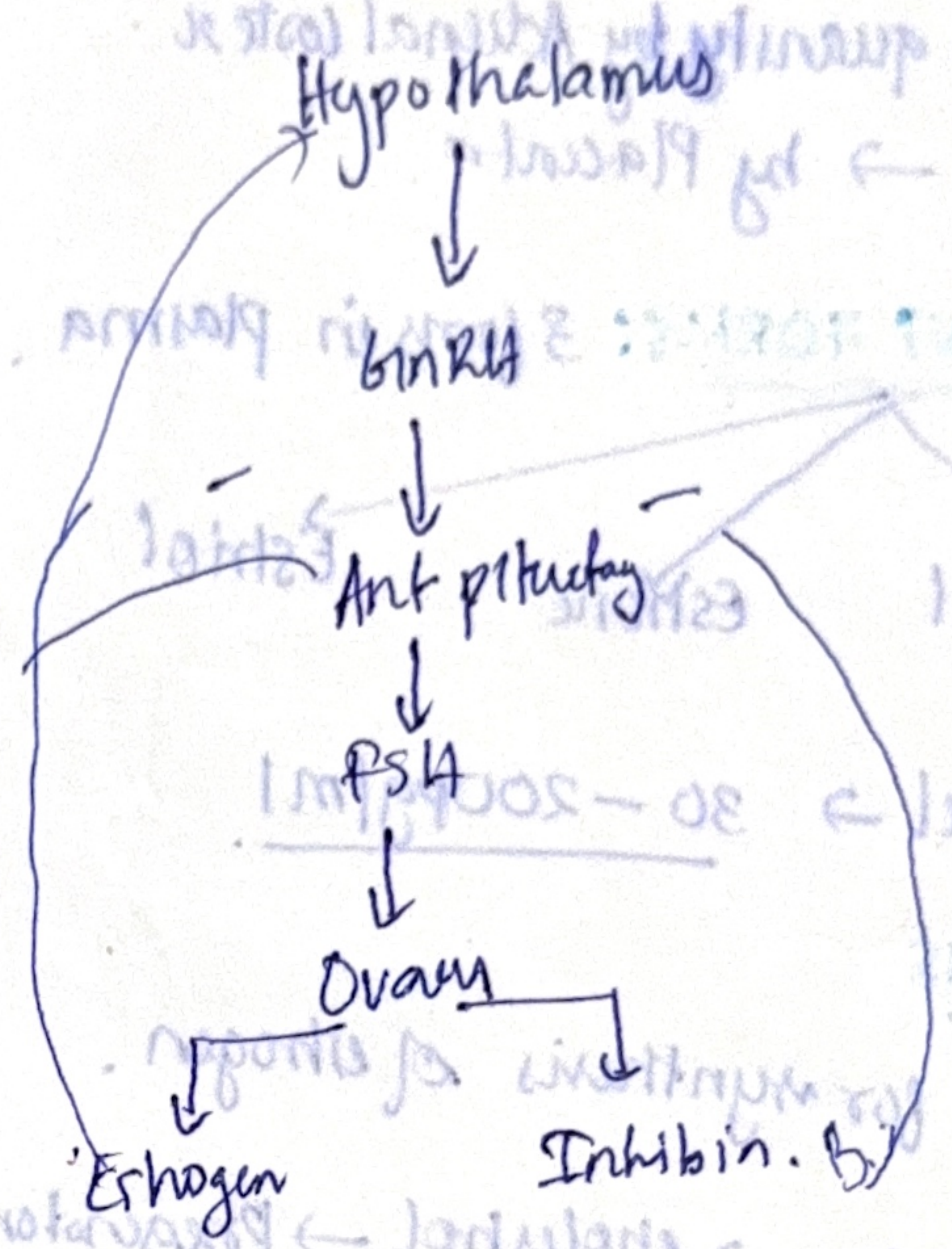
- (i) On protein metabolism.
- ⇒ Induce the Anabolism of proteins.
- ⇒ ↑ Total Body protein.

On fat metabolism
 ⇒ estrogen cause deposition of fat in subcutaneous tissue.

MODE OF ACTION



REGULATION



- ⇒ Estrogen Inhibit secretion of FSH & GnRH by -ve feed back mechanism.
- ⇒ Inhibin secreted by granulosa cell also ↓ estrogen by inhibiting FSH & GnRH.