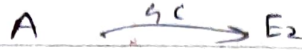


ESTROGEN SYNTHESIS

secreted in least concⁿ i.e. in picogram

Granulosa cells don't have any machinery to produce steroid from cholesterol directly

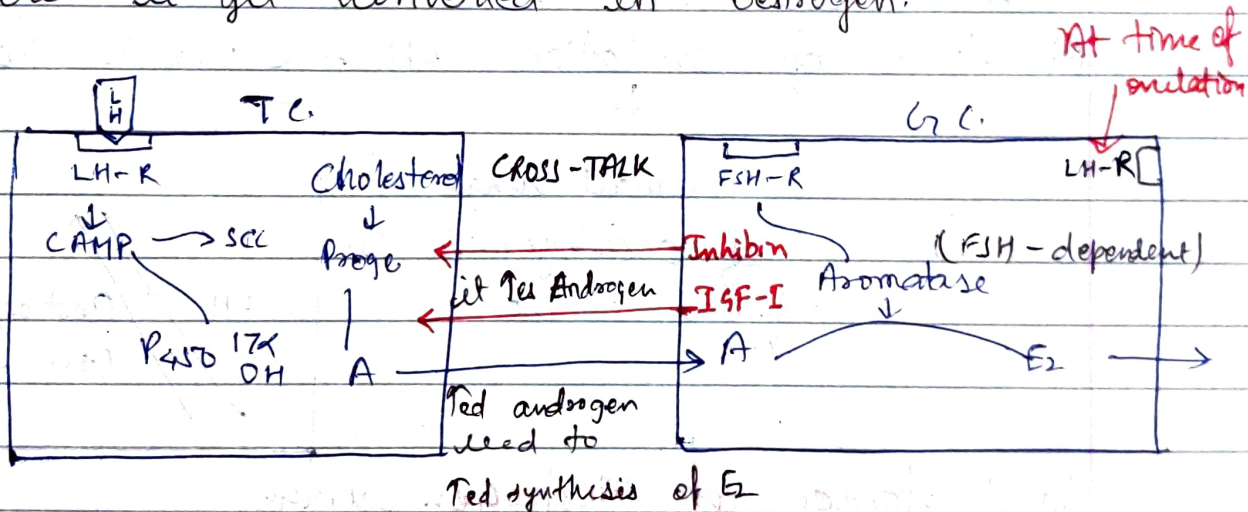
- No single cell is capable of producing oestrogen starting from cholesterol but all take part in process.



2 cell theory of oestrogen

2 cell types are required to produce oestrogen

- In postmenopausal women, androgen is produced from ad. gland goes to fat cells where it is get converted in oestrogen.
- Some hypothalamic nuclei convert androgen in oestrogen.
- In placenta^{also}, androgen comes from ad. gland where it get converted in oestrogen.



Only these G.Cs which have FSH-R, are capable producing oestrogen

Two cell or two gonadotrophic hypothesis of G.Cs.

As follicle grows, demand for E₂ is higher.

FSH- Responsive genes:

↓
Aromatase
LH-R
Inhibin
IGF-I

follicle
growth



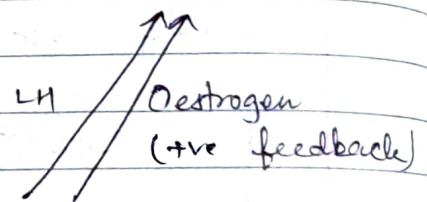
Why is cross-talk? → ↑ E₂ production.

CROSS-TALK is because of desire of non-accumulation of androgen as androgen has inhibitory effect on ovary. This cross-talk allows ↑ androgen prodⁿ only when more E₂ synthesis is required and thus androgen (one by one molecule).

- At time of ovulation, all GC have got LH so that LH can stimulate ovulation. But at time of proliferation they have only FSH-R but not LH-R.

At time of ovulation LH - surge is observed.

↓
a small surge of oestrogen is also found there.



Importance of oestrogen surge -

- E₂ is imp. of LH-surge
- for oocyte maturation
- prepⁿ of endometrium for implantation

* At time of ovulation, LH regulate -
(1) Conversion of androgen to oestrogen
(2)