

Biosynthesis of Steroid Hormones

A Steroid hormone is a steroid that acts as a hormone. Steroid hormones are the crucial substances for the proper functioning of the body.

Steroid hormones are produced in the Adrenal Cortex, Testes, Ovary and some peripheral tissues. All steroid hormones are derived from a precursor of cholesterol and differ only in the ring structure and side chain attached to it. Enzymes which produce steroid hormones from cholesterol are located in Mitochondria and Smooth muscles of endoplasmic reticulum.

All steroid hormones are lipid soluble and water insoluble. It is permeable to membranes so they are not stored in cells.

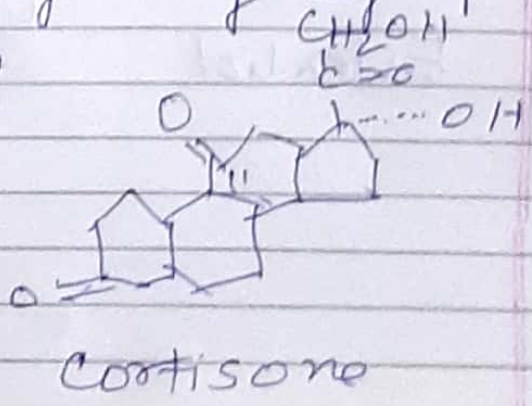
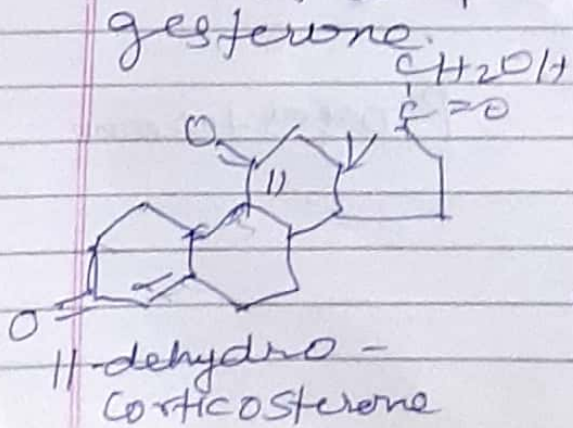
Steroid hormones are non-polar and can thus diffuse across lipid membranes. They leave cells shortly after synthesis.

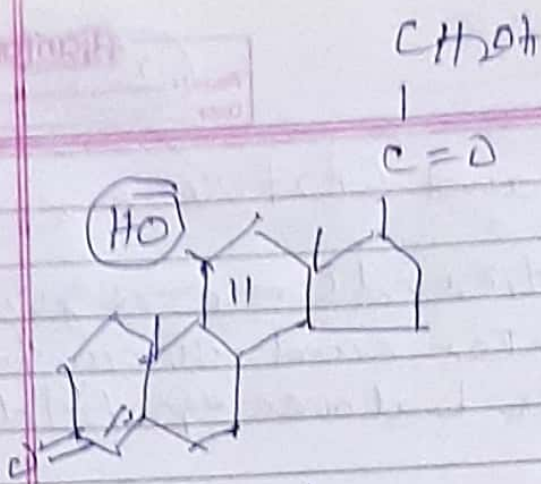
Types of Steroid Hormones

- ① Glucocorticoids: Originate in the adrenal cortex and affect mainly by metabolism by decreasing inflammation and increasing resistance to stress e.g. Cortisol, Corticosterone, 11-dehydrocorticosterone.

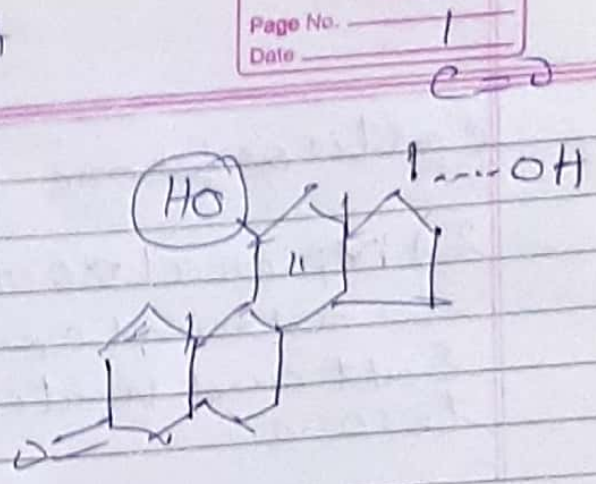
corticosteroids and Cortisone

- 2) Mineralocorticoids = originate in adrenal cortex and maintain salt and water balance eg. Aldosterone
- 3) Androgen: Androgen originate in the adrenal cortex and gonads and primarily affect maturation and function of secondary sex organs eg. Testosterone
- 4) Estrogen: originate in the adrenal cortex and gonads and primarily affect maturation and function of the female secondary sex organ.
- 5) Progesterone: originates both from ovary and placenta and mediate menstrual cycle and maintain pregnancy eg. Progesterone.

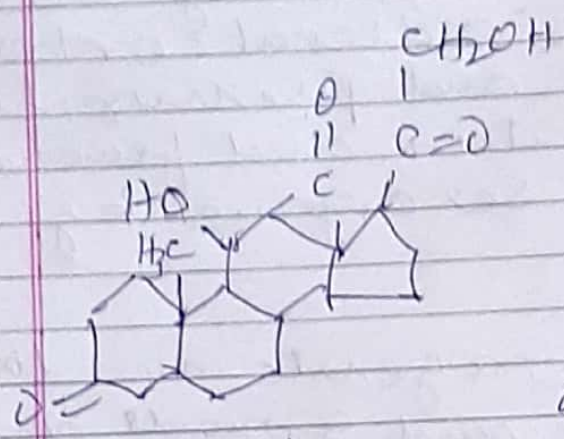




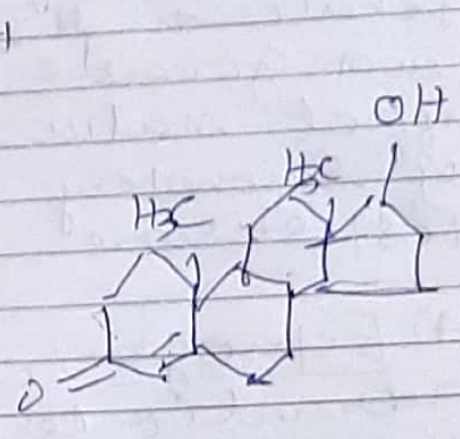
Corticosterone



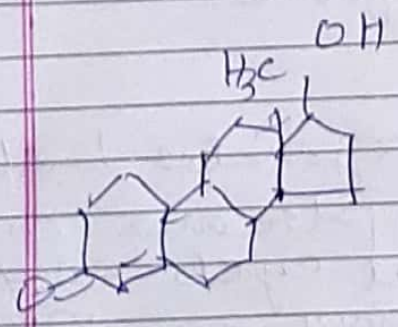
Cortisol



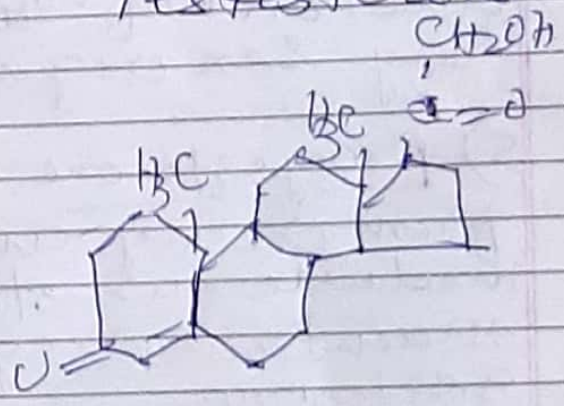
Aldosterone



Testosterone



Estradiol



Progesterone