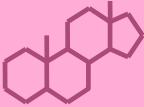

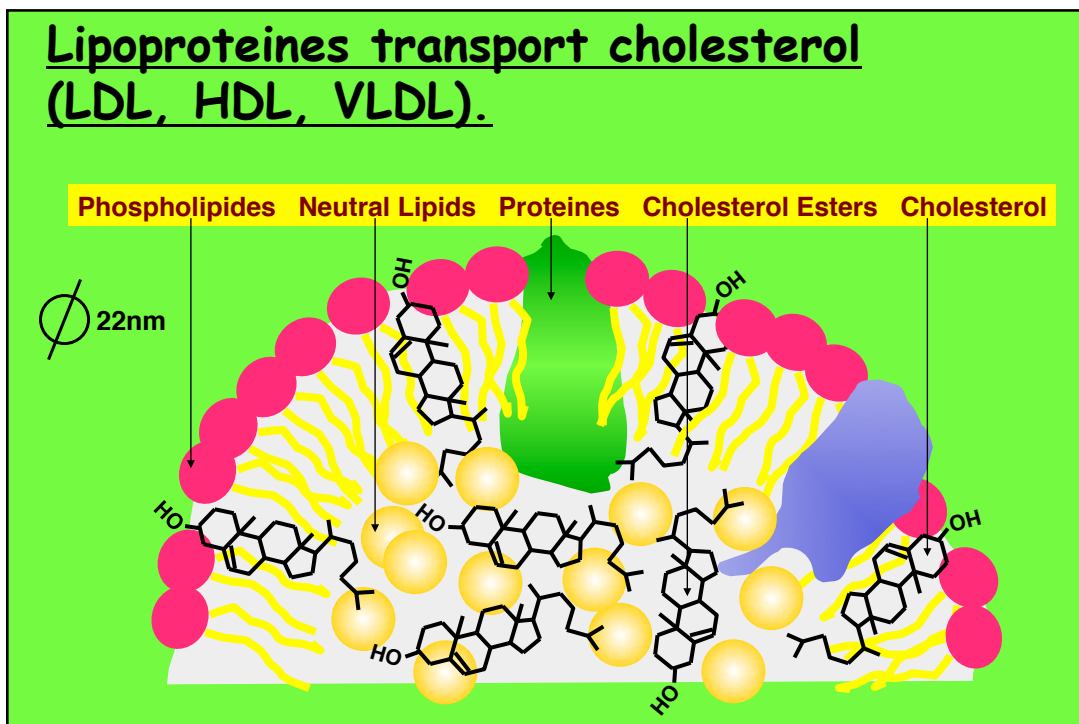
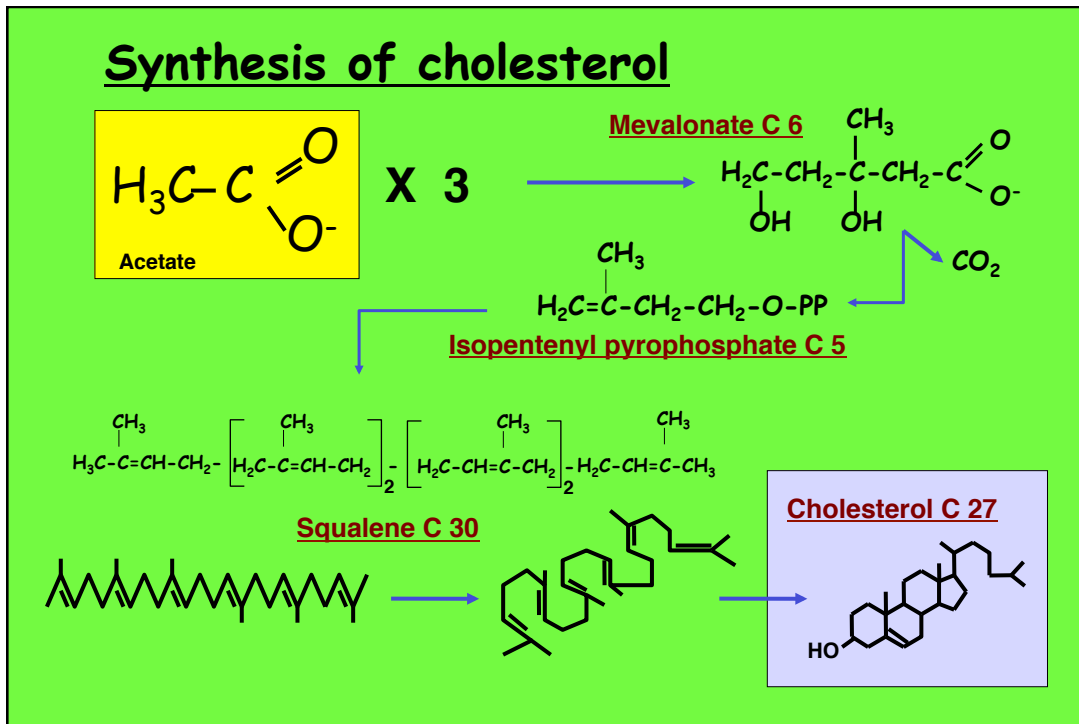
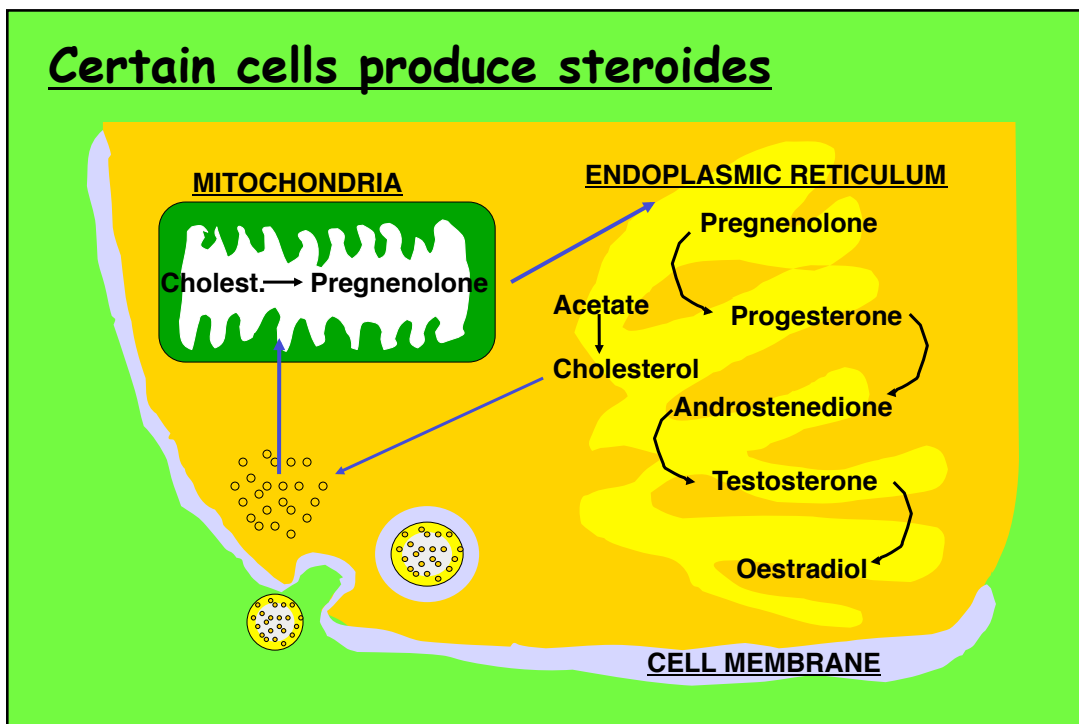
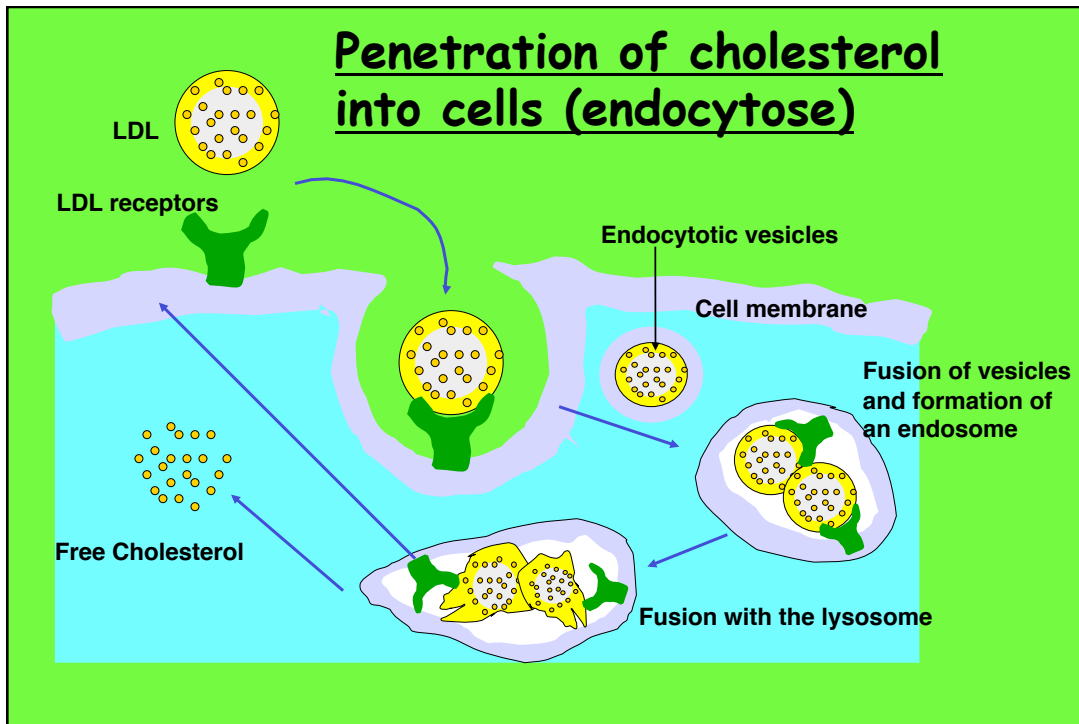
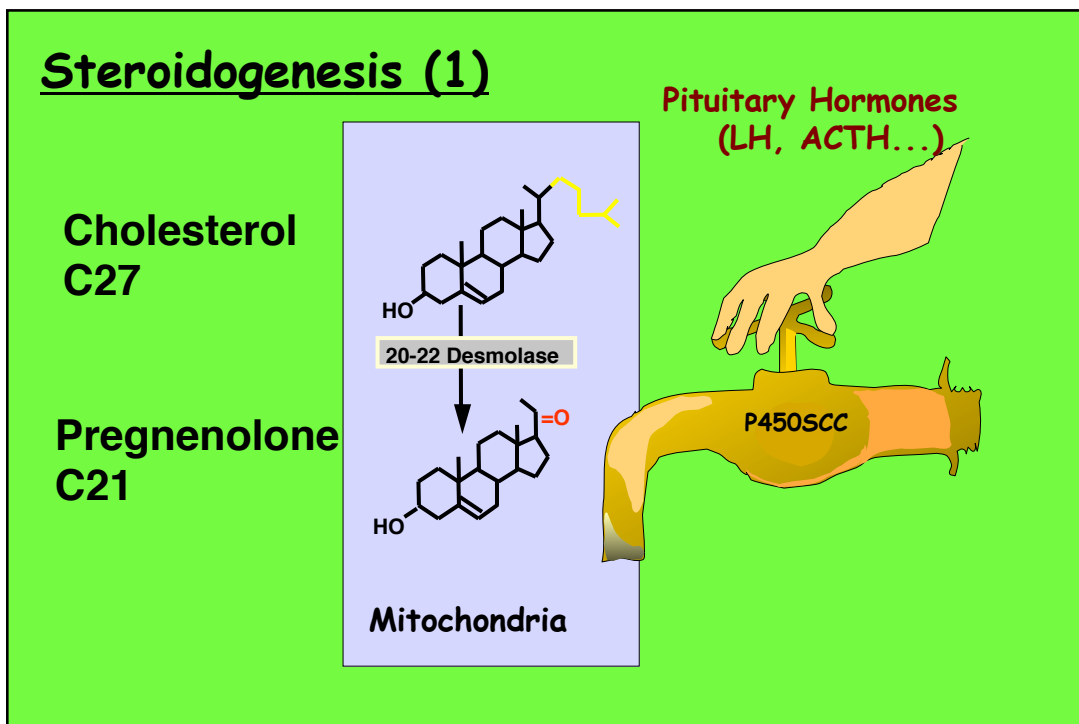
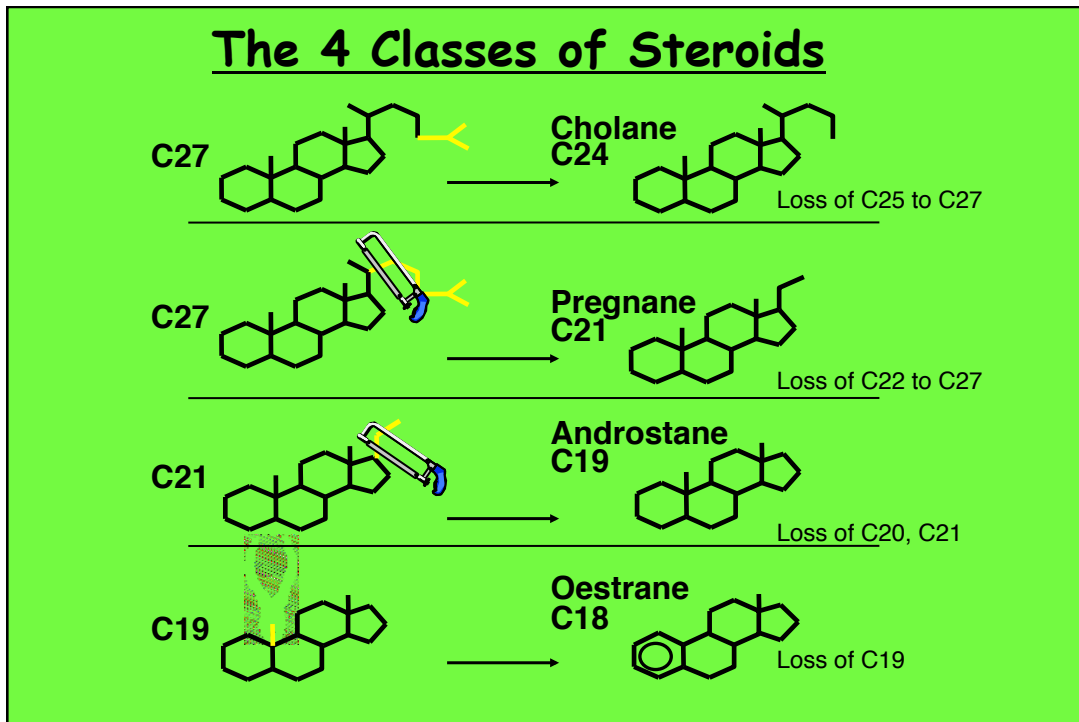


## Hormones

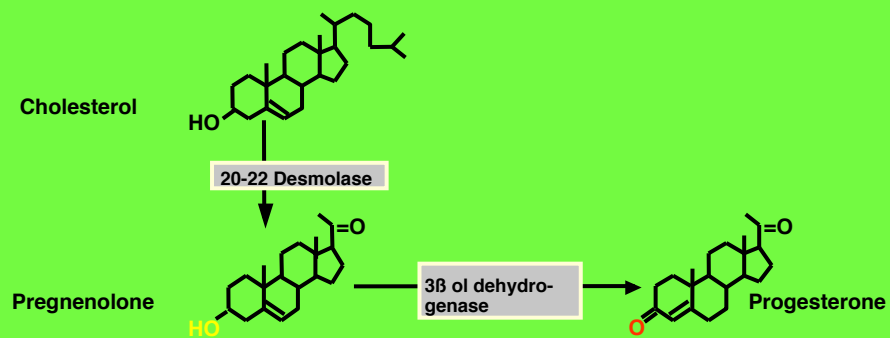
Steroids	Peptides
	
<p>Molecular weight = 300</p> <p>Liposoluble</p> <p>Circulate bound to proteines</p> <p>Diffuse into cells</p> <p>Intracellular receptors</p>	<p>Generally &gt; 1000</p> <p>Hydrosoluble</p> <p>Circulate free</p> <p>Remain outside the cells</p> <p>Membrane receptors</p>



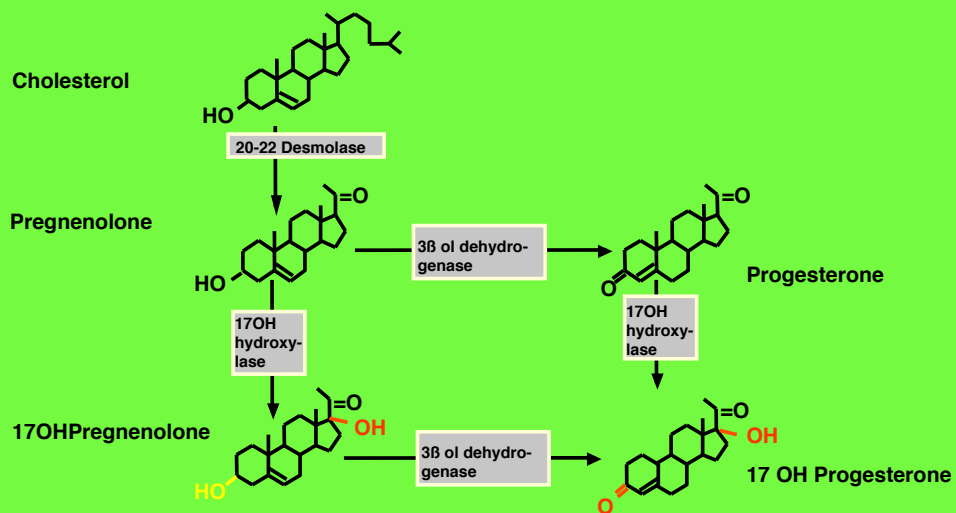




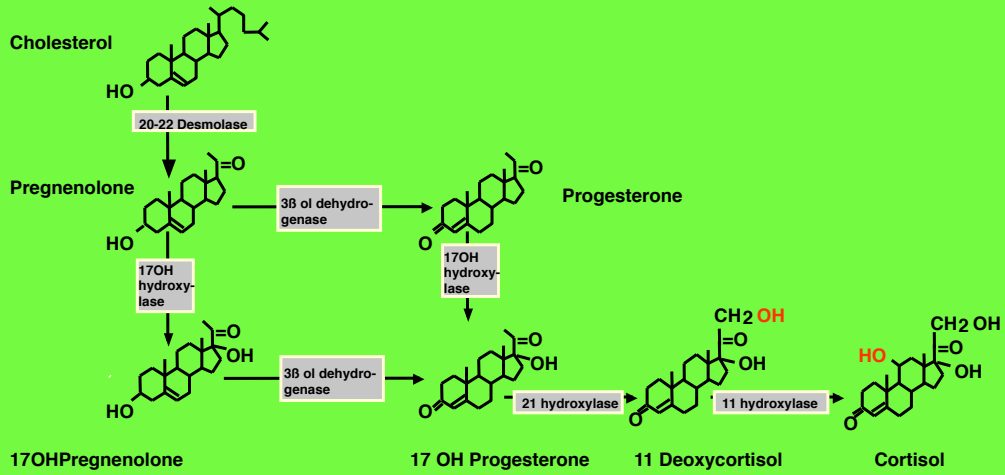
## Steroidogenesis (2)



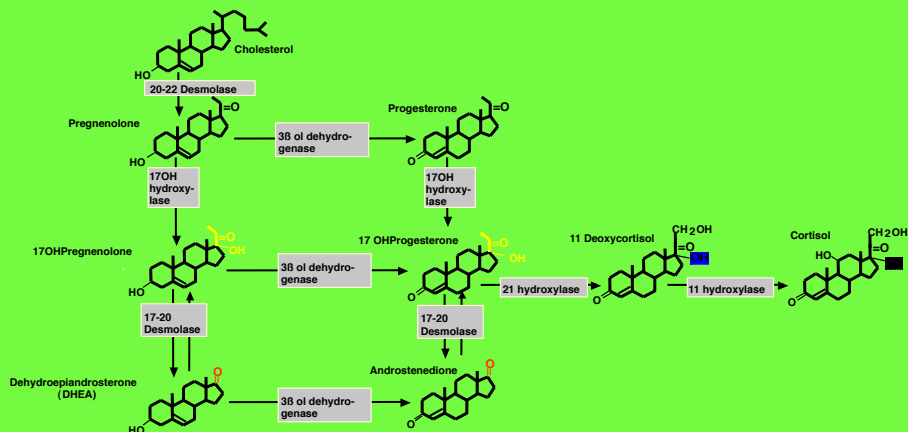
## Steroidogenesis (3)

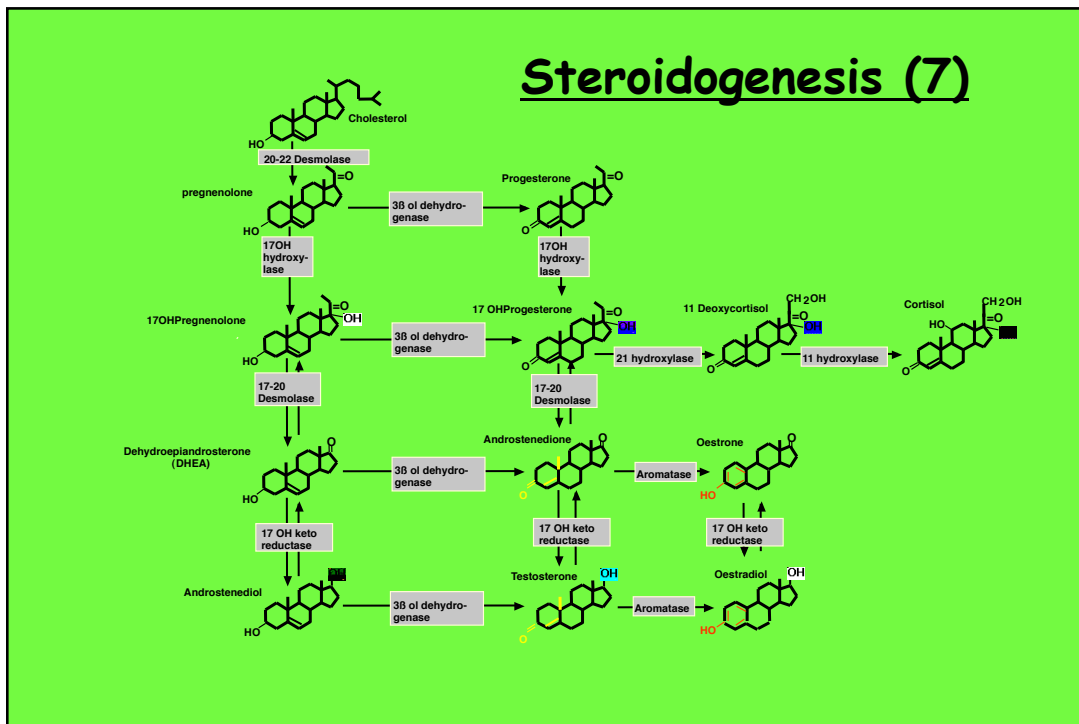
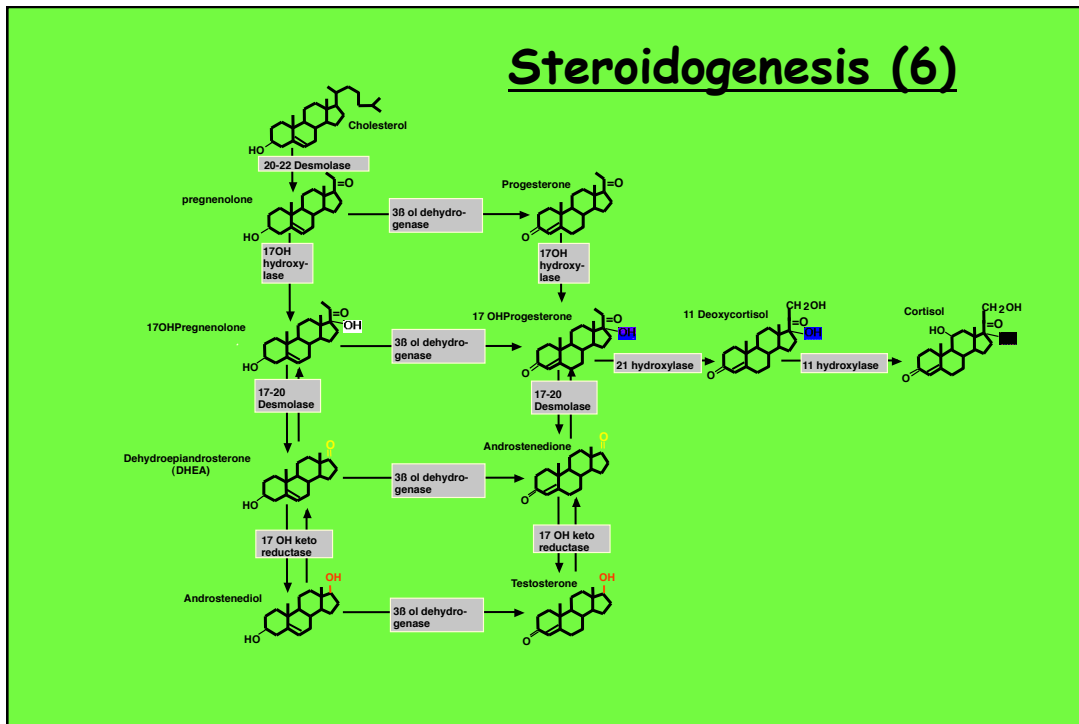


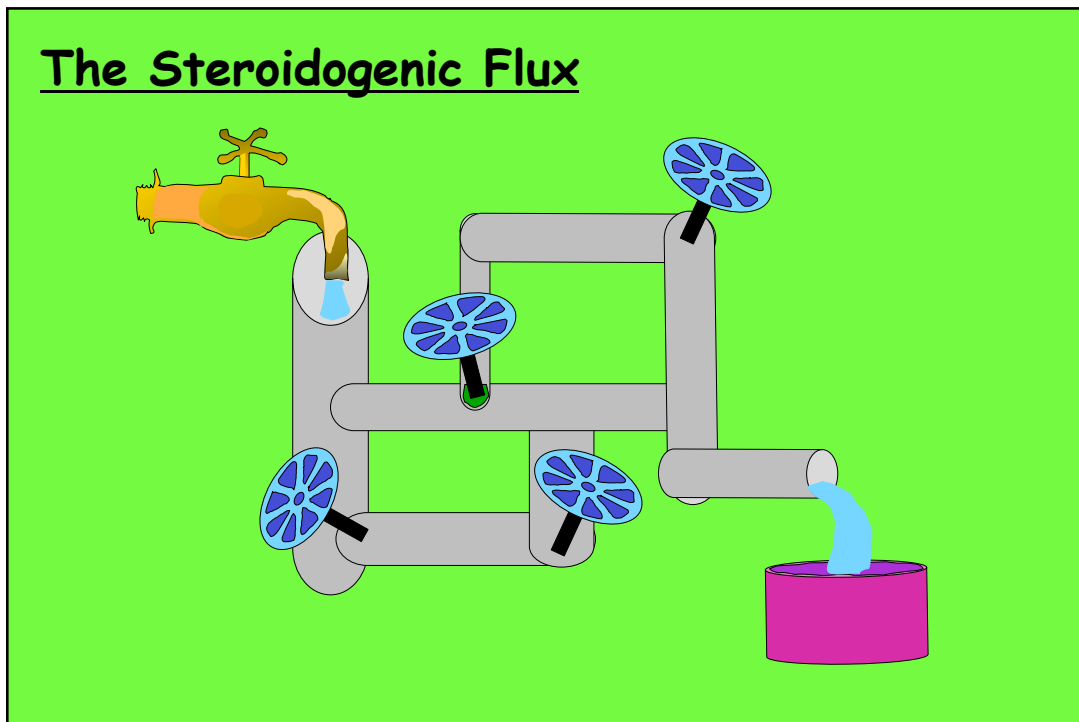
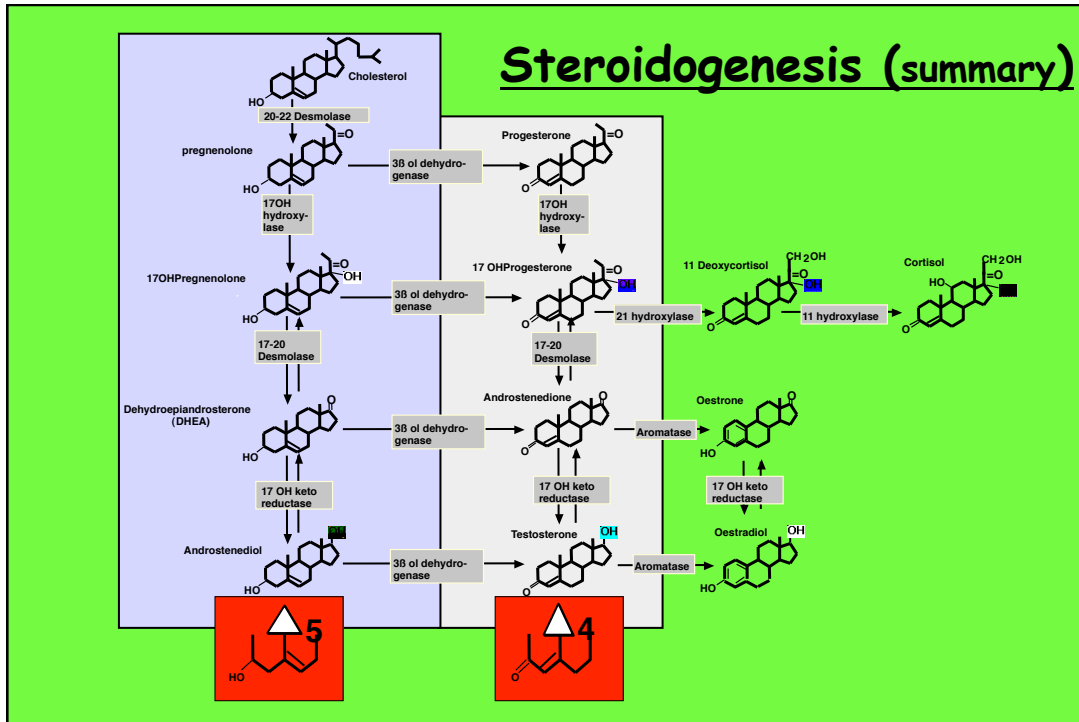
## Steroidogenesis (4)



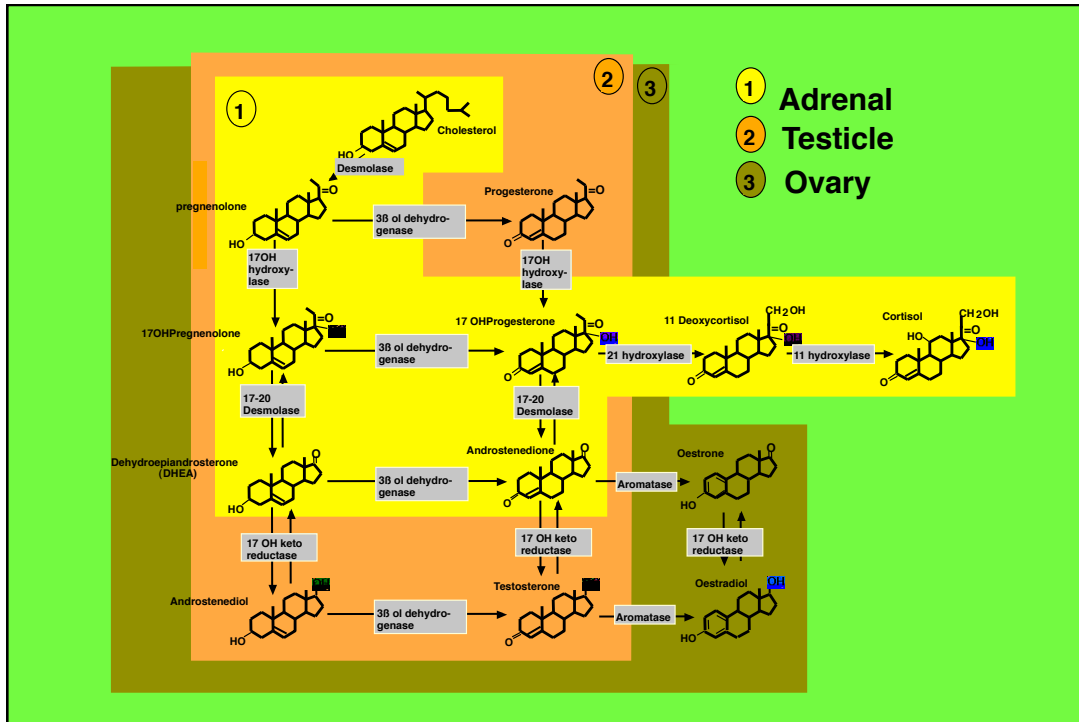
## Steroidogenesis (5)



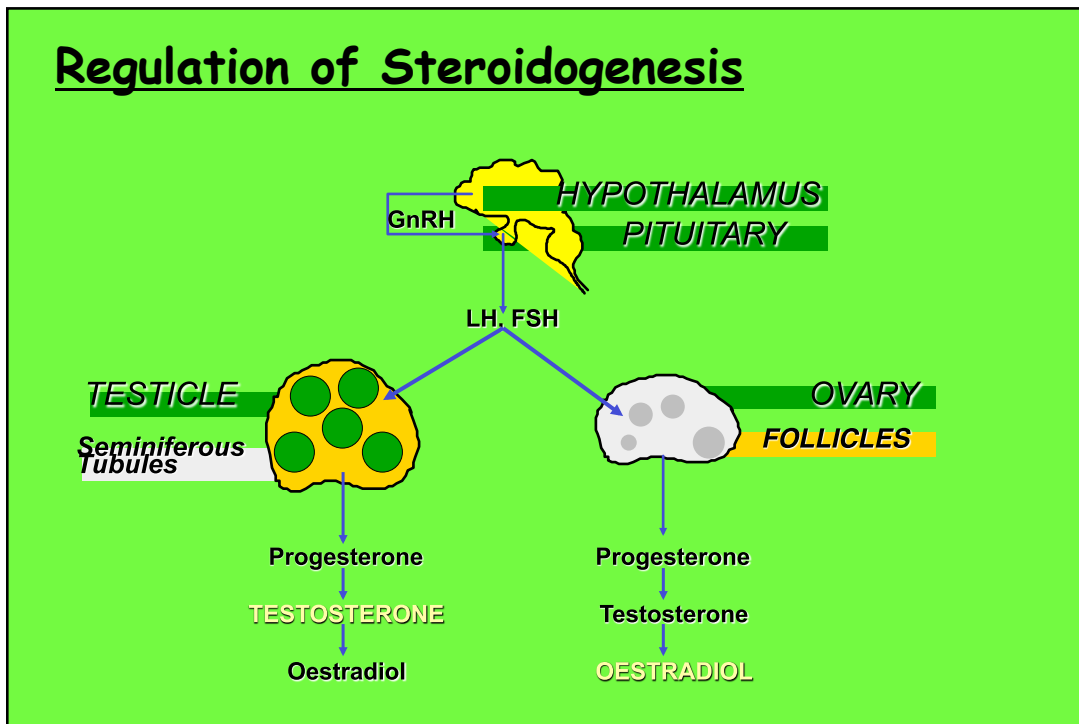


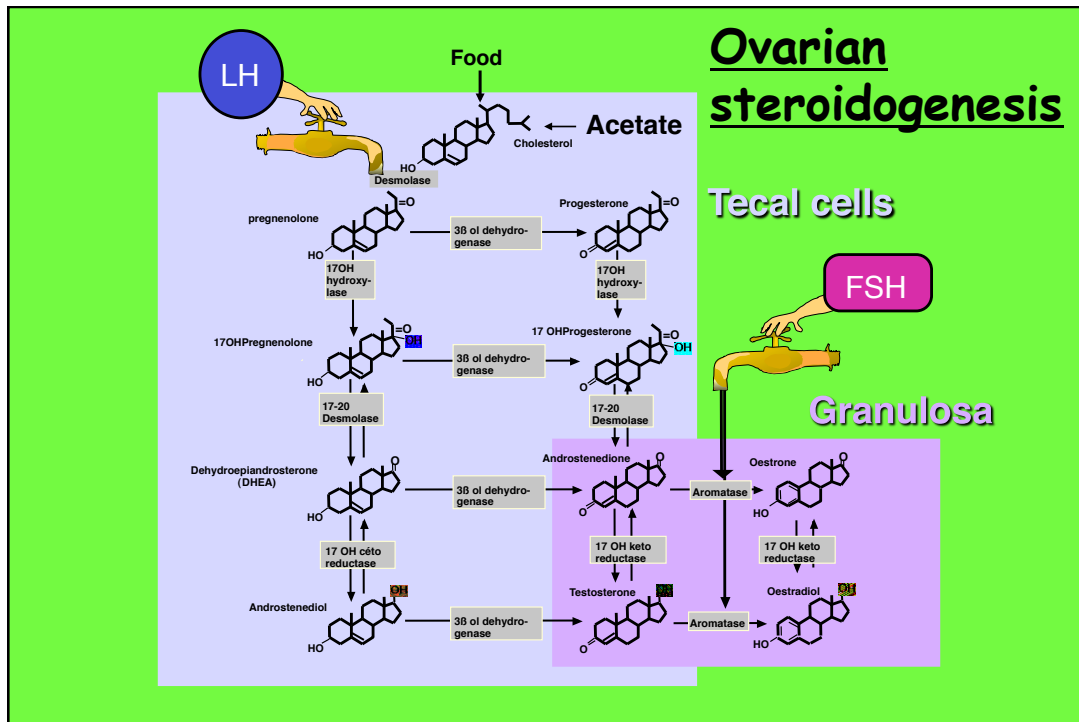






## Regulation of Steroidogenesis

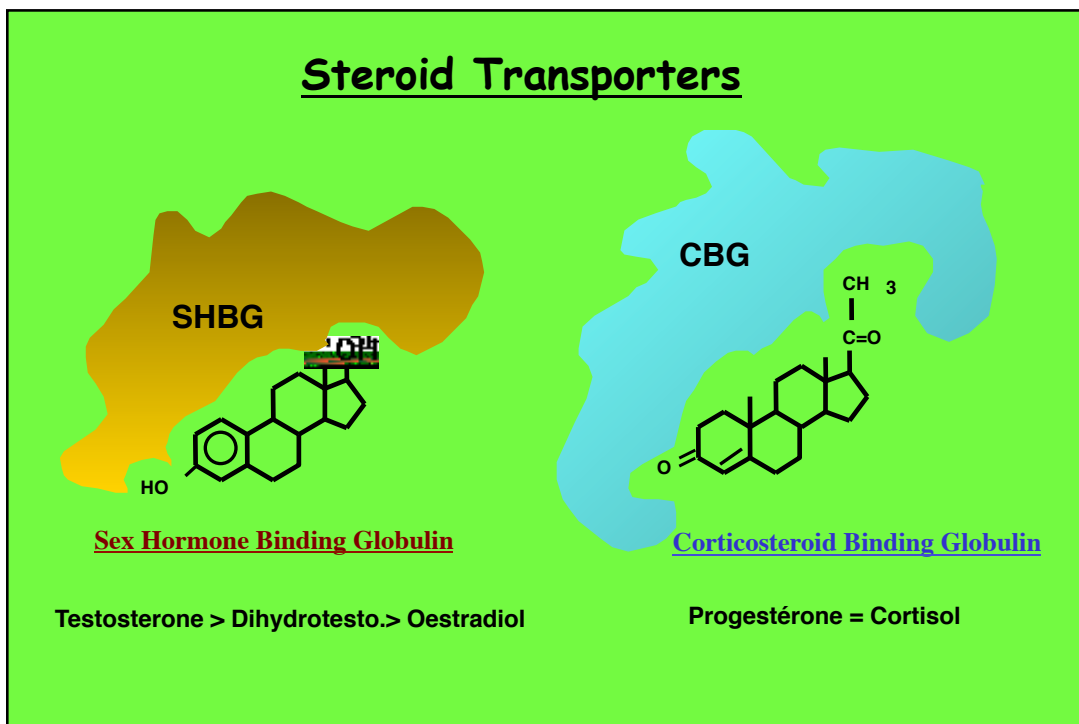
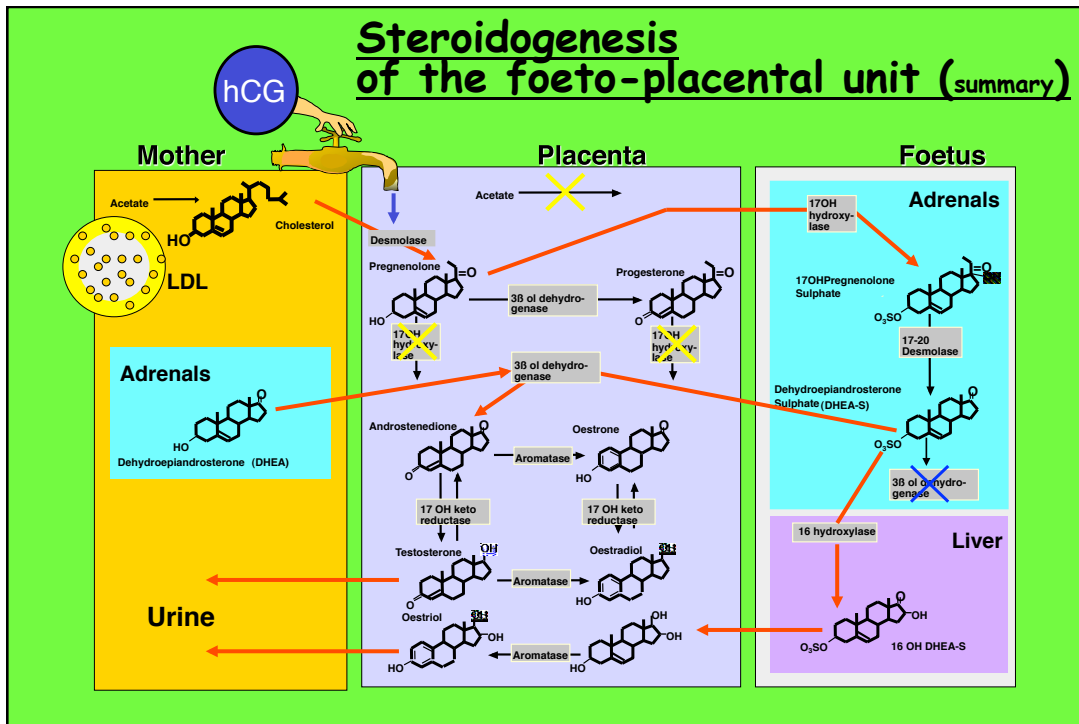


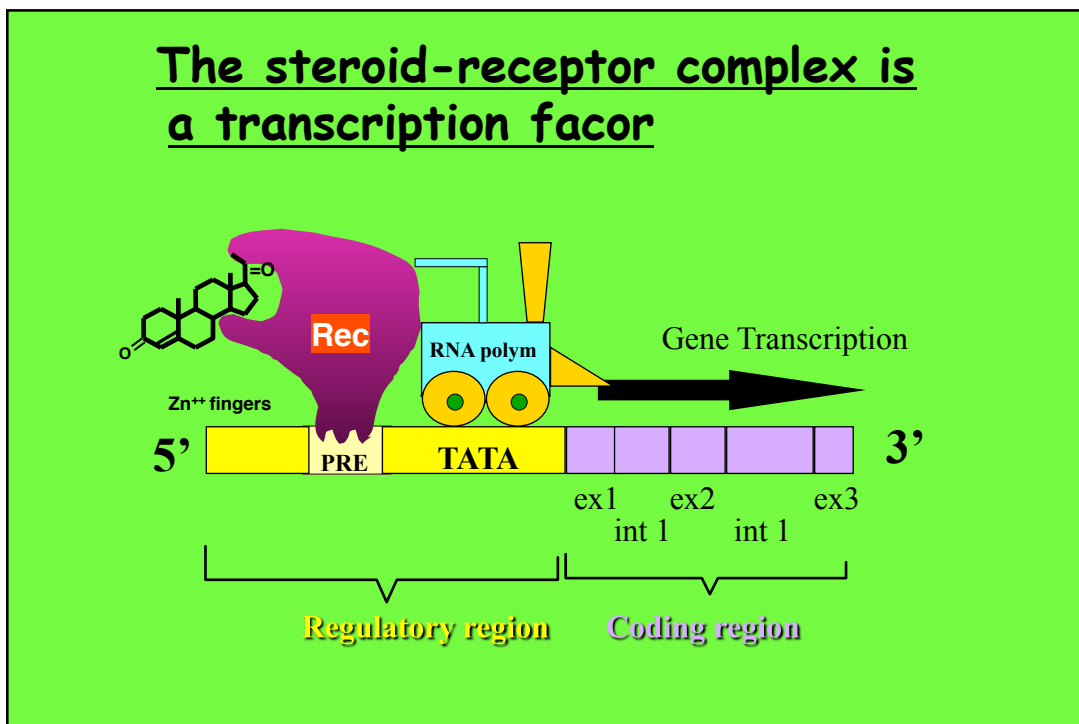
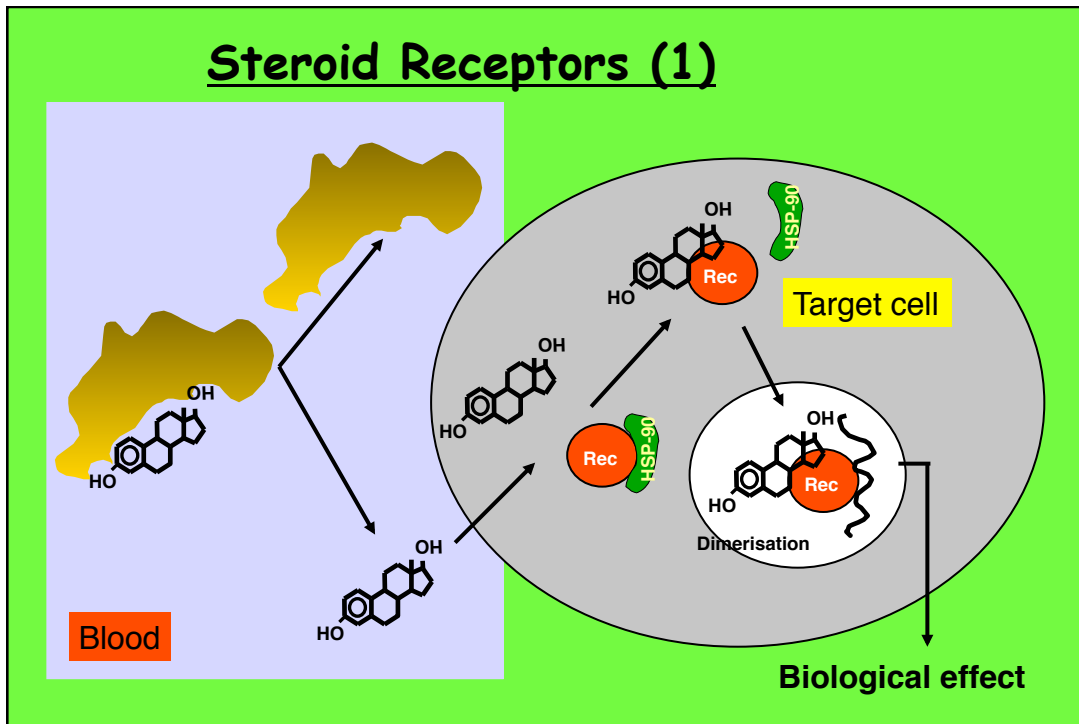


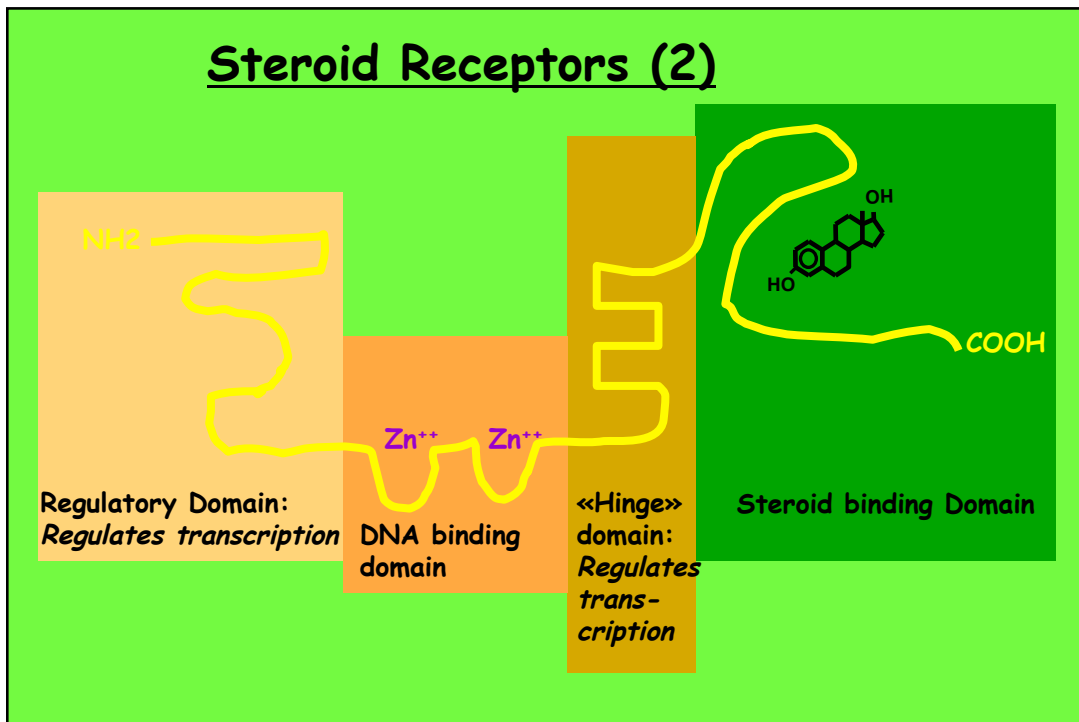
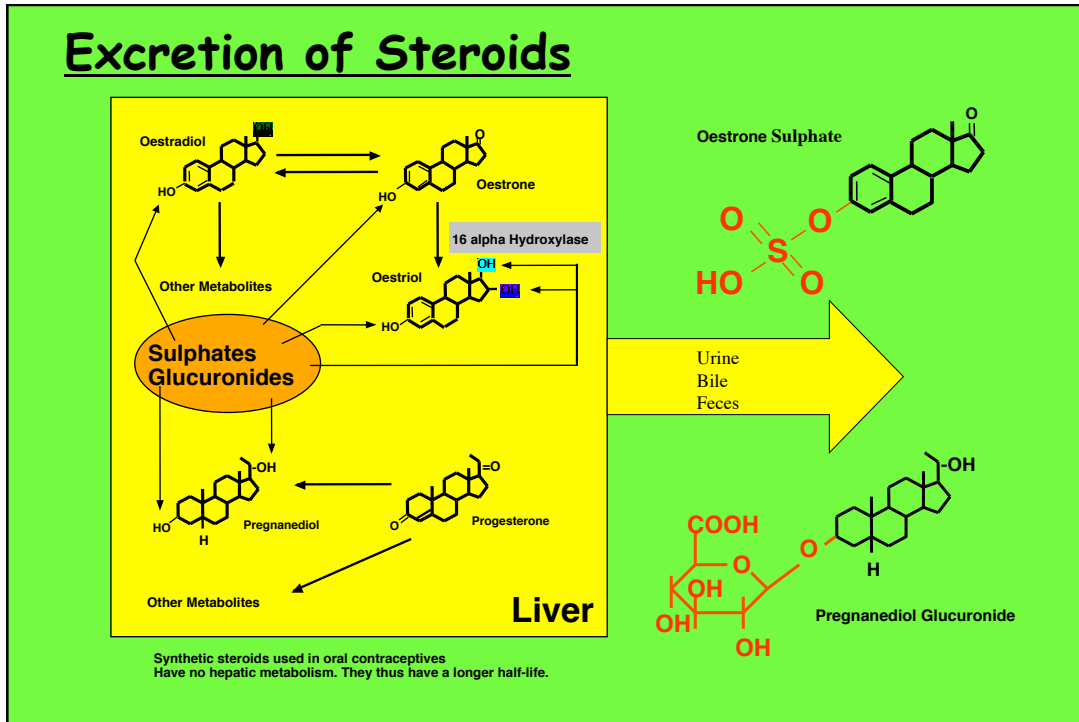
## Steroidogenesis of the foeto-placental unit (1)

### The particularities:

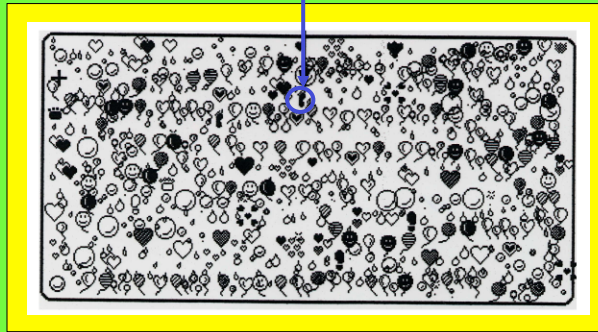
1. The placenta is **not capable of synthesising cholesterol from acetate**.
2. The placenta has **no 17 hydroxylase**.
3. Foetal adrenals have **no 3β of dehydrogenase**.
4. The foetus detoxifies steroids by **sulphatation**.







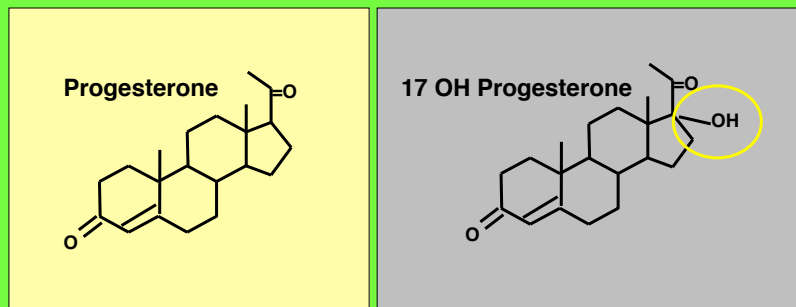
## The difficulty of measuring steroids (1)



Steroid hormones circulate in very low amounts. The concentration of oestradiol is in the **picrogram range** whereas albumin is in the **milligram range**.

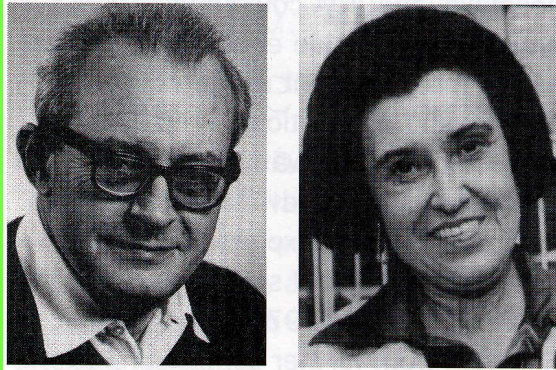
Thus in a litre of blood there is a billion times less oestradiol than albumin

## The difficulty of measuring steroids (2)



It is difficult to discriminate between two steroids because they might differ only by one function.

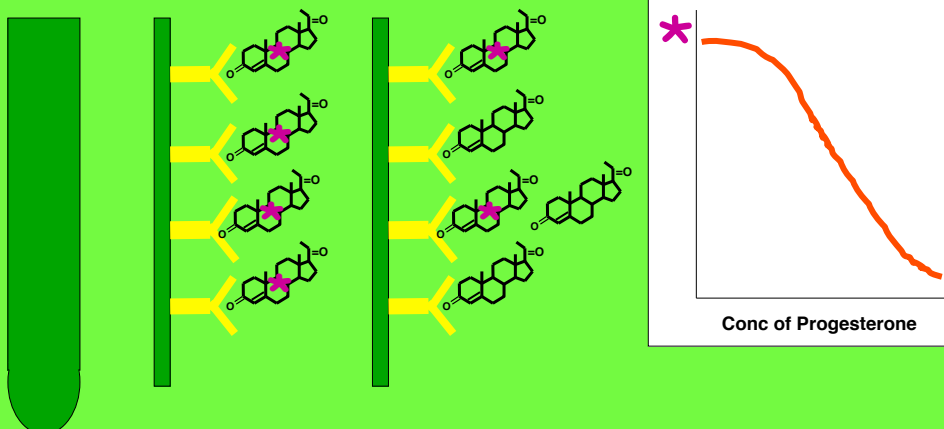
## Invention of hormonal measurements



Solomon Berson & Rosalyn Yalow  
Nobel prize in Medicine 1977

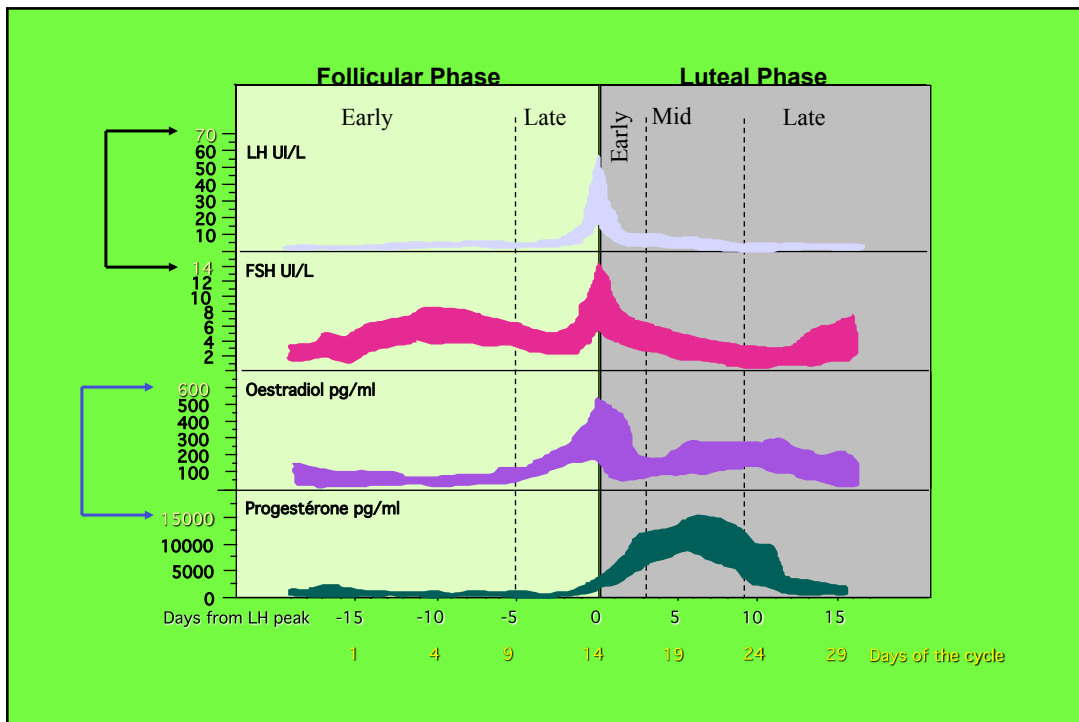
## Quantification of steroids (1)

### The RIA (Radio-immunoassay)



## Quantification of steroids (2)

### The IRMA (Immuno radiometric assay)





## Conclusions



1. Steroids are hydrophobic molecules that circulate bound to proteins.
2. Cholesterol is the precursor of all steroids. It is synthesised from acetate.
3. There are two principal synthesis pathways, the delta 4 and delta 5.
4. The type of steroid produced by a gland depends on its repertoire of steroidogenic enzymes.
5. Steroid target cells have intra-cellular receptors.
6. Steroids are sulphated or glucuronised before excretion.