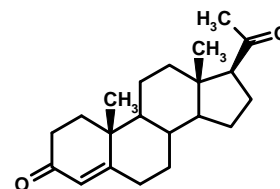
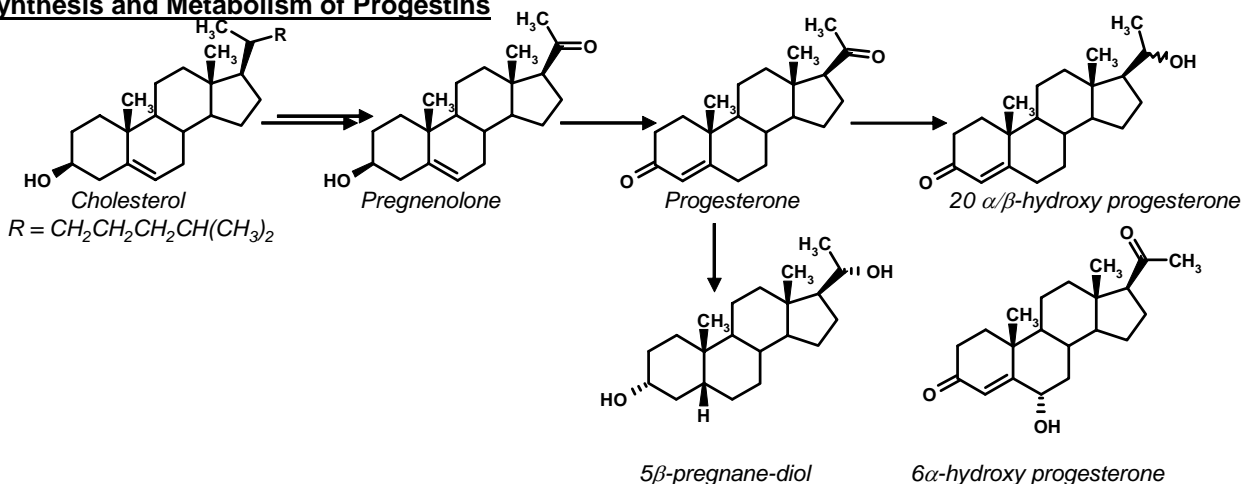


- √ **Structure of Progestational Steroids** 21 carbon skeletons; A ring  $\alpha, \beta$ -unsaturated; presence of oxygen substituents at the 3 and 17-positions; progesterone is the most important steroid in this class

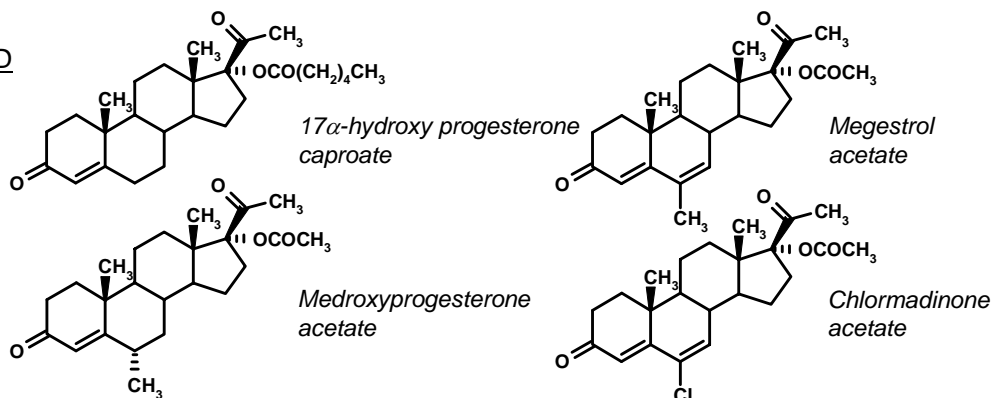


- √ **Pharmacologic Activities of Progesterone** The primary site of physiologic action of progesterone is the uterus. The hormone acts on both the endometrium and the myometrium. It acts on the endometrium (inner mucosal lining), which has been primed by estrogens, to induce the secretory phase. In this phase the endometrial lining grows to accept a fertilized ovum and secretes large amounts of carbohydrates to use as source of energy for successful implantation of fertilized ovum. Thus, progesterone acts on endometrium to prepare for ovum implantation and maintenance of the fertilized ovum. Progesterone acts on the myometrium to stop the spontaneous rhythmic contractions of the uterus. Finally, progesterone inhibits follicular maturation and ovulation. Extragenital effects of progesterone are slight, except when secreted in large amounts. If conception does not occur, the corpus luteum regresses and progesterone production decreases. This finally leads to sloughing of part of the endometrium during menstruation.

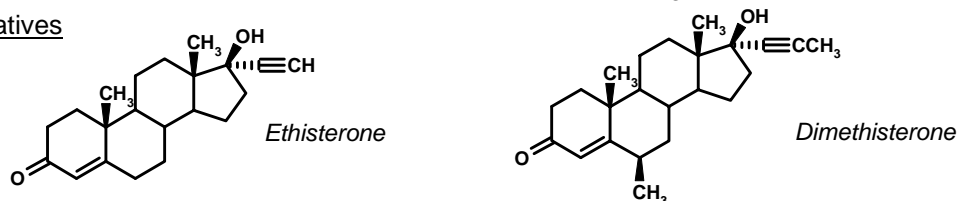
- √ **Biosynthesis and Metabolism of Progestins**



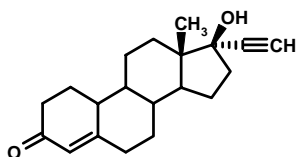
- √ **Synthetic Progestins**  
 Derivatives at rings A/B and D



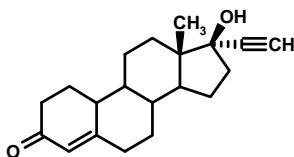
Testosterone Structure Derivatives



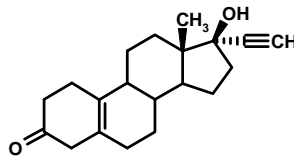
## 19-Nor-testosterone Structure Derivatives



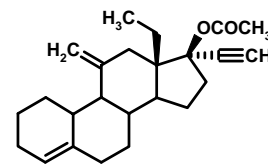
*Norethisterone*



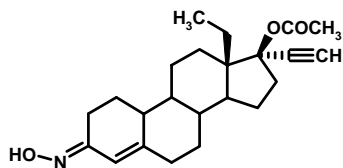
*Norethindrone*



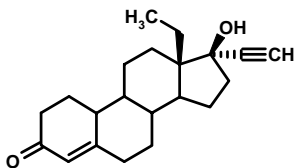
*Norethynodrel*



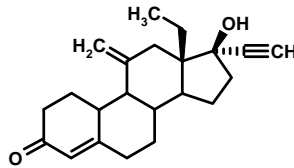
*Desogestrel*



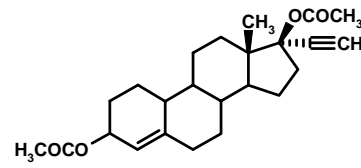
*Norgestimate*



*Norgestrel*

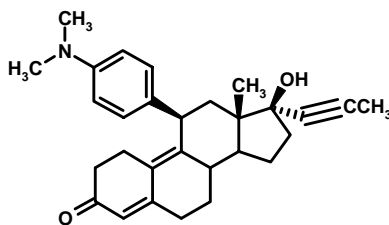


*3-Ketodesogestrel*

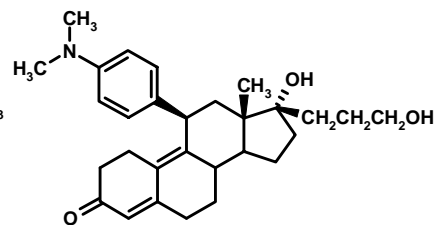


*Ethynodiol diacetate*

## ✓ Progesterone Antagonists



*Mifepristone*



*Onapristone*

## Points to Ponder

- What are progestational steroids? What are their activities? What class of steroid does progesterone belong to? What is the need to make synthetic progestins? What structural change introduces oral activity in this class of compounds? Develop a skill for identifying function activity of steroids from structure.