Progesterone Encyclopedia Article

Progesterone

The following sections of this BookRags Literature Study Guide is offprint from Gale's For Students Series: Presenting Analysis, Context, and Criticism on Commonly Studied Works: Introduction, Author Biography, Plot Summary, Characters, Themes, Style, Historical Context, Critical Overview, Criticism and Critical Essays, Media Adaptations, Topics for Further Study, Compare & Contrast, What Do I Read Next?, For Further Study, and Sources.

(c)1998-2002; (c)2002 by Gale. Gale is an imprint of The Gale Group, Inc., a division of Thomson Learning, Inc. Gale and Design and Thomson Learning are trademarks used herein under license.

The following sections, if they exist, are offprint from Beacham's Encyclopedia of Popular Fiction: "Social Concerns", "Thematic Overview", "Techniques", "Literary Precedents", "Key Questions", "Related Titles", "Adaptations", "Related Web Sites". (c)1994-2005, by Walton Beacham.

The following sections, if they exist, are offprint from Beacham's Guide to Literature for Young Adults: "About the Author", "Overview", "Setting", "Literary Qualities", "Social Sensitivity", "Topics for Discussion", "Ideas for Reports and Papers". (c)1994-2005, by Walton Beacham.

All other sections in this Literature Study Guide are owned and copyrighted by BookRags, Inc.

Contents

Progesterone Encyclopedia Article.....1

Contents.....2

Progesterone.....3

Progesterone

Progesterone is a hormone produced primarily by females. **Hormones** are a group of chemicals secreted by special glands throughout the body. Hormones are carried by the bloodstream to target tissues, where they stimulate the tissues to carry out specific functions. Progesterone is essential for the proper functioning of the female menstrual cycle and formation of the **placenta** during **pregnancy**.

The chemical name for progesterone is pregn-4-ene-3,20-dioneand its symbol is $C_{21}H_{30}O_2$. The main site of production is in the cells of the corpus luteum of the ovaries. There are two types of cells in the ovaries that produce progesterone. In one type of cell, the small luteal cells, **luteinizing hormone** (LH) stimulates the secretion of progesterone. Large luteal cells also produce progesterone, but their production is controlled by a chemical called prostaglandin (PG)F2alpha which causes the **death** of these particular cells.

The production of progesterone is limited by the synthesis of cholesterol. The **mitochondria** of cells transport cholesterol across their membranes (steroidogenesis) and the rate at which this happens is regulated by the speed at which cholesterol is transported across the inner and outer mitochondrial membrane. The initiation of progesterone production begins in this area of the mitochondrion.

The effect of progesterone is most keenly observed in the uterus where the hormone aids in the successful implantation of a fertilized egg. It stimulates the growth of the placenta where additional progesterone is produced. In this case progesterone prevents spontaneous abortion. The hormone also targets tissues of the **mammary glands** and prepares them to secrete milk. If no **fertilization** occurs, the synthesis of progesterone is reduced and the onset of **menstruation** occurs. Progesterone is also produced in the adrenal cortex where it is used for the synthesis of **testosterone** and other steroids.

Today progesterone is synthesized in laboratories and is a useful medication. Some ovarian disorders are regulated by the consumption of synthetic progesterone. It has been successfully used in combination with other hormones for birth control.