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1. Discuss ovulation

Ovulation is the release of a secondary oocyte from the ovarian follicle. The follicle stimulating hormone (FSH) and the leutenizing Hormone (LH) help the secondary follicle to grow bigger and become the Graafian follicle as the final stage of development of the Graafian follicle there is an abrupt increase in the leutinizing hormone that cause the completion of meiosis 1 in the primary oocyte.

* follicle entering pre-ovulatory mature vesicular stage.

Meiosis II also starts but is arrested in metaphase 3 hours before ovulation. The surface of the ovary also begins to bulge. The release of the oocyte leads to increase in collagen activity resulting in digestion of collagen fibre.

* increase in prostaglandin level

This causes ovulation in which oocyte floats out of the ovary.

2. Differentiate between meiosis I and meiosis II

*Meiosis I Produces 2 daughter cells WHILE Meiosis II Produces 4 daughter cells

*IN Meiosis I Crossing over occurs WHILE in meiosis II Crossing over does not occur

*IN meiosis I-Homologous chromosomes separate WHILE in meiosis II Sister chromatids separate

*in meiosis I They are diploid cells WHILE in Meiosis II They are haploid cells

*in Meiosis I it is Preceded by interface WHILE in meiosis II Preceded by an S- phase

3. Discuss the stages involved in fertilization.

Fertilization can be defined as the union between the male and female gametes that results in the formation of an embryo. The usual site of fertilization is the AMPULLA of the uterine tube. It takes approximately 24 hours.

The stages involved in fertilization are 6 in number, they are :

1. PASSAGE OF SPERM THROUGH THE CORONA RADIATA

For sperms to pass through the corona radiata they must be capacitated which involves the removal of glycoproteins coat and seminal plasma proteins from the plasma membrane that overlies the acrosomal region of the spermatozoa.

2. PENETRATION OF ZONA PELLUCIDA

The Zona pellucida is a glycoproteins shell surrounding the egg that facilitates and maintains sperm binding and induces the zona pellucida thereby coming in contact with the plasma membrane of the oocyte. The contact between the head of the sperm and the oocyte surface brings about release of lysosomal enzyme. This prevents dispermy.

3.FUSION OF PLASMA MEMBRANES OF THE OOCYTE AND SPERM.

The plasma or cell membranes of the oocyte and sperm rupture and break down at the area of fusion.

The head and tail of the sperm enter the cytoplasm of the oocyte but the sperm's plasma membrane remains behind.

4. COMPLETION OF THE SECOND MEIOTIC DIVISION OF OOCYTE AND FORMATION OF FEMALE PRONUCLEUS

The penetration of the oocyte by a sperm activates the oocyte into completing the second meiotic division and forming a mature oocyte and second polar body.

The nucleus of the mature oocyte is called the female pronucleus.

5. FORMATION OF MALE PRONUCLEUS.

Within the cytoplasm of the oocyte, the nucleus of the sperm enlarges to form the male pronucleus and the tail of the sperm degenerates.

6. THE 2 PRONUCLEI FUSE INTO A SINGLE DIPLOID AGGREGATION OF CHROMOSOMES, THE OOTID BECOMES A ZYGOTE

The chromosomes in the zygote become arranged on a cleavage spindle in preparation for cleavage of the zygote.

4. Differentiate between monozygotic and dizygotic twins

*Monozygotic twins form from single zygote WHILE Dizygotic twins form from two zygotes

*Monozygotic twins are genetically identical WHILE Dizygotic twins are not genetically identical.

*Monozygotic twins are born as the same sex WHILE Dizygotic twins are born either same sex / different sex

* Monozygotic twins are similar in resemblance WHILE Dizygotic are not really similar in resemblance

* Monozygotic twins are conjoined twins WHILE Conjoined twins.