

Ovulation

Ovulation is the release of an egg from one of a woman's ovaries. After the egg is released, it travels down the fallopian tube, where fertilization by a sperm cell may occur.

Differences between meiosis 1 and meiosis 2

Meiosis is the production of four genetically diverse haploid daughter cells from one diploid parent cell. Meiosis can only occur in eukaryotic organisms. It is preceded by interphase, specifically the G phase of interphase. Both Meiosis I and II have the same number and arrangement of phases: prophase, metaphase, anaphase, and telophase. Both produce two daughter cells from each parent cell.

However, Meiosis I begins with one diploid parent cell and ends with two haploid daughter cells, halving the number of chromosomes in each cell. Meiosis II starts with two haploid parent cells and ends with four haploid daughter cells, maintaining the number of chromosomes in each cell. Homologous pairs of cells are present in meiosis I and separate into chromosomes before meiosis II. In meiosis II, these chromosomes are further separated into sister chromatids. Meiosis I includes crossing over or recombination of genetic material between chromosome pairs, while meiosis II does not.

Fertilization

Passage of a sperm through the corona radiata

The sperm has to be capacitated. Sperm capacitation is the process whereby the glycoproteins and seminal plasma is removed from the plasma membrane overlying the acrosome of the spermatozoa

Penetration of the zona pellucida

The sperm releases acrosomal enzymes from its acrosome to penetrate the zona pellucida thereby coming in contact with the plasma membrane of the oocyte. When a sperm comes in contact with an oocyte surface lysosomal enzymes are released from the cortical granules lining the plasma membrane of the oocyte to prevent polyspermy

Fusion of the plasma membrane of the oocyte and sperm

Plasma membrane of the oocyte fuses with the sperm and breaks down at the area of fusion. The head and tail of the sperm enter into the cytoplasm of the oocyte leaving the plasma membrane behind

Completion of the 1st meiotic division and formation of the female pronucleus

Penetration of the oocyte by the sperm activates the oocyte into the second meiotic division resulting in a mature oocyte and a second polar body. The nucleus of the mature oocyte forms the female pronucleus

Formation of the male pronucleus

Within the cytoplasm of the oocyte the nucleus of the sperm enlarges to form the male nucleus while the tail degenerates

The pronuclei fuse into a single diploid aggregation of chromosomes, the ootid becomes the zygote

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

Dizygotic are twins which result from the fertilization of 2 different eggs with 2 different sperms. Other words for dizygotic twins are non identical or fraternal twins, they could be the same sex or of different sexes. They normally don't look 100% alike and sometimes have appearances similar to each other in the same way non twin siblings have.

Monozygotic twins result from the fertilization of one egg and sperm, the fertilized embryo then splits within days after fertilization resulting in two individuals which usually share the same chromosomes. The monozygotic twins are known as identical or maternal twins. They have very similar appearances