

Embryonic Development of Human Being

Kingdom - Animalia.

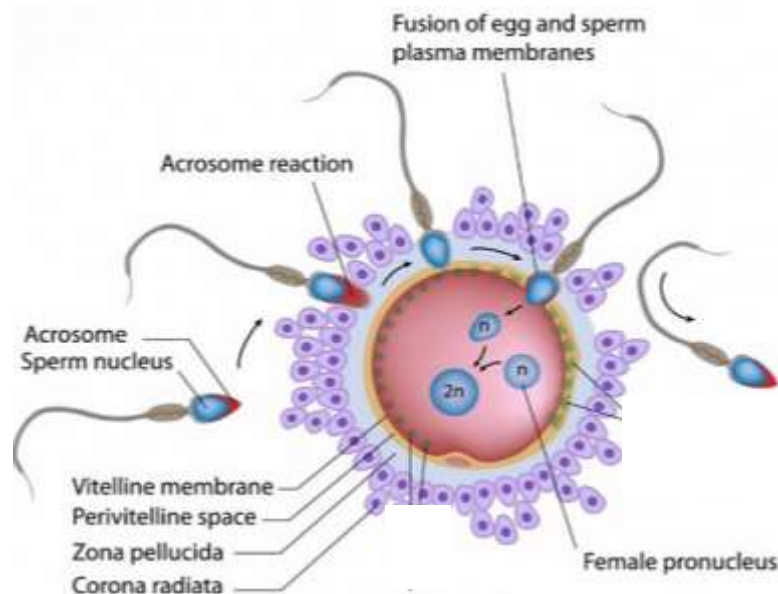
Phylum - Chordata.

Class - Mammalia.

Scientific name - Homo sapiens

Sperm must reach, penetrate, and fertilize the egg to form a zygote. The resulting zygote divides and forms a blastocyst. The blastocyst then reaches the uterus and implant in the endometrium. The implanted blastocyst continues its development into an embryo and then a fetus.

Fertilization – is a sequence of events that begins with contact between egg and sperm, and ends with fusion of the nuclei of the sperm and ovum and the intermingling of maternal and paternal chromosomes.



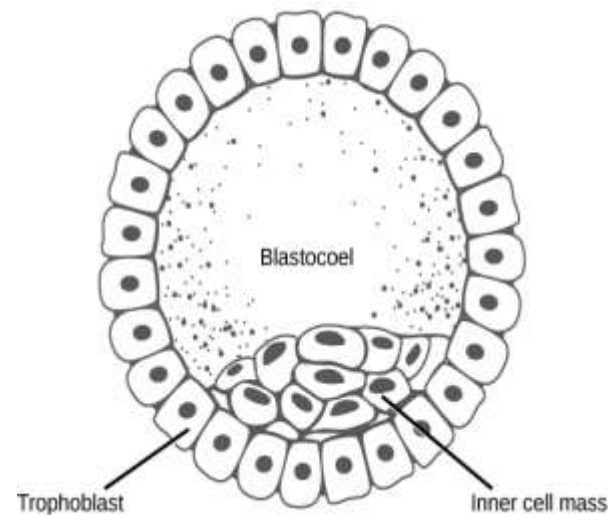
Eggs are classified by how much yolk is present into:

- 1) Isolecithal Eggs: have a small amount of yolk that is uniformly distributed in the cytoplasm (human, amphioxus).

- 2) Mesolecithal Eggs: have moderate amount of yolk, and the yolk is present mainly in the vegetal pole (frog).
- 3) Telolecithal Eggs: have a large amount of yolk that fills the cytoplasm, except for a small area near the animal pole (birds, reptiles).
- 4) Centrolecithal Eggs: have a lot of yolk that is concentrated within the center of the cell (insects).

Cleavage

Cleavage or segmentation begins soon after fertilization; zygote undergoes a series of rapid mitotic divisions called cleavage. First, the zygote divides into 2 cells known as blastomeres, these cells then divide into 4 blastomeres, 8 blastomeres and so on. The blastomeres change their shape and tightly align themselves against each other to form a compact ball of cells called morula. Spaces appear between the central blastomeres of morula and fluid passes through the zona pellucida into these spaces from fallopian tube that separates the blastomeres into two parts outer layer called the trophoblast and a group of inner cells called embryoblast. At this stage of development, the conceptus is called a blastula or blastocyst.



Types of Cleavage:

1) Holoblastic

When the cleavage furrows divide the entire egg. Occur in isolecithal eggs

2) Meroblastic cleavage

When the cleavage or segmentation happen only in a small portion of the egg. Occur in telolecithal eggs.