

EGG MEMBRANE

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Primary egg membrane:

Laid down between the follicle cells and egg membrane (space occupied by interdigitating microvilli).

Formed of mucopolysaccharides, fibrous proteins

In different animals egg primary membranes have different structures and are known by different names as follows,

1. Vitelline membrane-

i. It is a constant thin membrane which remains closely apposed with the plasma membrane before fertilization.

ii. Occurrence- in insects, mollusks, amphibians and bird.

2. Zona radiata-

i. It owes stratification from the degraded microvilli of the growing oocyte. In fishes, it is perforated by minute pores (**micropyle**) formed by withdrawal of microvilli in the mature egg.

ii. Occurrence- in shark, some bony fishes, amphibians and reptiles.

3. Zona pellucida-

i. Formed of secretions both from the ovum and the follicle cells.

ii. Occurrence- in eggs of mammals.

4. Jelly envelope-

i. Formed of jelly and is much thicker.

ii. Occurrence- in echinoderm and many marine invertebrates.

Secondary membrane:

Secreted outside the primary egg membrane by a layer of follicle cell that surrounds the oocyte.

a) chitinous shell--- In some case like insects, ascidians and cyclostomes secondary membrane is present as a chitinous shell.

b) Single layered membrane--- In mammals corona radiata around the ovum and exterior to the zona pellucida.

Tertiary membrane:

This membrane formed due to secretion of the cells of the oviduct, as in many cases when egg travels down towards the cloaca.

Examples-

i. *Albumen or Horny capsules-*

Albumen in birds and shell membrane and calcareous shell of reptilian and avian eggs. *It is to be noted that reptilian eggs contain little albuminous covering except in snake.*

ii. *Leathery shell-*

In prototheria leathery shell is present.

Remark: Absent in sponges and coelenterates.

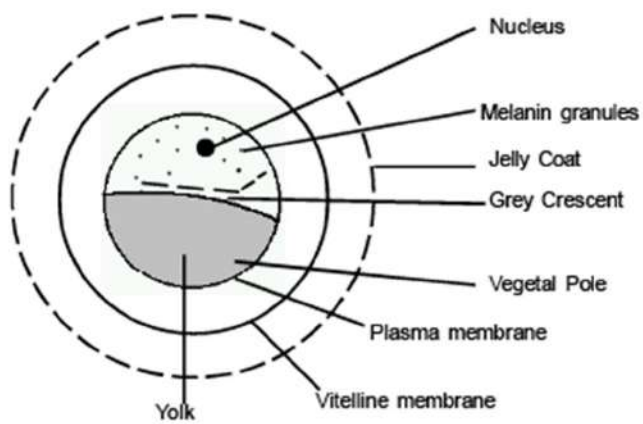
SIGNIFICANCE OF EGG MEMBRANE

1. Prevents further sperm entry after fertilization.

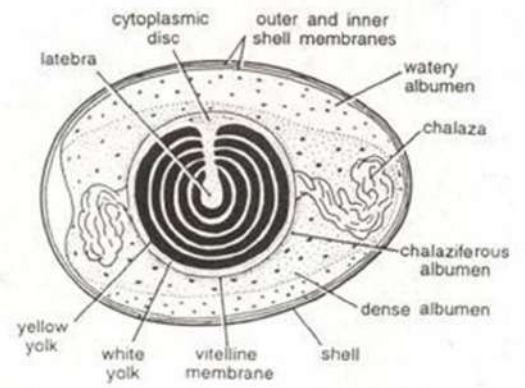
2. Helps the egg to assume bilateral symmetry from a state of radial symmetry.

3. Secondary membrane provides protection and ensures processing of nutritive materials from the surroundings.

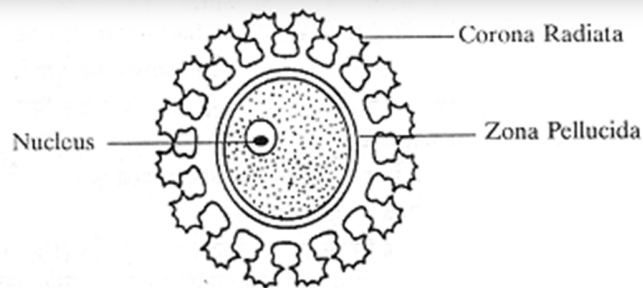
4. Tertiary membrane ensures adequate water supply and provisions for organic food.



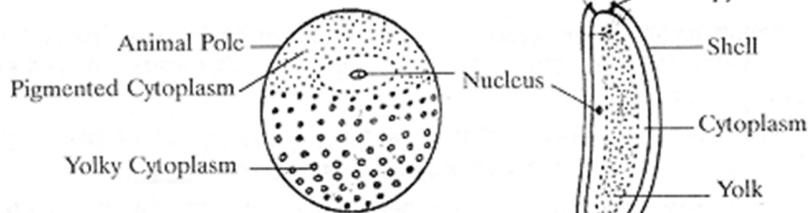
Frog's Egg



Hen's egg

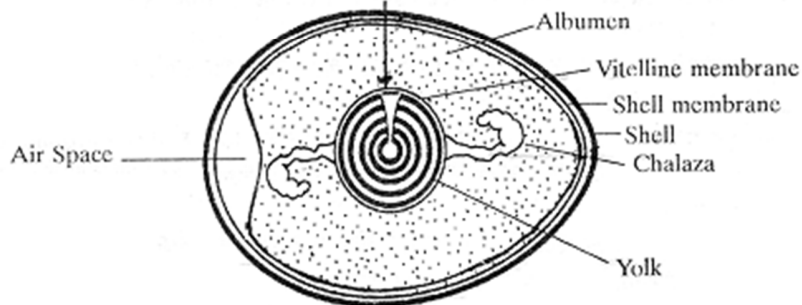


Microlecithal and Isolecithal Egg.



Mesolecithal and Telolecithal Egg.

Polycycthal and Centrocithal Egg.



Macrolecithal and Telolecithal Egg.