

## \* Fertilisation

Amphimixis - 1. Union of pro-nuclei of both  $\sigma^2$  &  $\rho$  gamete to form diploid zygote, process is called fertilisation.

Amphimixis - Mixing of chromosome of both  $\sigma^2$  &  $\rho$  gamete is called amphimixis. Actually fertilisation is a result of amphimixis.

## \* Chance of fertilisation

- Surface of ovum contain fertilizin (glyco protein) and sperm contain antifertilizin (acidic protein). Both fertilising and anti-fertilising are specific with each other for reaction.

eg. Aquatic animals

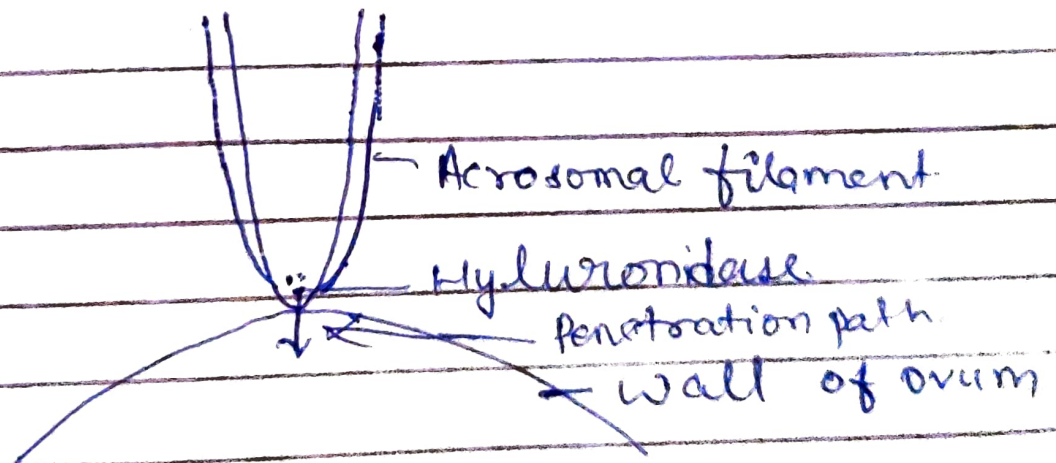
- No. of sperm is more than no. of ovum.

eg. all animals

- By copulatory organ

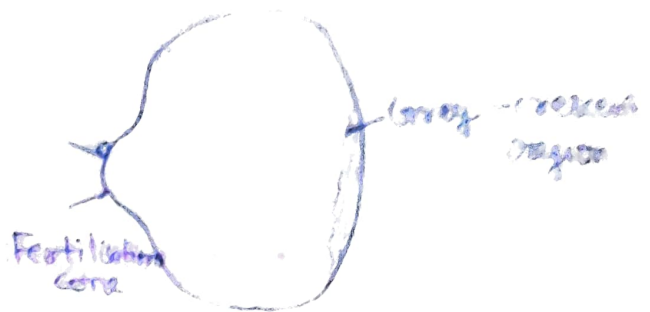
eg. mammals.

## Mechanism -

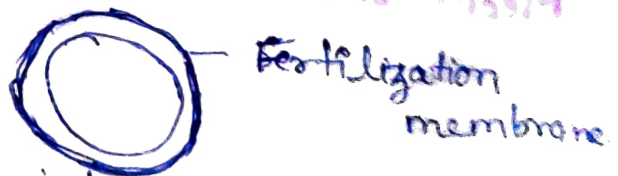
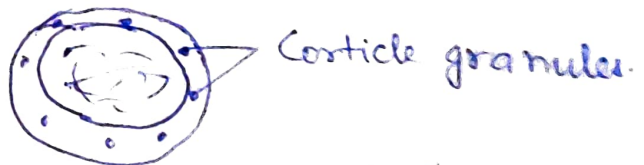
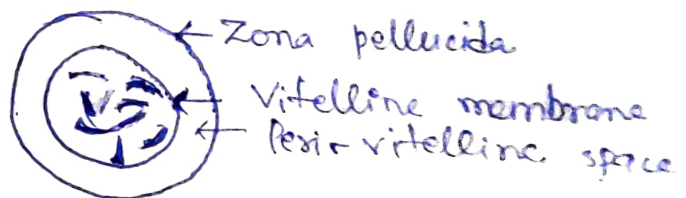


When sperm touches with wall of ovum, acrosomal cap elongates to form acrosomal filament. Tip of acrosomal filament contain hyaluronidase.

"It dissolves the wall of ovum." This path is called penetration path.



When sperm touches with wall of ovum, sperm moves towards the sperm. Due to this reason a conical projection is formed is called fertilisation cone (receptacle cone). Fertilisation cone is formed towards animal pole. Sperm always enters into ovum through fertilisation cone. ~~tail~~ part of sperm can't enter into ovum. It is due to quickly formation of fertilisation membrane.



When sperm enter into ovum, Golgi body of ovum secrete cortical granules in perivitelline space. Each of these granules rotate in perivitelline space and finally fuse with zona - pellucida to form fertilisation membrane. It prevents entry of other sperm. Formation of fertilisation membrane is called cortical reaction.



All parts of sperm except nucleus and proximal centriole dissolve in ooplasm. Now sperm nucleus + proximal centriole rotates by  $180^\circ$  angle (at figure). Centriole reaches near the nucleus of ovum. Now both nuclei absorb ooplasm and become swell like vesicle called pronucleus. Male pronucleus move towards the  $\phi$  pronucleus and finally fused together to form diploid zygote. This path is called copulation path.