

Retrogressive Metamorphosis-1

DEGREE-I

RETROGRESSIVE METAMORPHOSIS

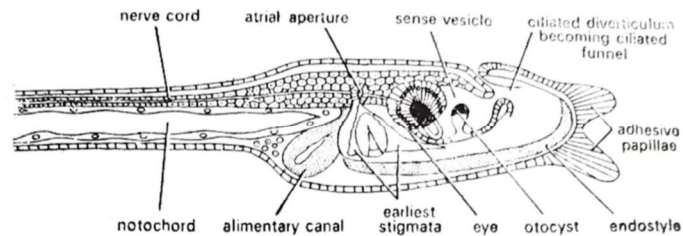
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Retrogressive Metamorphosis

Retrogressive metamorphosis is a phenomenon by which an active, free-swimming tadpole larva with notochord, dorsal neural tube and special sense organ develops into an inert, most degenerated and sedentary adults.

Structure of a Tadpole Larva

The larva of ascidian is called tadpole larva because it takes after small tadpole. Its formation takes about 10-12 hrs, after the egg



is fertilized. It is transparent, minute, about 1.2 mm long, 0.2-0.3 mm wide and highly motile. Its entire body is covered with a thin test that is secreted by ectoderm and shows two distinct divisions— anterior trunk or head and posterior tail.

Trunk is about 0.3 mm long and cylindrical. Its anterior end has three stalked adhesive papillae, 2 dorso-lateral and 1 ventro- median. The papillae are made of secretory and serve for attachment.

Brain is situated in the dorsal part of the trunk. Its wall is single layered and have 2 ocelli (photoreceptors), and one otocyst or otolith (to maintain equilibrium). Cerebral cone is found in front of sensory vesicle. It is a conical solid mass of nerve cells. visceral ganglion is found behind the vesicle. It is thickened solid mass of nerve cells. visceral ganglion is continued into tubular nerve cord upto the tip of the tail.

Alimentary canal starts distinguishing. It has a pharynx, oesophagus, stomach and intestine, but it is non-functional since the mouth is covered by the test. Anus opens into left side of atrium. Pharynx has a well-developed endostyle and one pair of large gill slits. The gill slits split to form 6 stigmata on either side. Pericardium that contains heart is found below the posterior end of pharynx. Mesenchyme cells are found scattered all over the body beneath the ectoderm and in the posterior region of trunk.

It is the locomotor organ of the tadpole larva. It is 0.9 mm long, laterally compressed and terminally pointed. It has oblique striations looking like fin-rays.

Notochord forms the supporting axial skeletal rod that is restricted to the tail. It consists of turgid vacuolated cells.

Nerve cord lies above the notochord. It bears tail ganglia. It also contains muscle bands showing superficial segmentation.

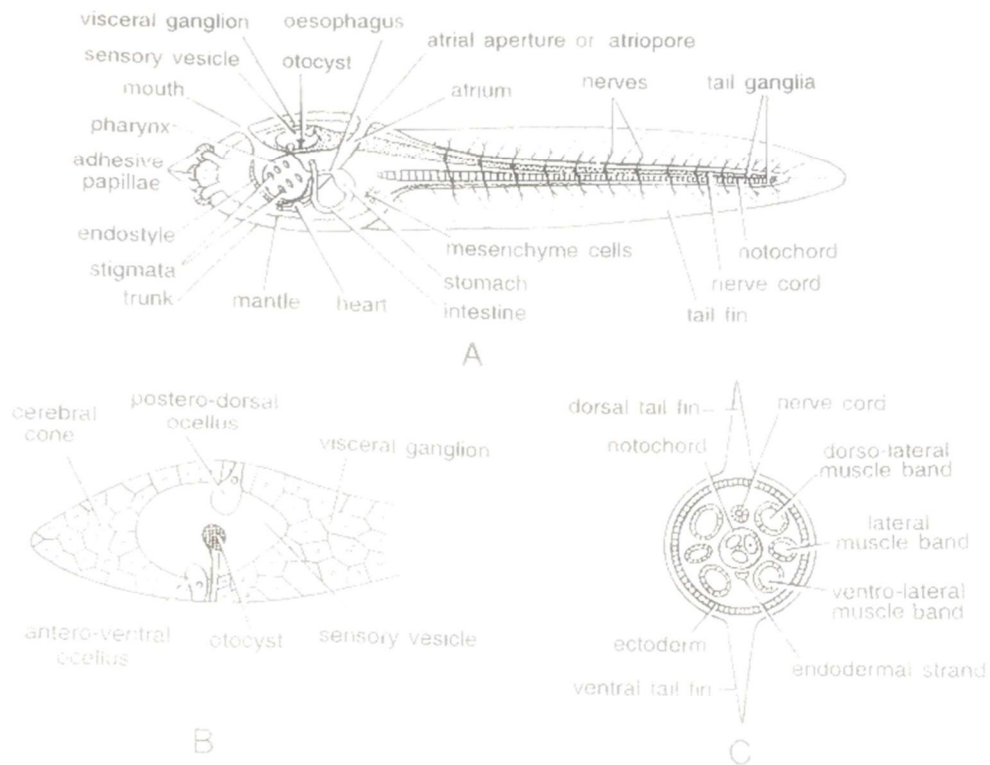


Figure 1

A Structure of Tadpole Larva

B Sensory Vesicle

C Tail in T.S.