

Dissection of the endostyle in *Ciona intestinalis*

The ascidian endostyle is a pharyngeal organ forming a shallow groove mid-ventrally along the whole length of the branchial sac (BS). It is covered by secretory and ciliated cells and is in general divided into eight regions or zones. Some of them are involved in the production of the secretion which contributes to the feeding mechanism, other are organized for “thyroidal activity”. For these peculiar activities, the endostyle is considered the evolutionary forerunner of the vertebrate thyroid gland.

1. Make a wide longitudinal cut along the left side of the animal in proximity of the atrial siphon and continue the cut posteriorly through the body wall.

Care must be taken to remove the two layers of the test (the hardened outer layer and the gelatinous inner layer). The cut will open into the atrial cavity, exposing the BS.

The BS has walls perforated by very large numbers of little slits (stigmata) which give them the likeness of mesh.

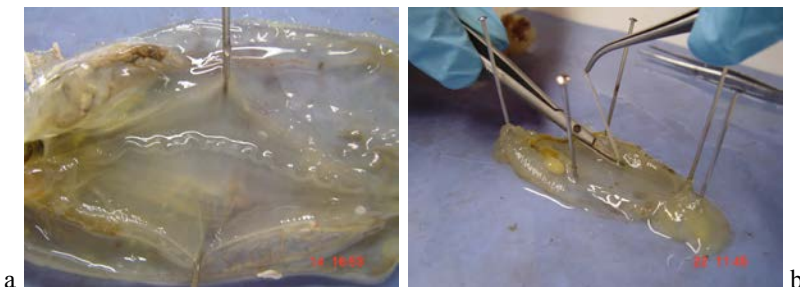
2. Use the scissors to continue the cut along the BS, through the thin wall, exposing the endostyle.

The endostyle comes into sight as a longitudinal strip along the entire floor of the BS (a).

3. At the posterior end of the endostyle is clearly visible a short endostylar appendix. Starting from this latter, cut underneath the strip and proceed with care removing it. Use a pair of fine forceps to progressively lift the edge of the endostyle during the cutting (b).

4. Dissected endostyles can be maintained for some hours in filtered sea water. According to the needs, they can be stored frozen (-20 °C, at least) until the attained quantity.

Further “cleaning” to eliminate fragments of BS and/or the dissection of different organ’s parts (such as different gland strips) can be performed onto dissected endostyles under the stereo-microscope.



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Animals: Adult ascidians collected from natural population.

Apparatus: a pad to pin in place animals, pins, forceps, scissors (shepard scissors are preferred); filtered seawater 0,22µ, Petri dishes, eppendorf tubes; a dissection microscope (stereo-microscope).

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