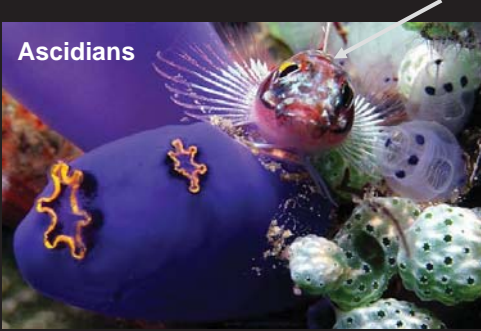


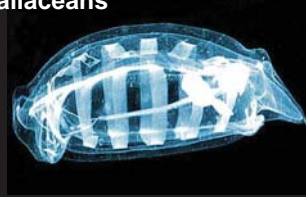
Ph. Chordata

Subph. Urochordata (Subph. Vertebrata) Subph. Cephalochordata

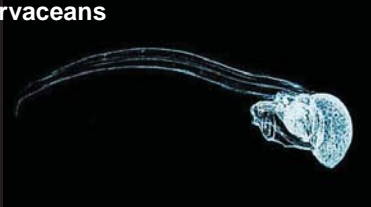
Ascidians



Thaliaceans

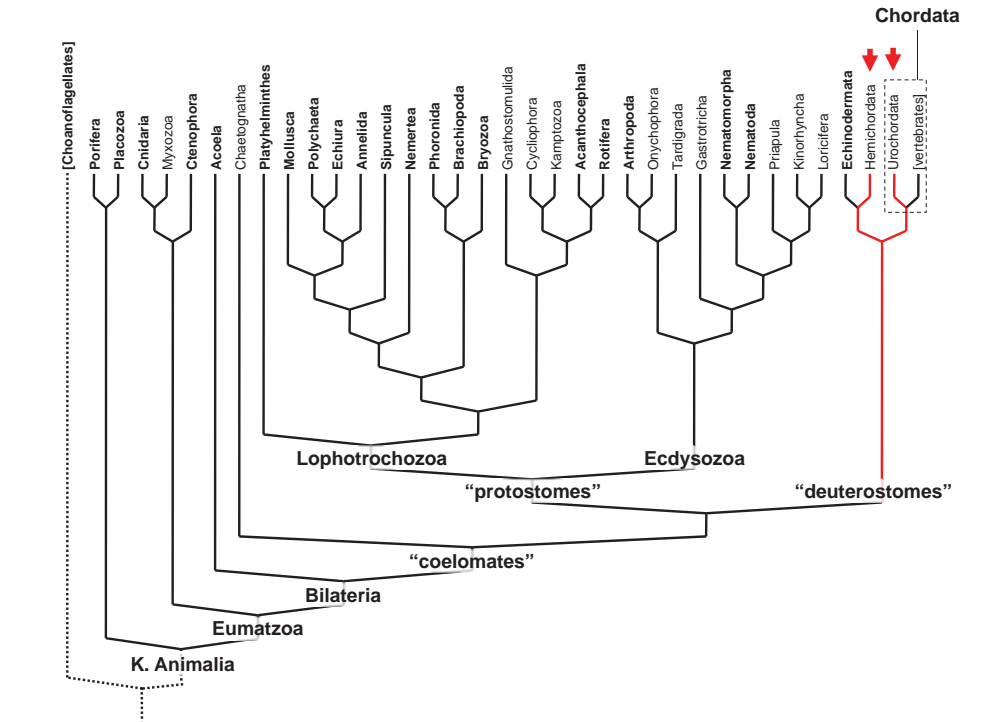


Larvaceans

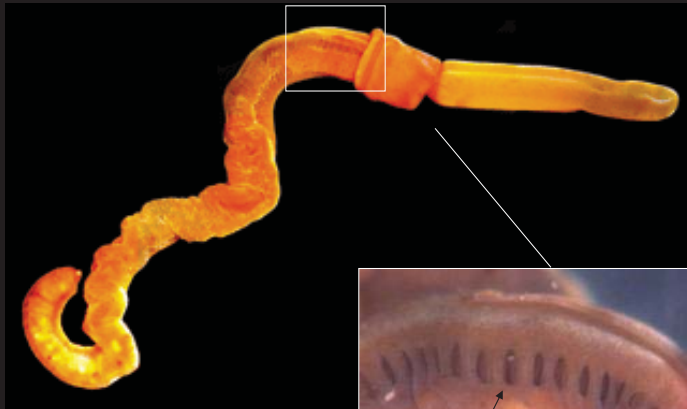


Ph. Hemichordata

Theme: vertebrate affinities, dissimilarities



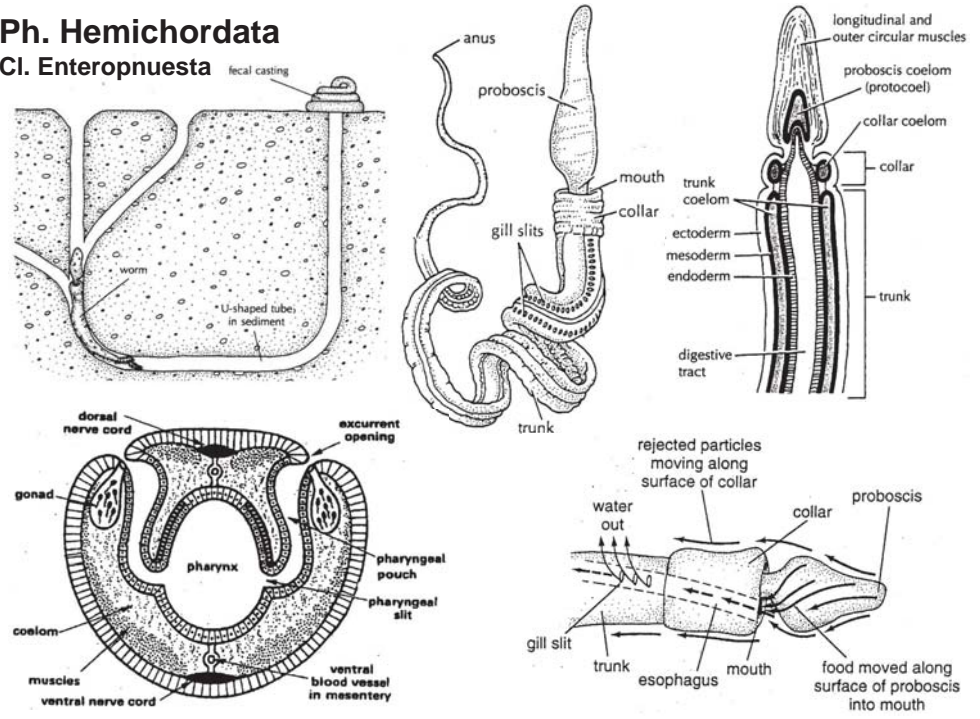
Ph. Hemichordata



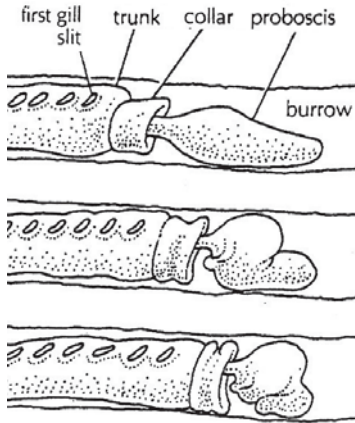
pharyngeal gill slits!

Ph. Hemichordata

Cl. Enteropneusta

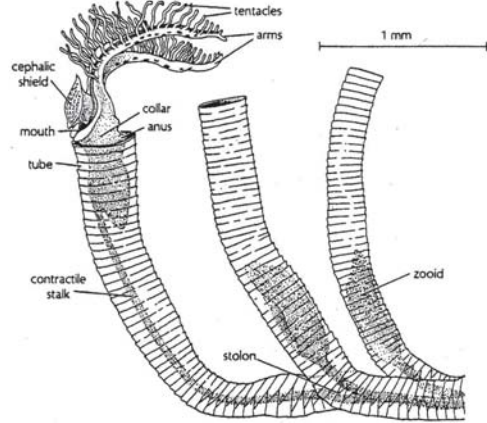


Ph. Hemichordata



Cl. Enteropneusta

- large, solitary, burrowers
- deposit feeders



Cl. Pterobranchia

- small, colonial, tentacled
- suspension feeders

Ph. Chordata

Subph. Urochordata

(Subph. Vertebrata)

Subph. Cephalochordata

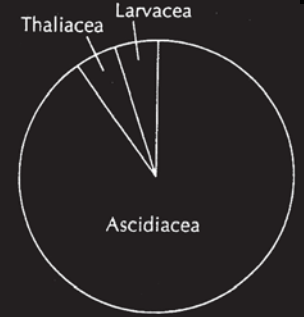
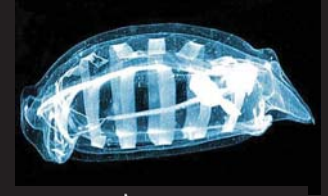
Ascidiaceans



Larvaceans



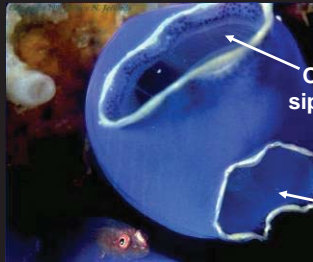
Thaliaceans



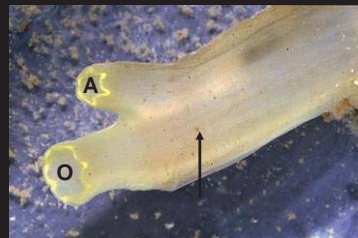
Subph. Urochordata

Cl. Ascidiacea

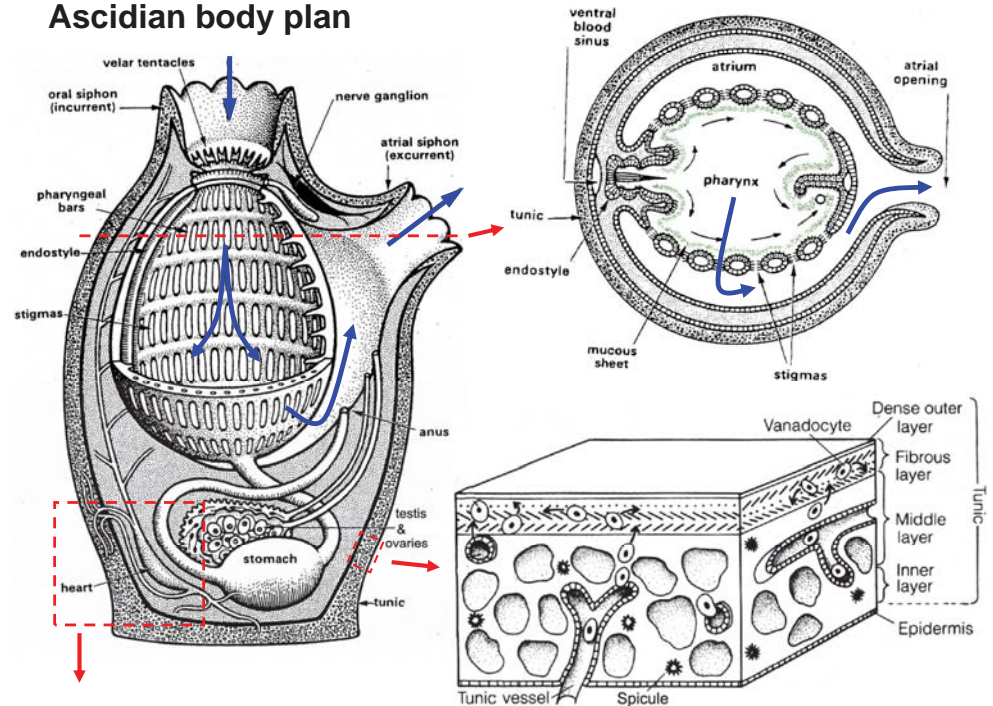
solitary forms

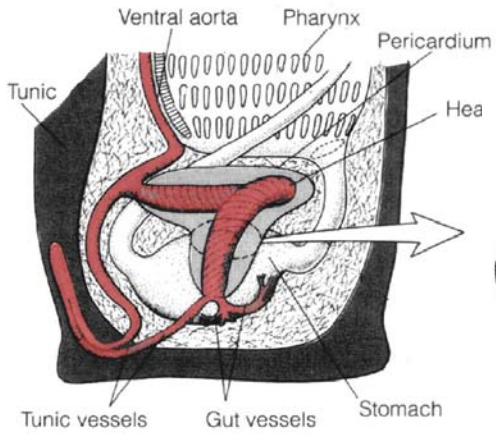


sorberacean deep-sea predator!

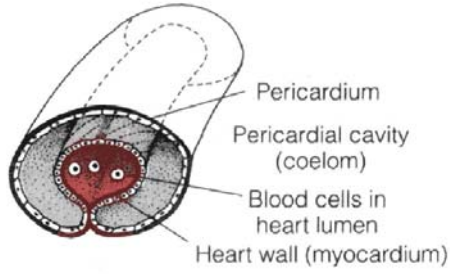


Ascidian body plan



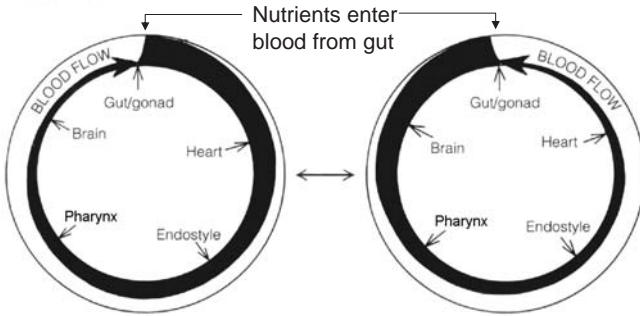


Ascidian hemal system

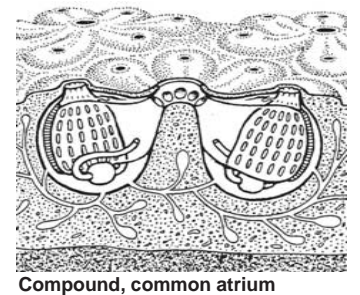
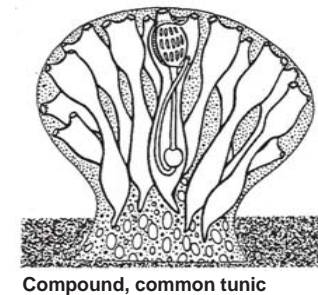
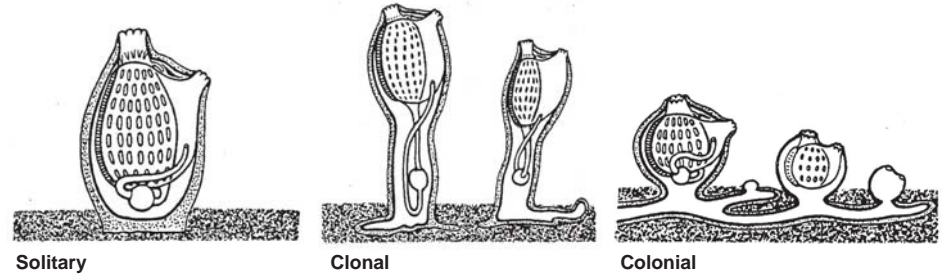


Unique features

- construction of tube
- wringing action
- double pacemaker
- reversal
- organs lie in series



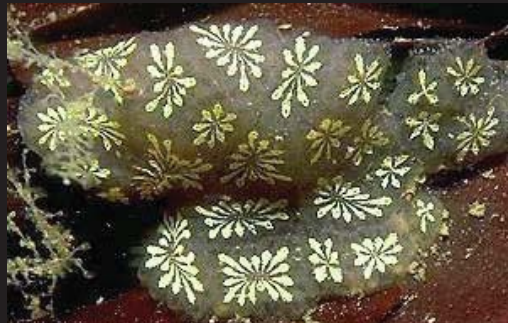
Ascidian variation in body form



Cl. Ascidiacea

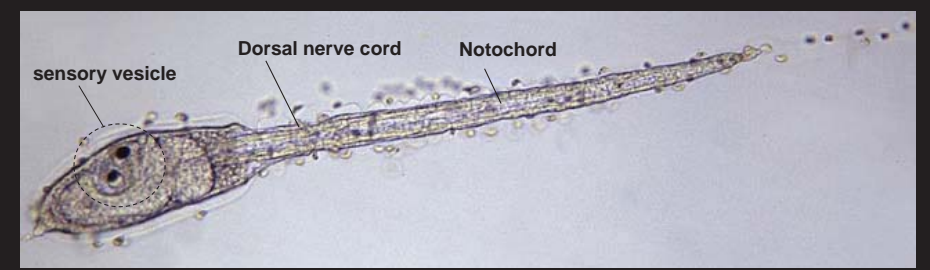
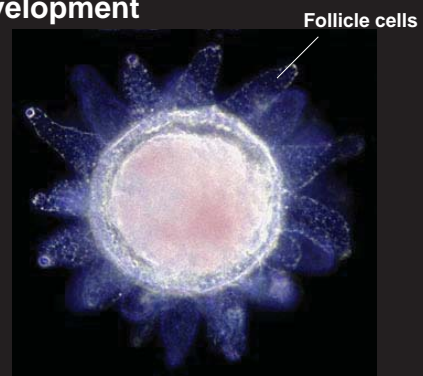


clonal or colonial

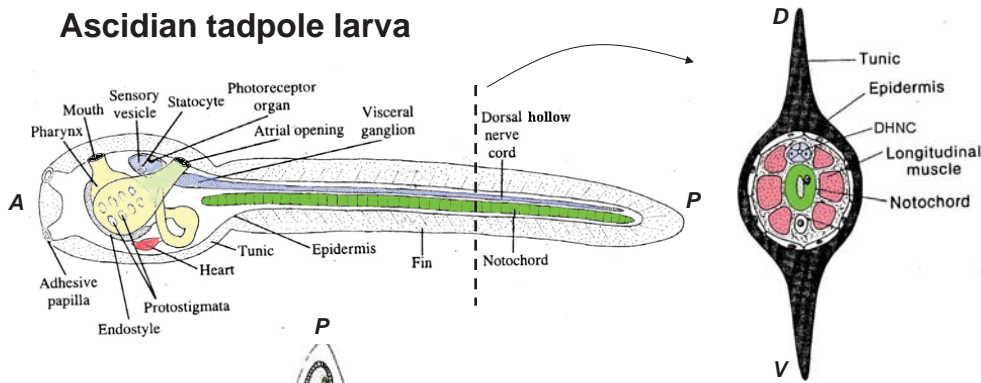


compound

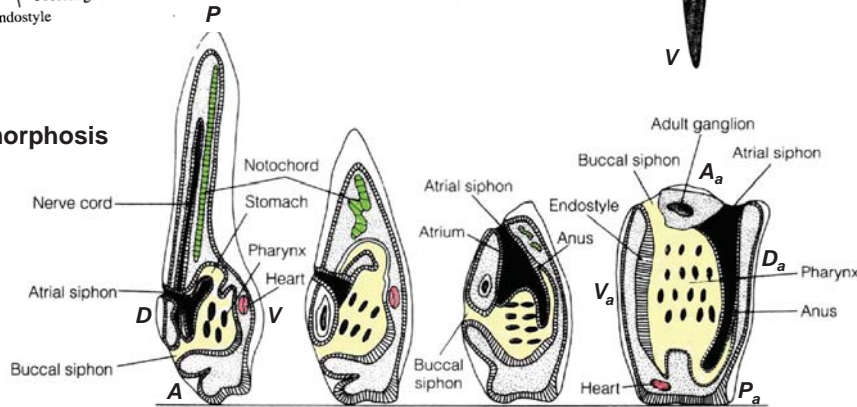
Ascidian larval development



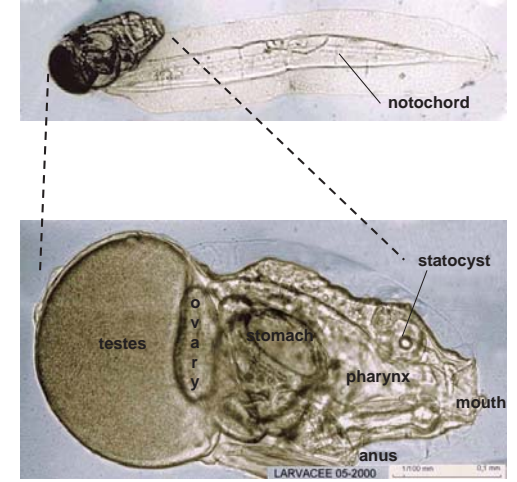
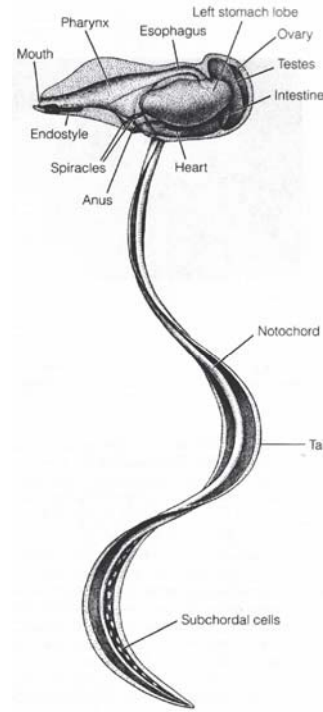
Ascidian tadpole larva



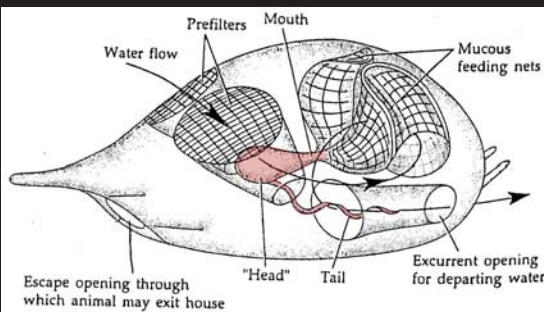
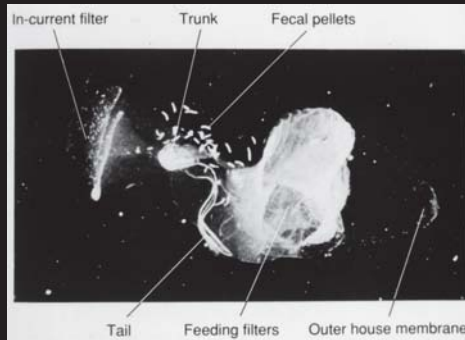
metamorphosis



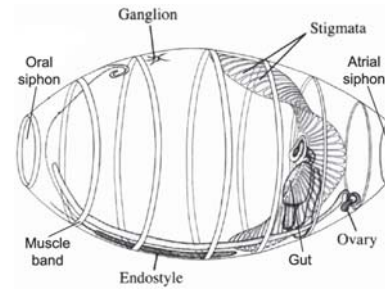
Subph. Urochordata Cl. Larvacea (= Appendicularia)



The larvacean house

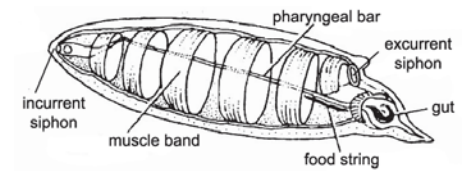


doliolids (23 spp.)

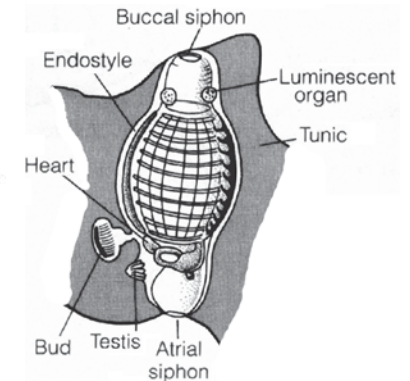
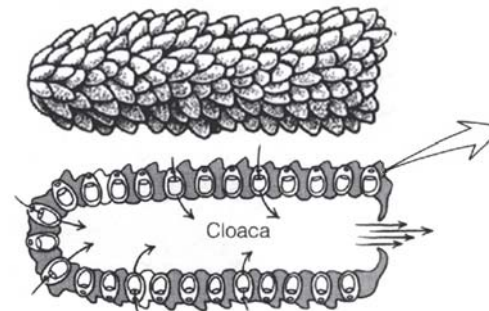


Subph. Urochordata Cl. Thaliacea

salps (40 spp.)



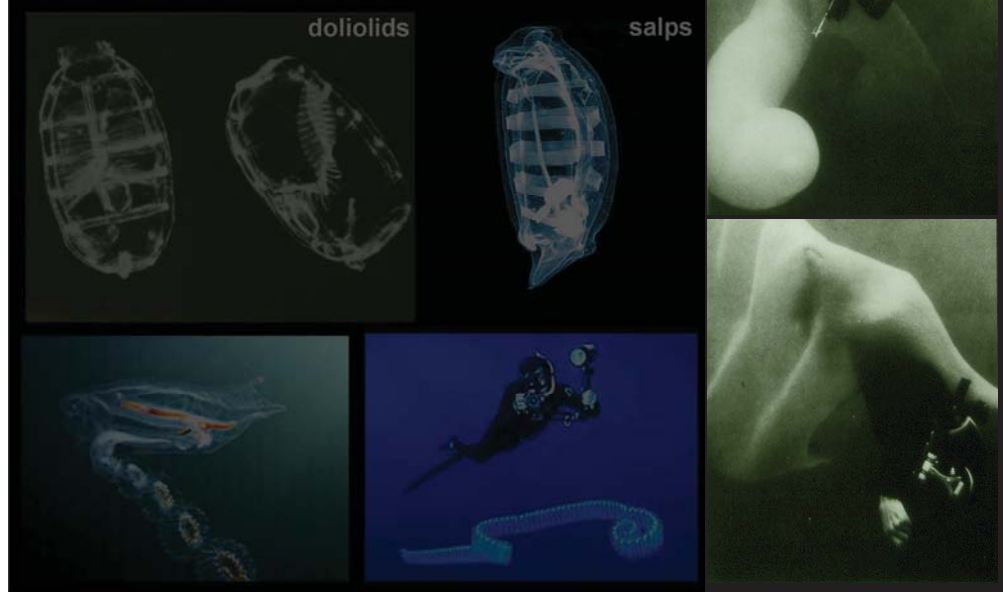
pyrosomes (10 spp.)





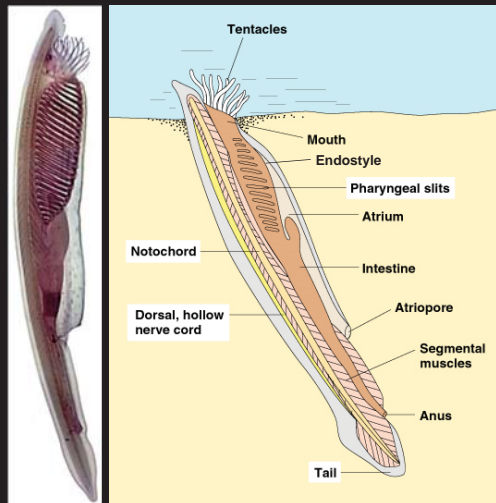
Cl. Thaliacea

(Subph. Urochordata)



Ph. Chordata

Subph. Urochordata (Subph. Vertebrata) Subph. Cephalochordata



Chordate characteristics

- Notochord
- DHNC
- Pharyngeal slits
- Endostyle
- Post-anal tail