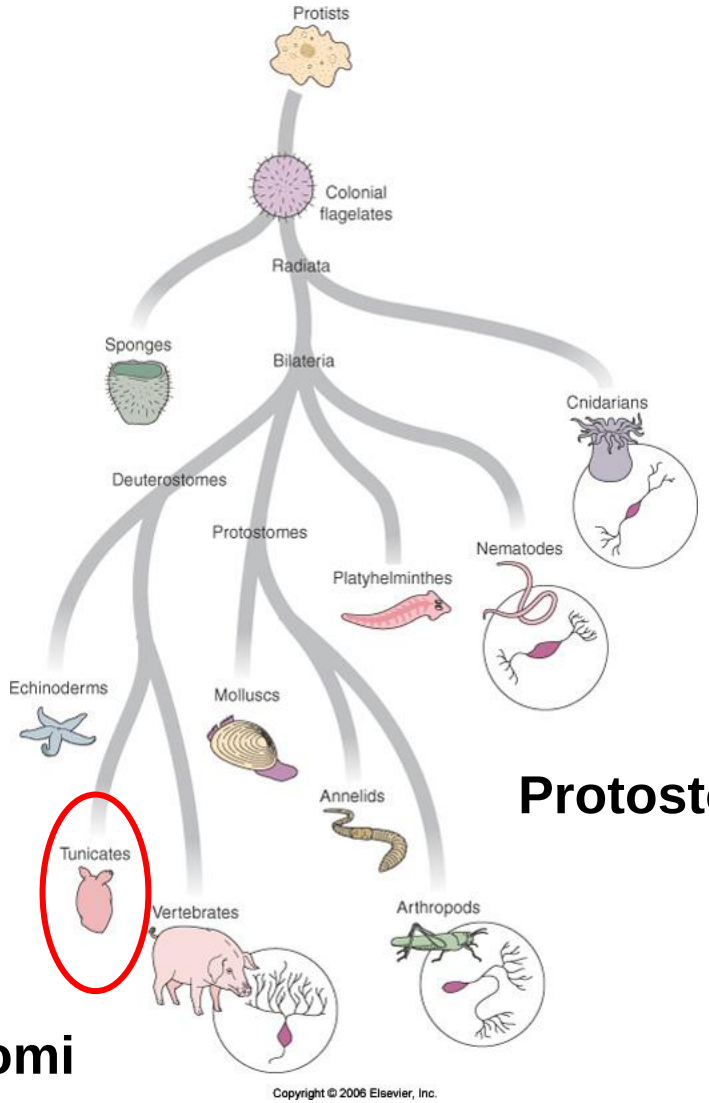
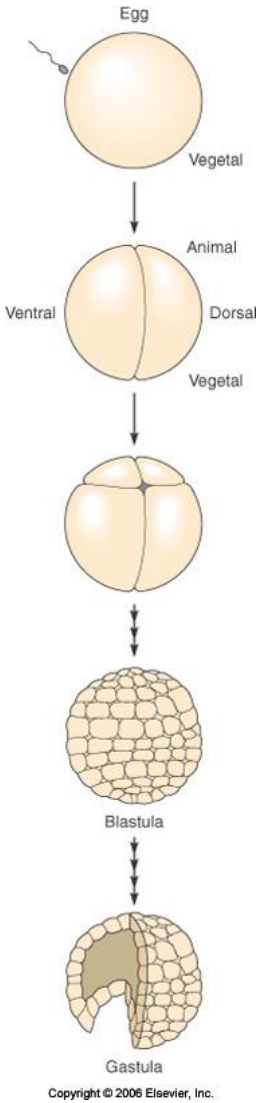
SVILUPPO PRECOCE E FILOGENESI DEI METAZOI



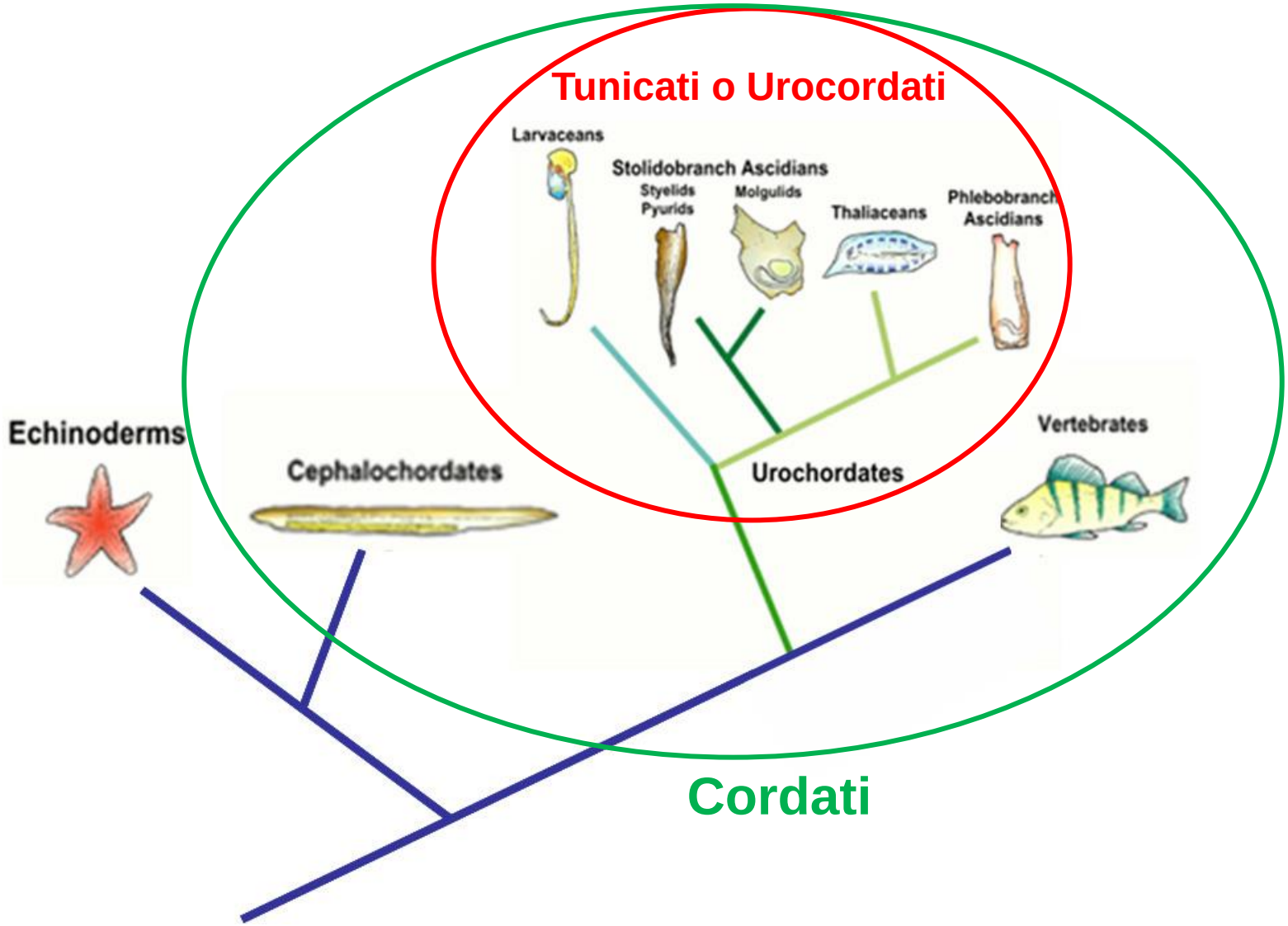
Protostomi

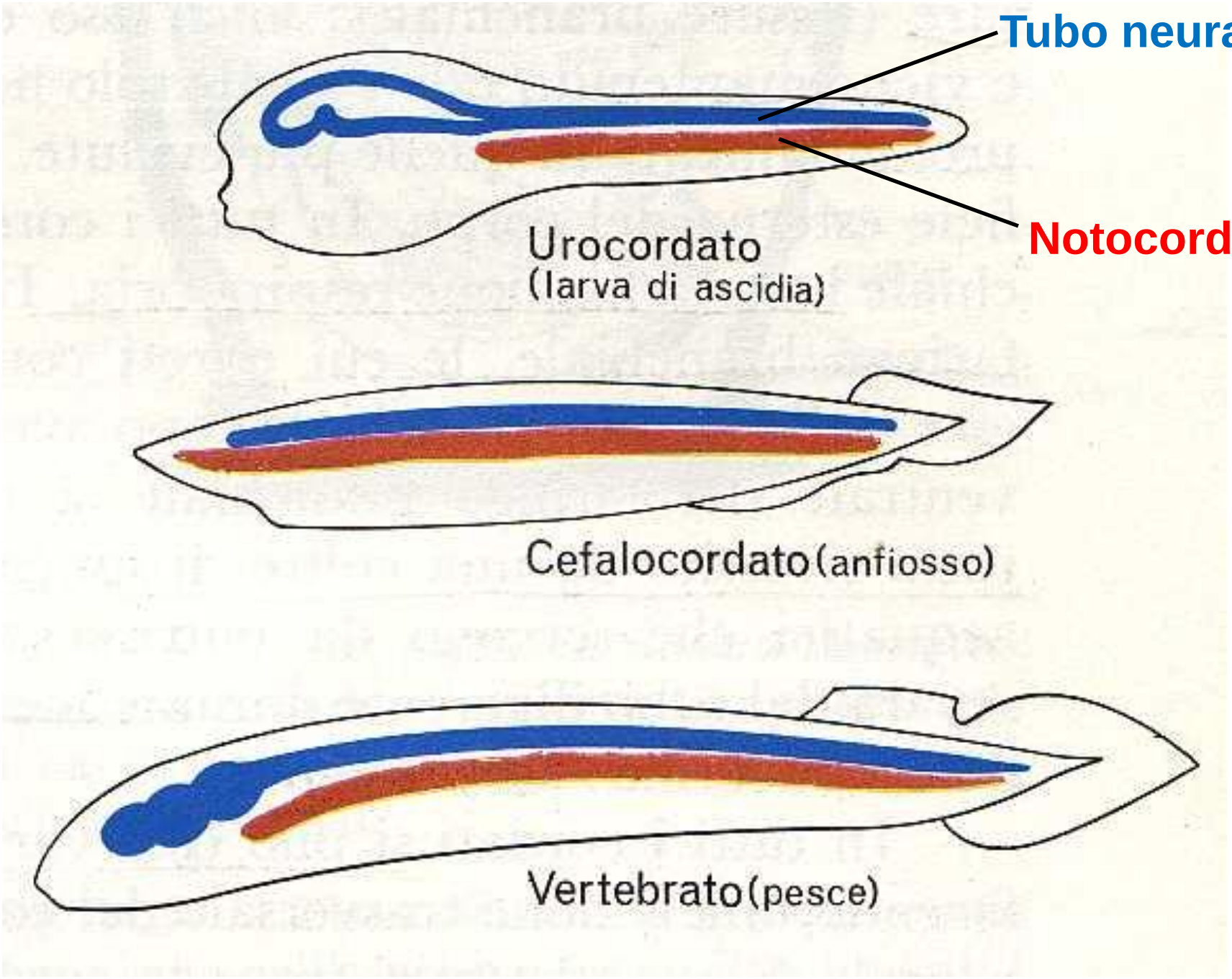
Deuterostomi



Protostomi: nel canale alimentare si forma prima la bocca
Deuterostomi: nel canale alimentare la bocca si forma per ultima

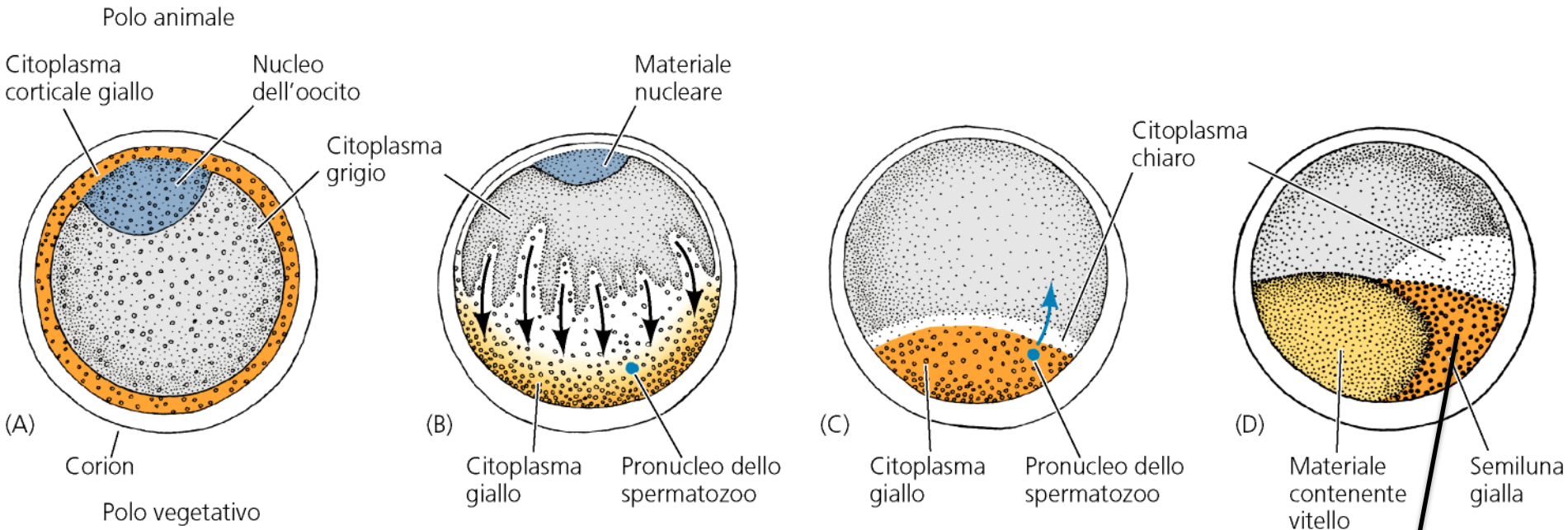
I TUNICATI RAPPRESENTANO IL SISTER GROUP DEI VERTEBRATI




Tubo neurale
Notocorda
Urocordato
(larva di ascidia)
Cefalocordato (anfiosso)
Vertebrato (pesce)

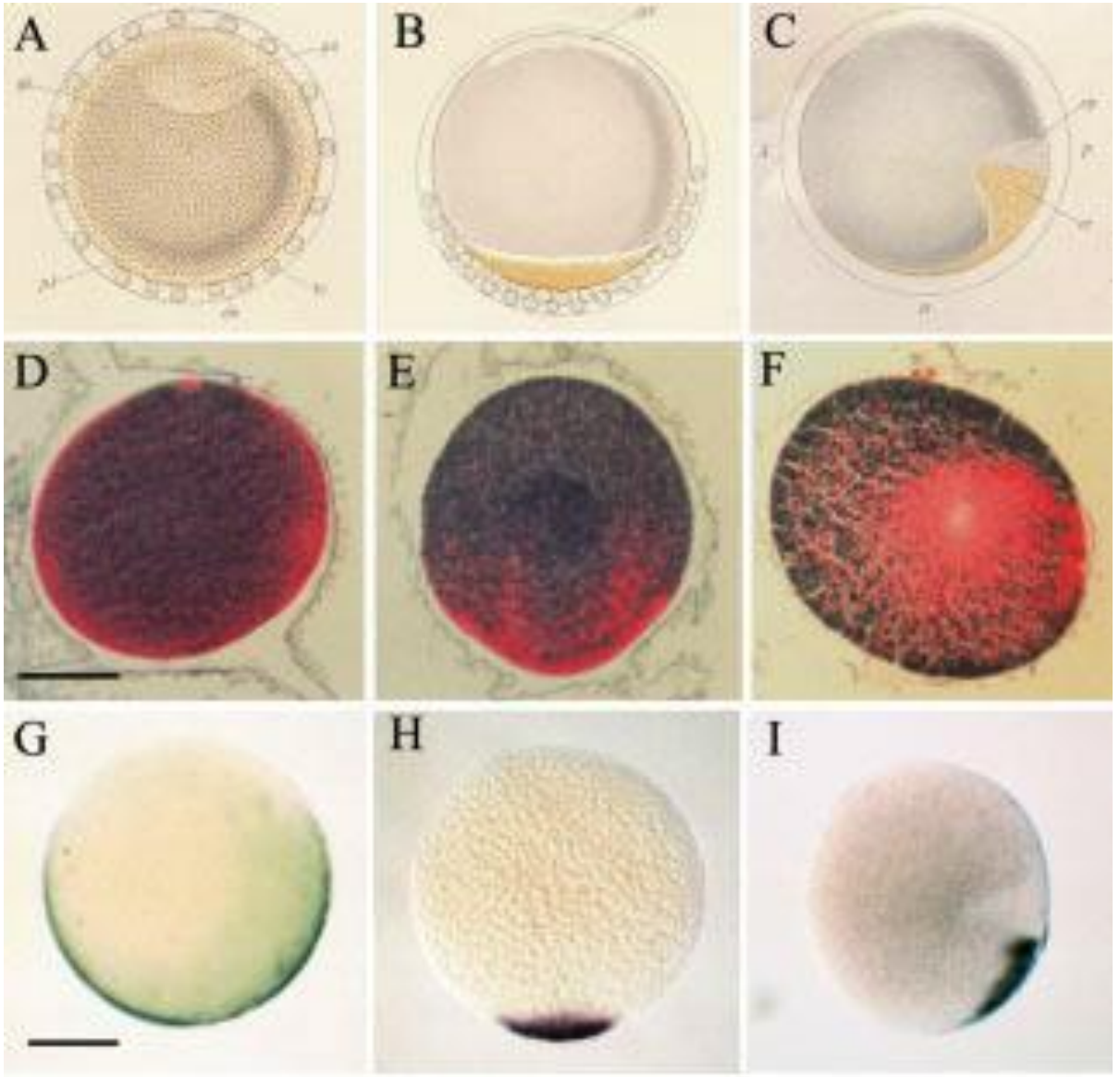
ASCIDIE: sviluppo indiretto con stadio larvale e metamorfosi nella forma adulta
LO STADIO LARVALE PRESENTA OMOLOGIE STRUTTURALI CON GLI STADI EMBRIONALI NEI VERTEBRATI

SEGREGAZIONE DEGLI OOPLASMI IN EMBRIONI DI ASCIDIE



DOPO LA FECONDAZIONE SI VERIFICANO COMPLESSI RIARRANGIAMENTI DEI MATERIALI CITOPLASMATICI

LA SEGREGAZIONE DEL MIOPLASMA SI SVOLGE IN TRE FASI



LA SEGREGAZIONE DEGLI OOPLASMI E' MEDIATA DAL CITOSCHELETRO

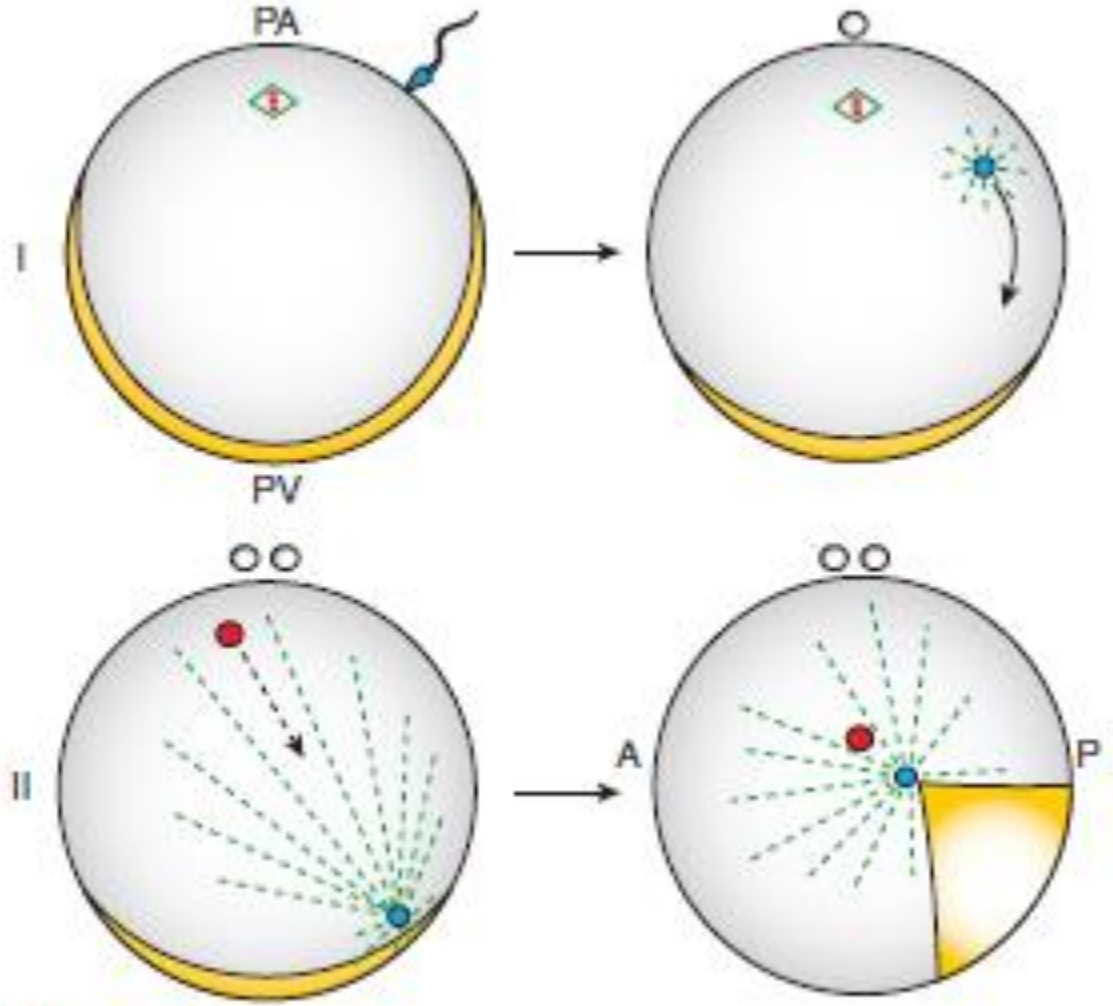
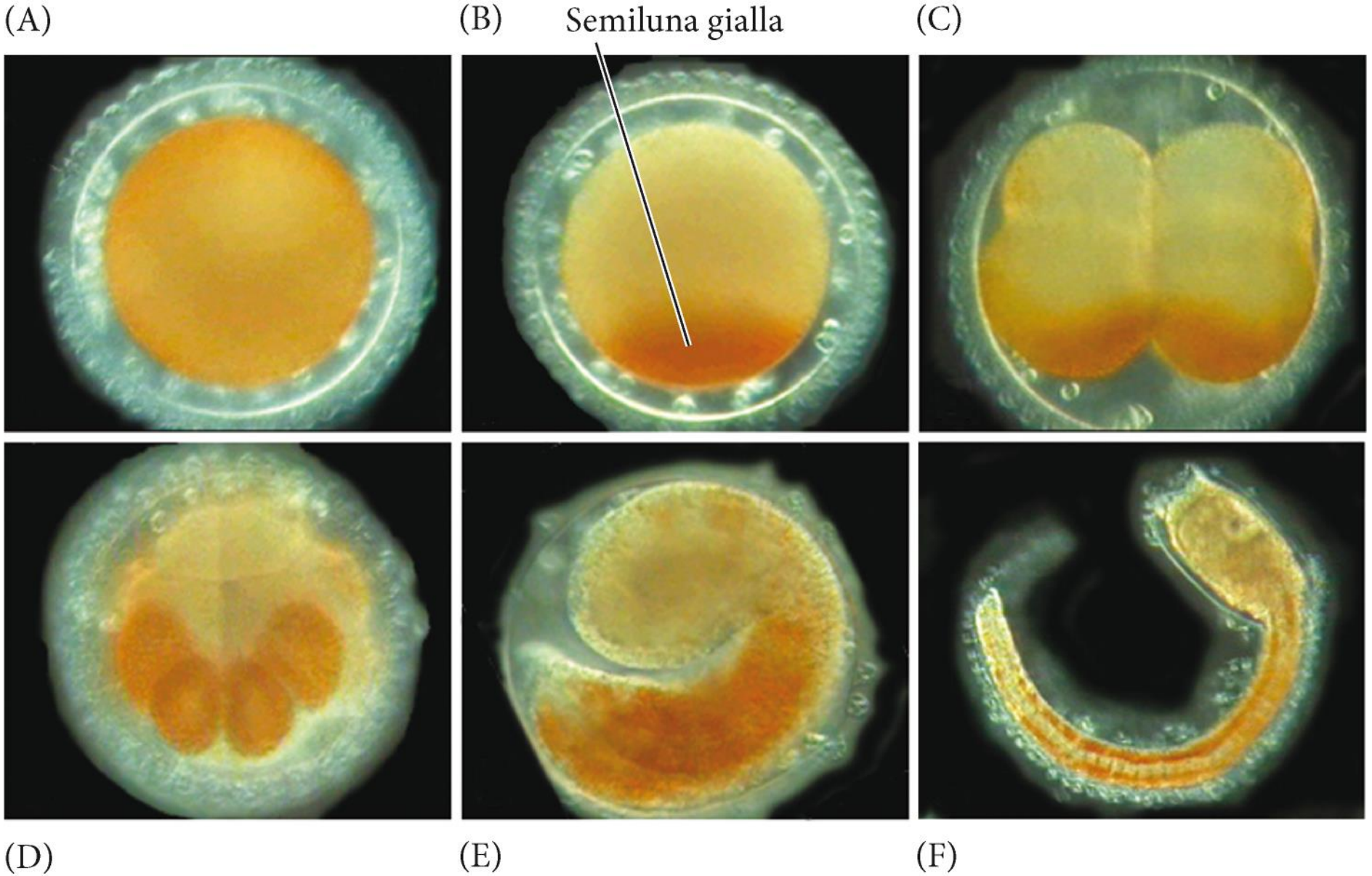
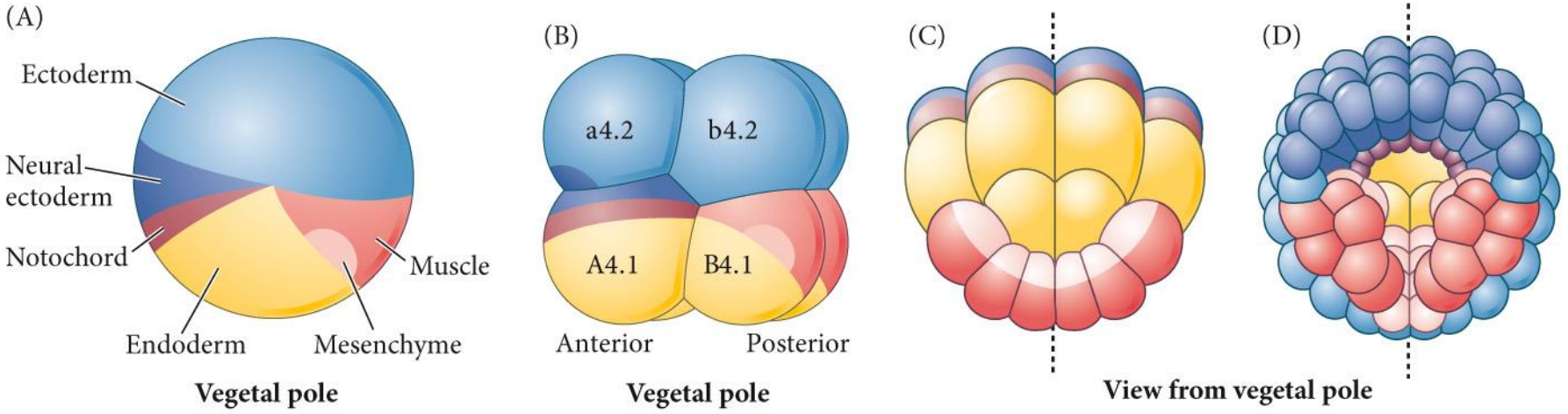


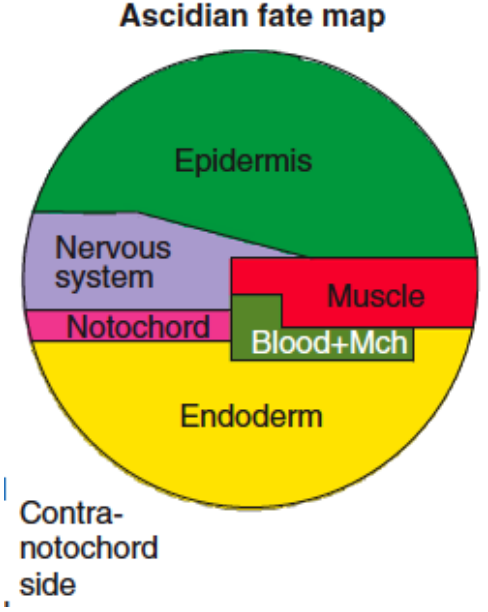
Figura 1


(A)
(B)
Semiluna gialla
(C)
(D)
(E)
(F)

MAPPA DEI TERRITORI PRESUNTIVI NELLO ZIGOTE DI ASCIDIA:
1) le regioni presuntive dell'ectoderma, mesoderma ed endoderma sono disposte lungo l'asse animale vegetativo;
2) le regioni presuntive del cordomesoderma e del neuroectoderma si trovano associate sullo stesso lato dell'embrione



Allo stadio di 8 cellule diversi destini differenziativi sono segregati in blastomeri diversi. La segregazione dei destini viene ulteriormente rifinita nel corso delle divisioni cellulari.



SEGMENTAZIONE OLOBLASTICA BILATERALE

LA SEGMENTAZIONE PRODUCE BLASTOMERI DI GRANDEZZA DIVERSA MEDIANTE DIVISIONI ASIMMETRICHE (BLASTOMERI PIU' PICCOLI AL POLO POSTERIORE).
LE DIVISIONI ASIMMETRICHE PROVOCANO LA SEGREGAZIONE DI DIVERSE REGIONI CITOPLASMATICHE IN CELLULE DIVERSE.

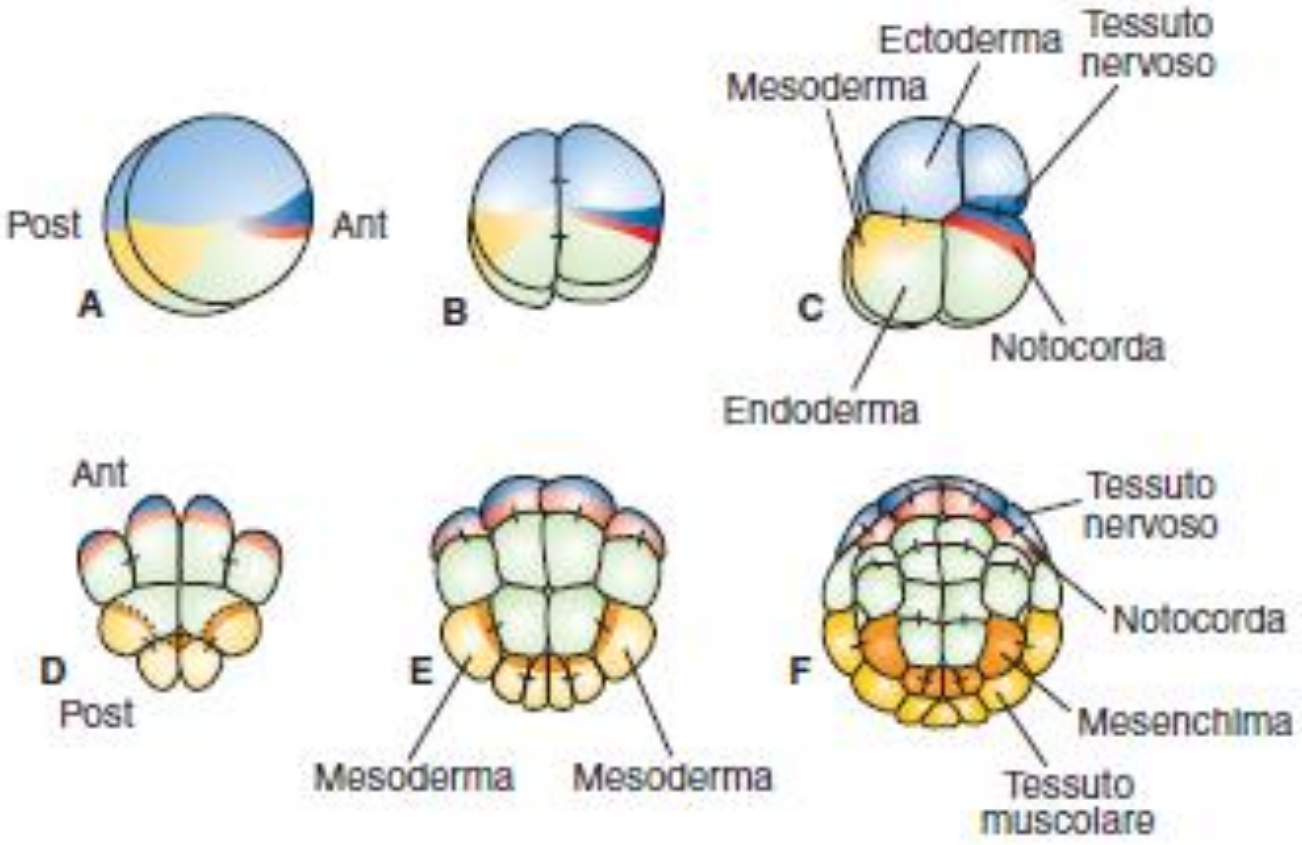
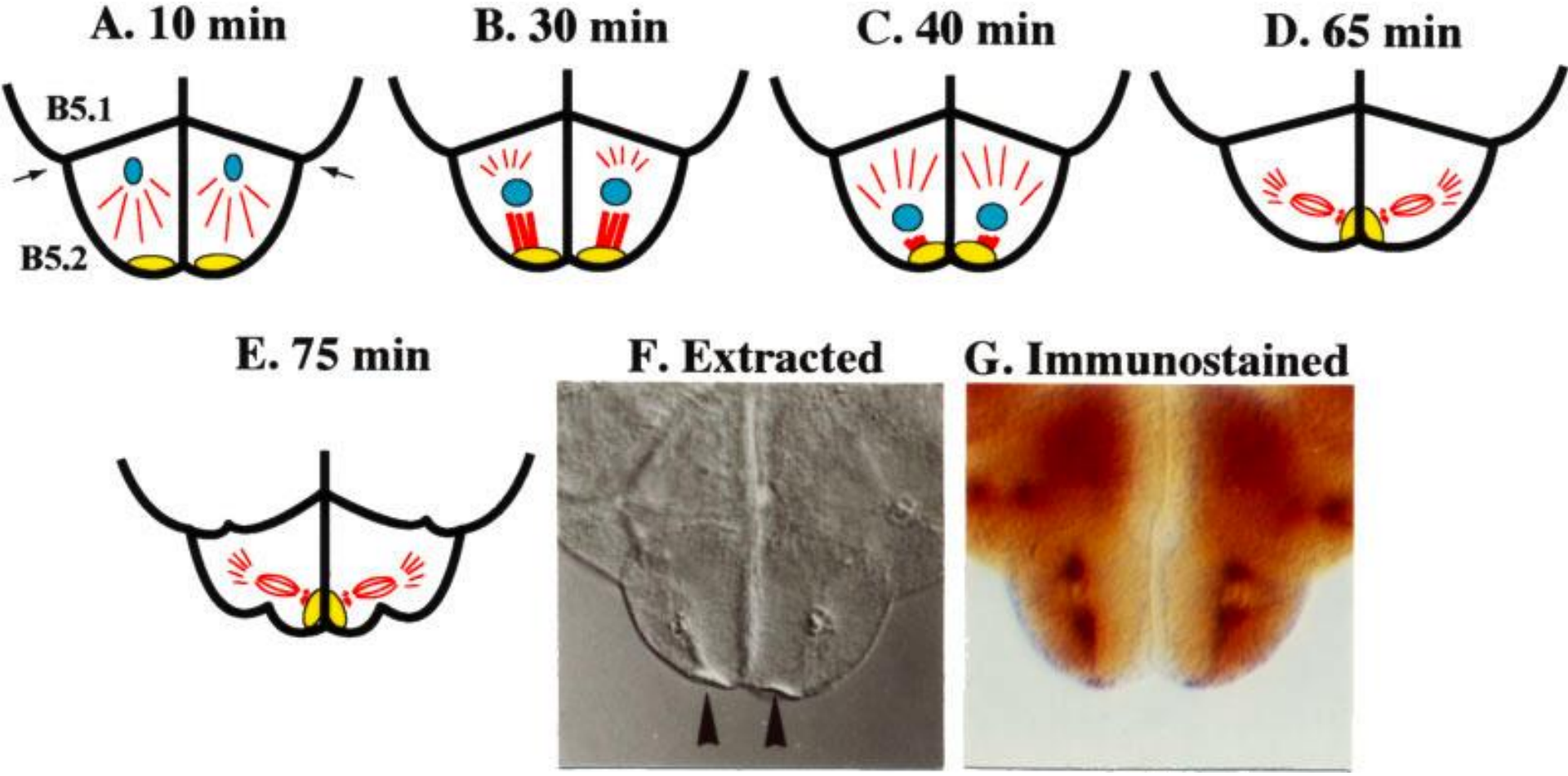
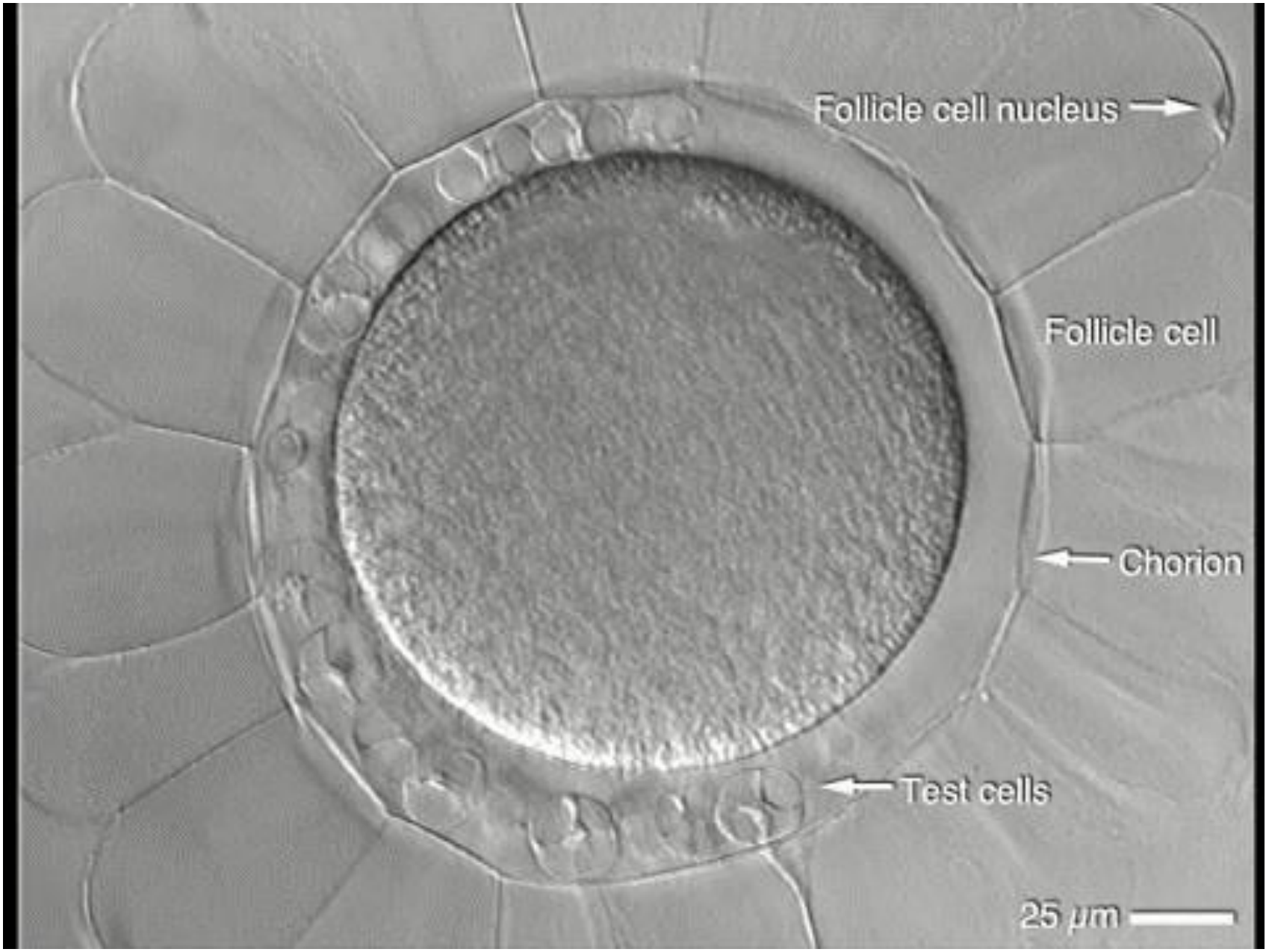


Figura 3

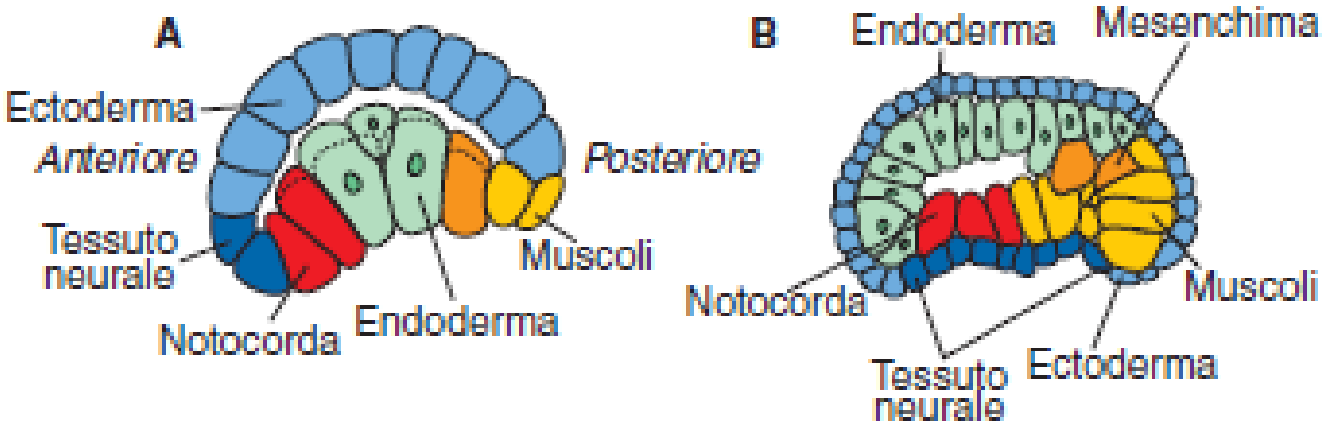
IL CENTROSOME-ATTRACTING BODY PROMUOVE DIVISIONI INEGUALI



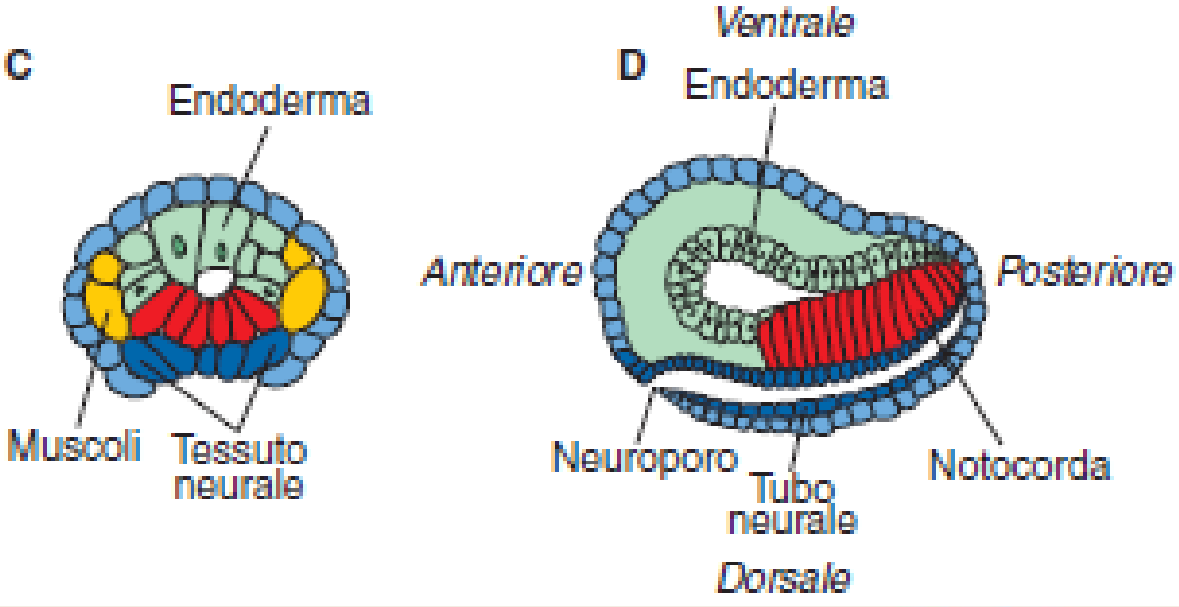

Follicle cell nucleus
Follicle cell
Chorion
Test cells
25 μm

GASTRULAZIONE NELLE ASCIDIE

L'ENDODERMA SI INTERNALIZZA PER INVAGINAZIONE, IL MESODERMA PER INVOLUZIONE L'ECTODERMA EFFETTUA L'EPIBOLIA

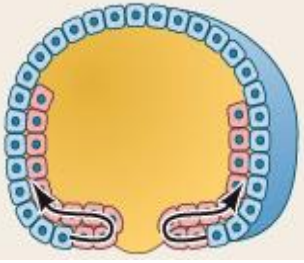


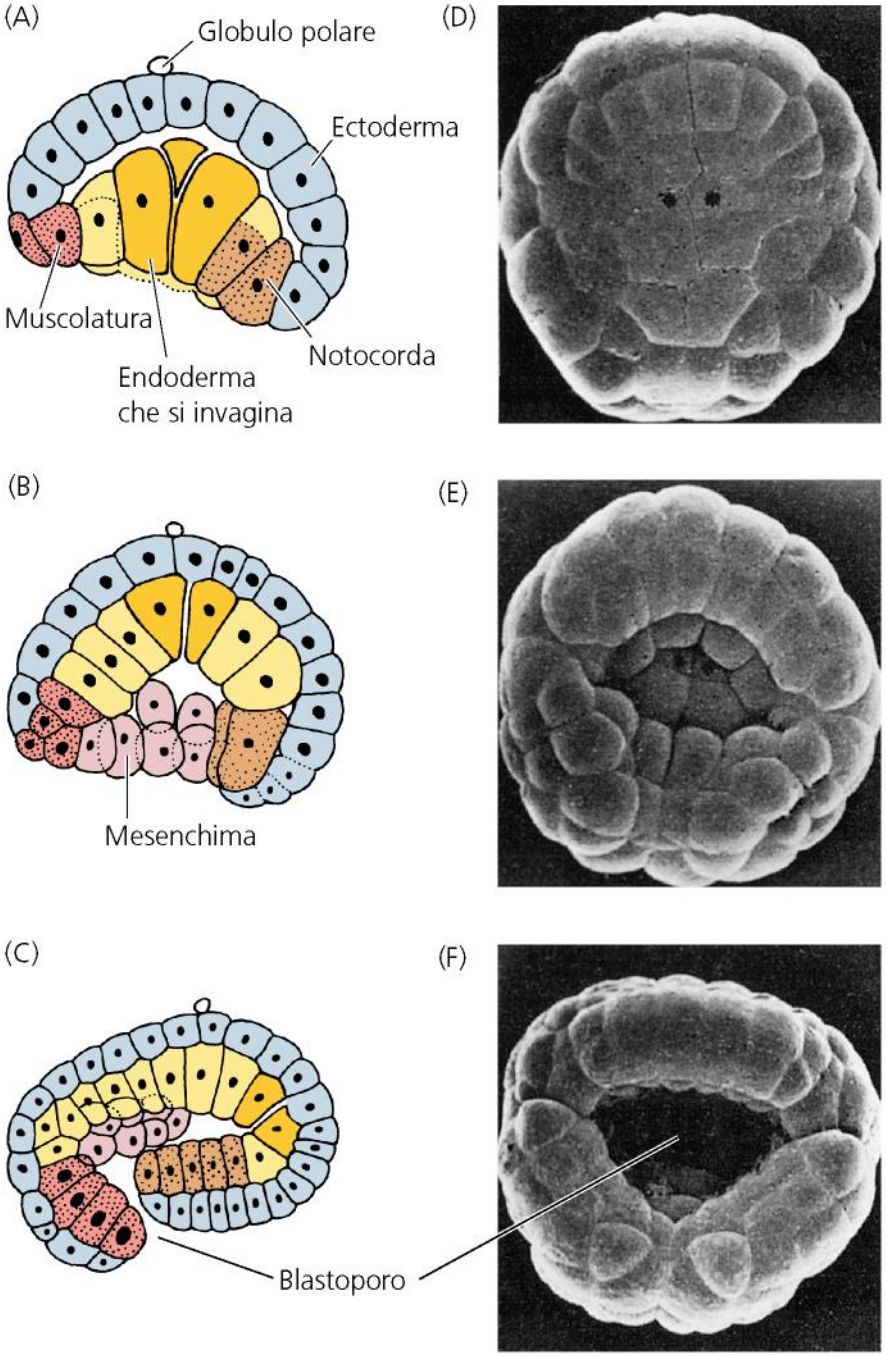
NEURULAZIONE NELLE ASCIDIE

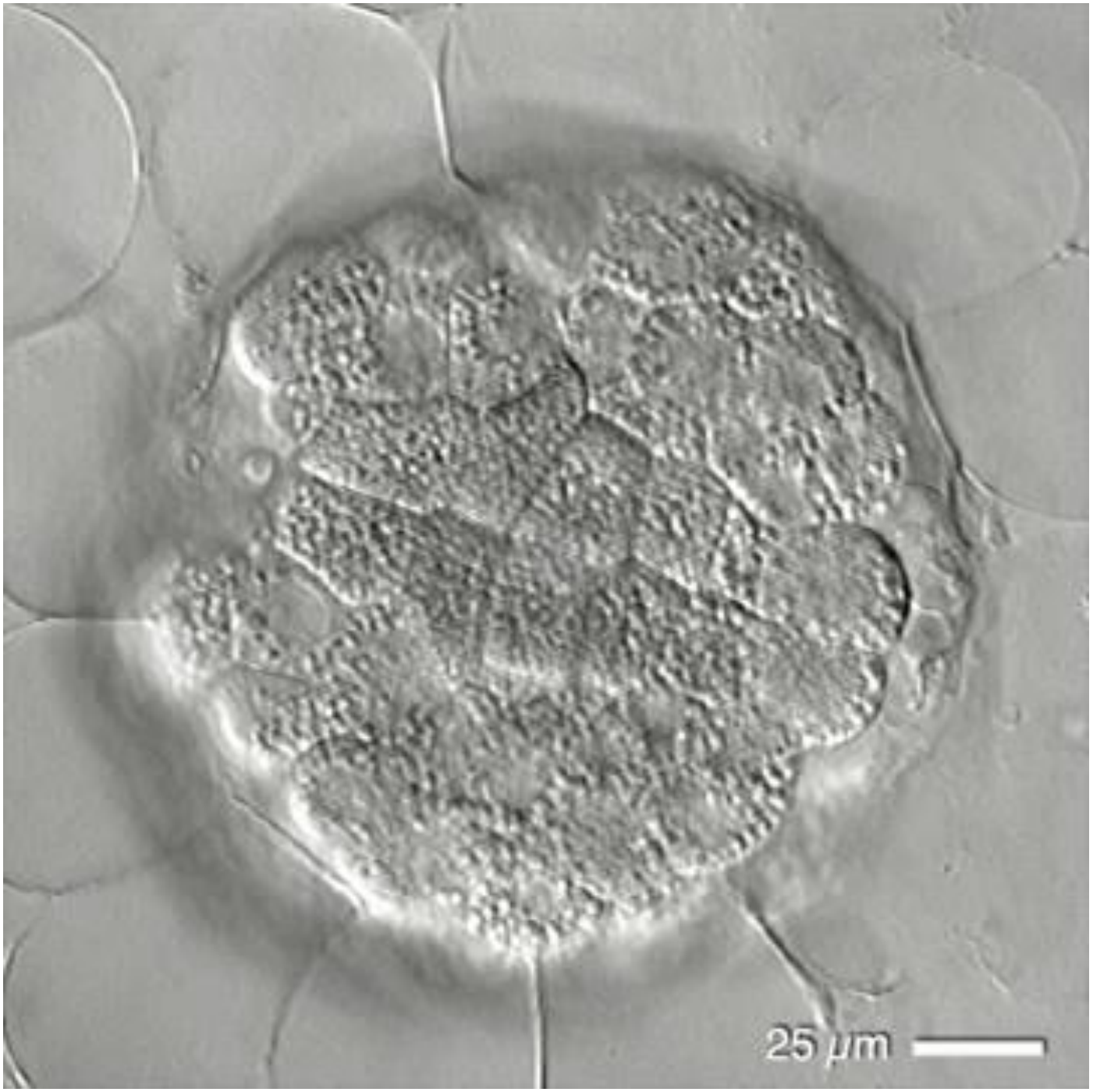


Involution

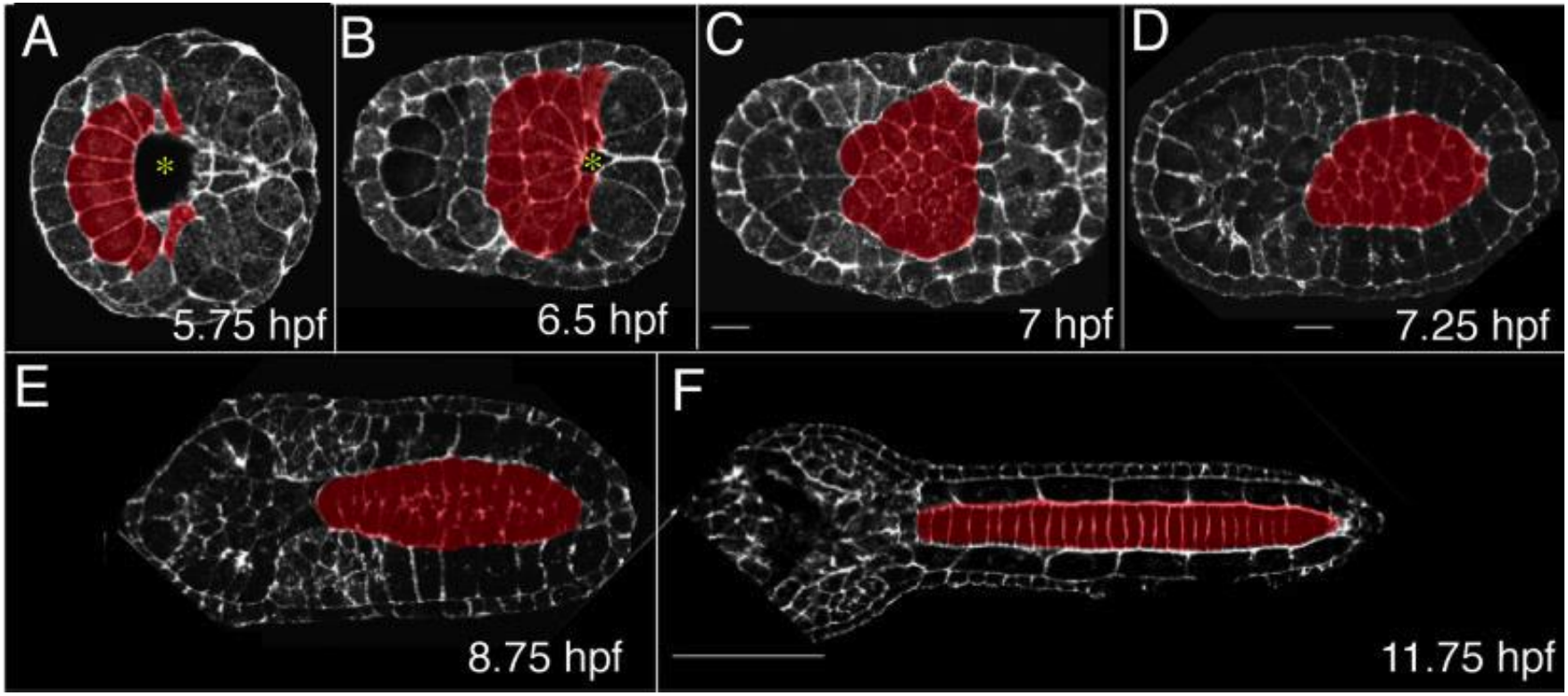
Inward movement of an expanding outer layer so that it spreads over the internal surface of the remaining external cells.

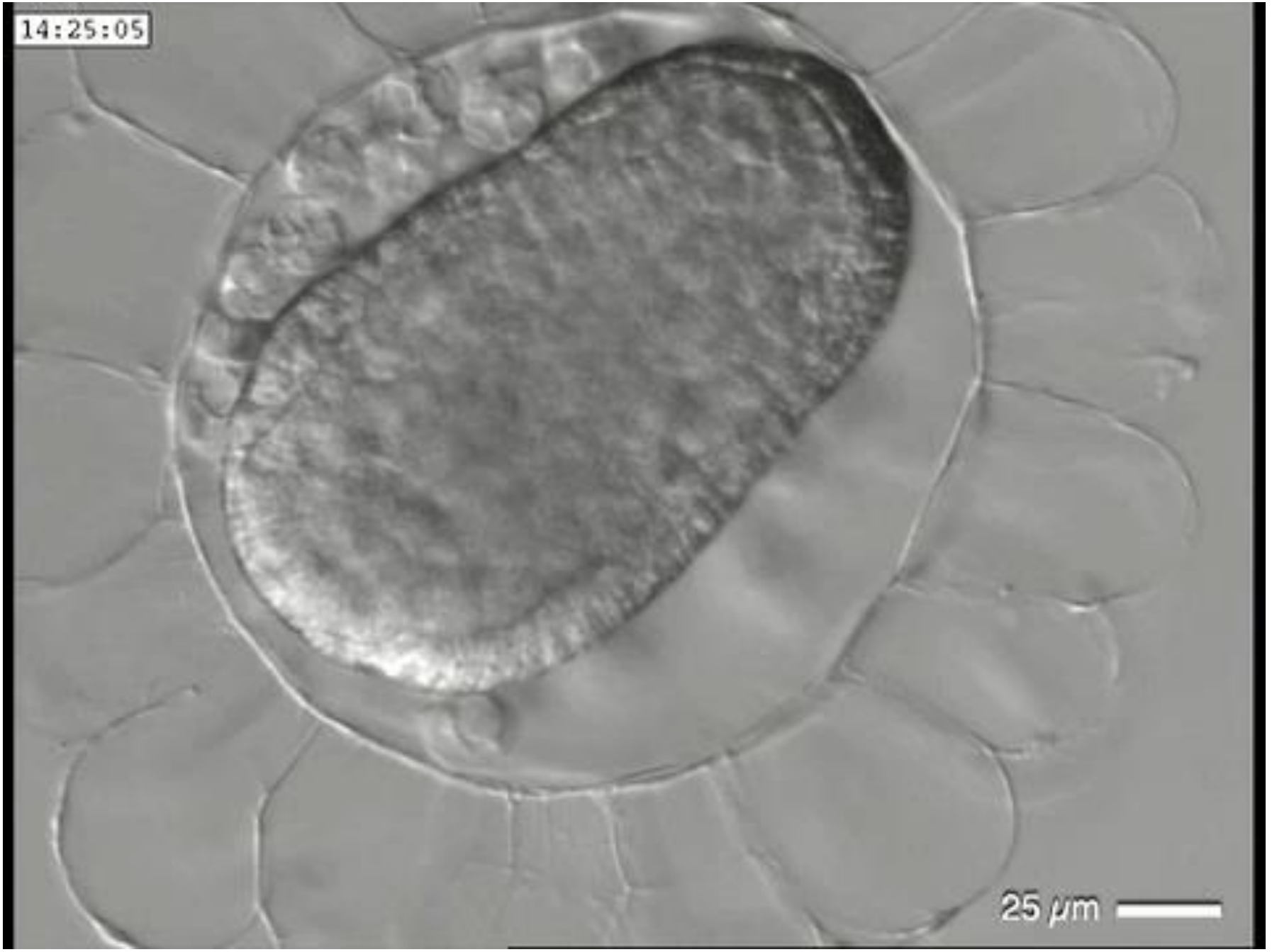



(A)
Globulo polare
Ectoderma
Muscolatura
Notocorda
Endoderma
che si invagina
(D)
(B)
Mesenchima
(E)
(C)
Blastoporo
(F)

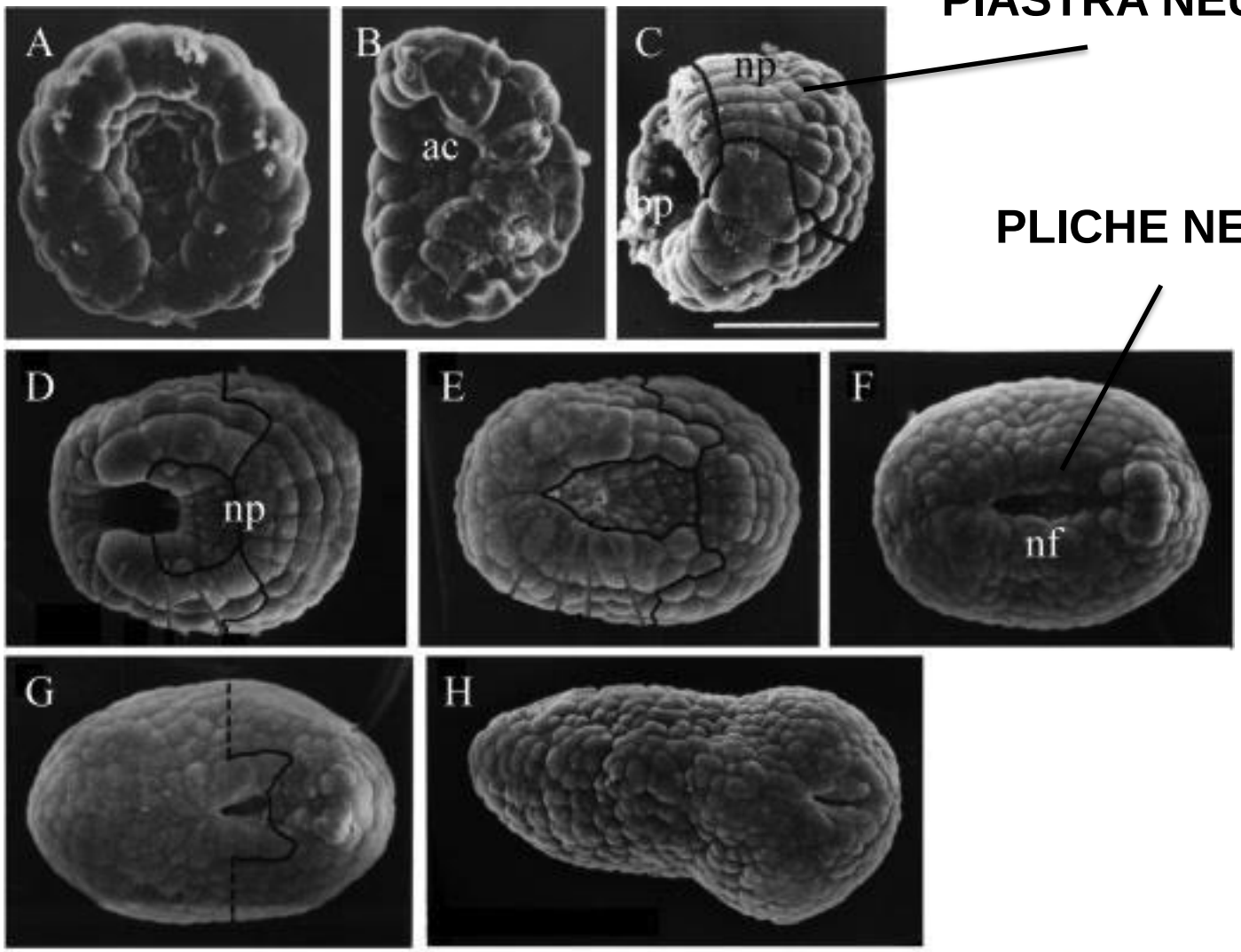

25 µm

ESTENSIONE ANTERO-POSTERIORE DELLA NOTOCORDA PER MOVIMENTI DI ESTENSIONE CONVERGENTE




14:25:05
25 µm

NEURULAZIONE NELLE ASCIDIE



L'ORGANIZZAZIONE DELLO STADIO LARVALE DELLE ASCIDIE PRESENTA OMOLOGIE STRUTTURALI CON GLI STADI EMBRIONALI NEI VERTEBRATI

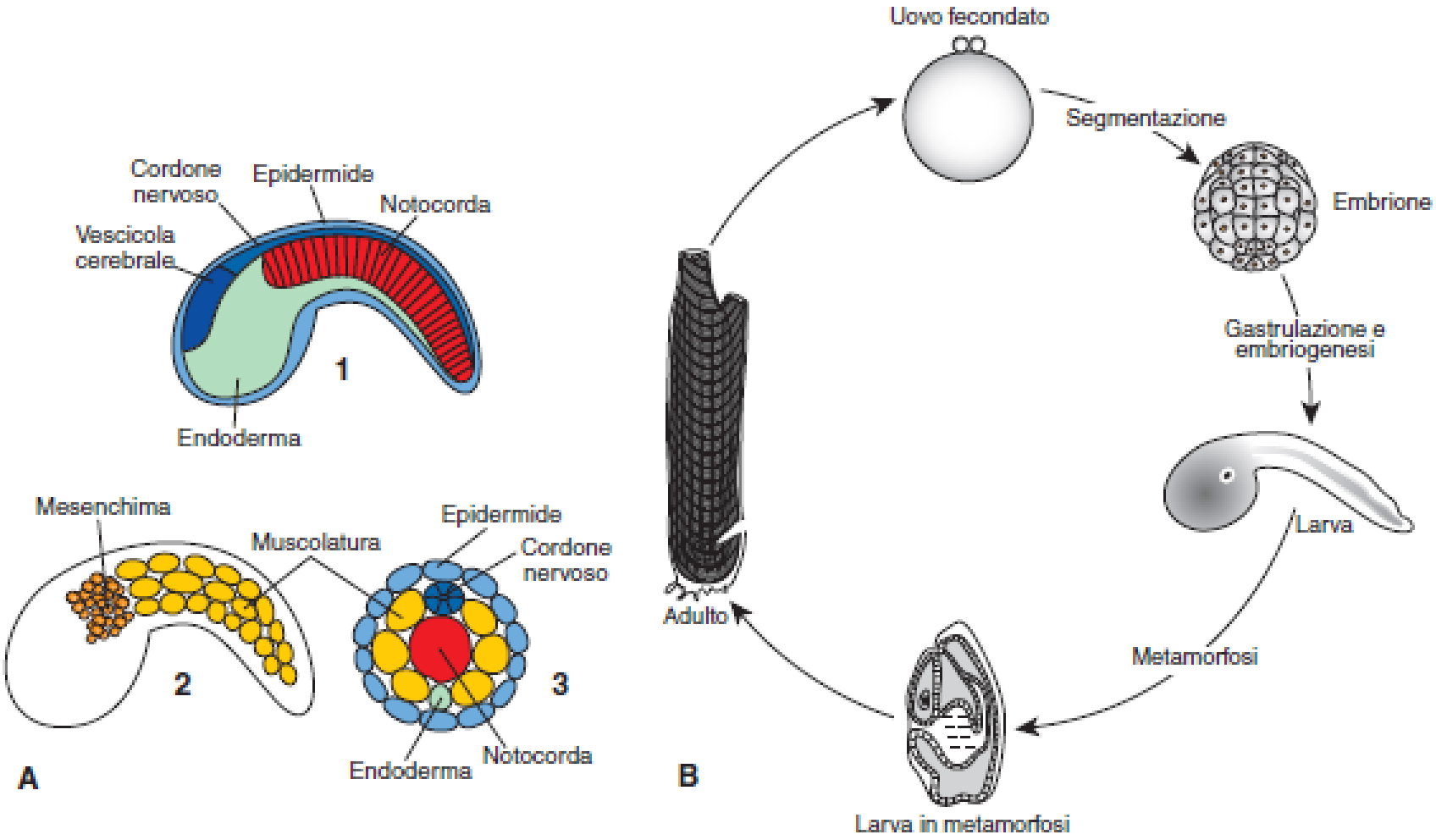
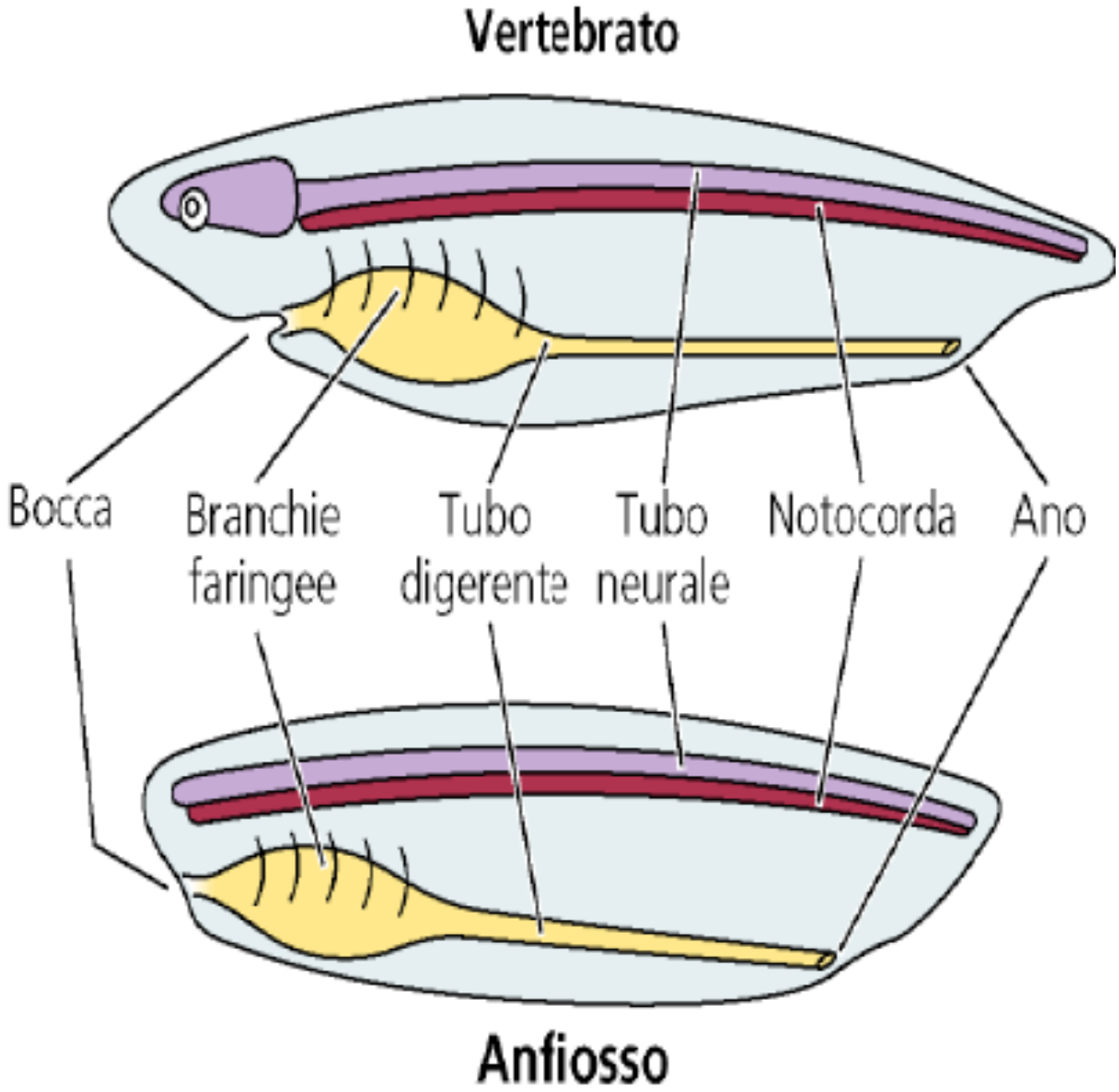


Figura 5


Vertebrato
Bocca
Branchie faringee
Tubo digerente
Tubo neurale
Notocorda
Ano
Anfiosso