

**La segmentazione è influenzata dalla presenza del vitello che rallenta od ostacola la formazione del solco di divisione**

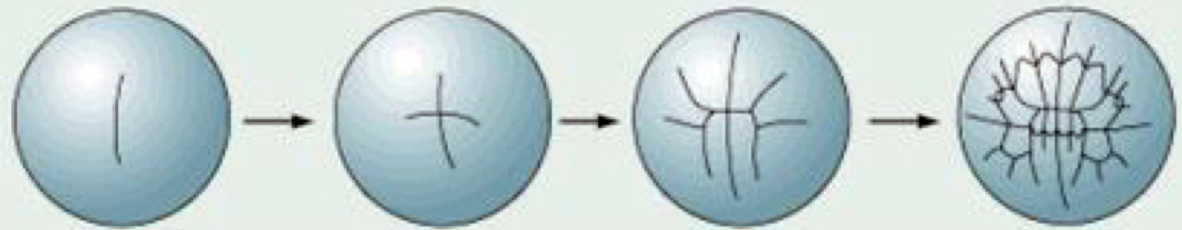
**Quindi in base al tipo di uovo vi sono due grosse modalità di segmentazione:  
TOTALE o OLOBLASTICA - PARZIALE o MEROBLASTICA**

## II. MEROBLASTIC

### A. Telolecithal

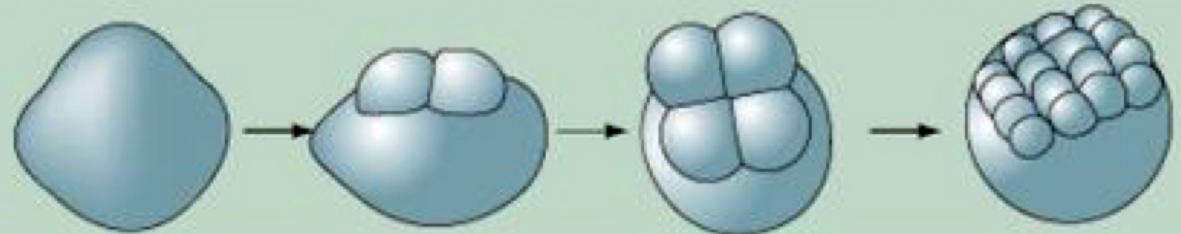
#### 1. Bilateral

Cephalopod molluscs



#### 2. Discoidal

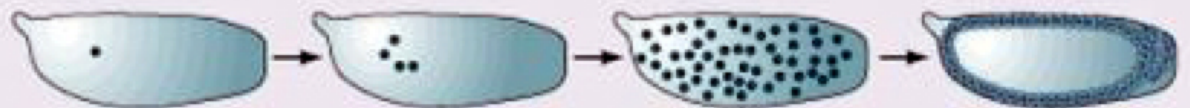
Fish, reptiles, birds



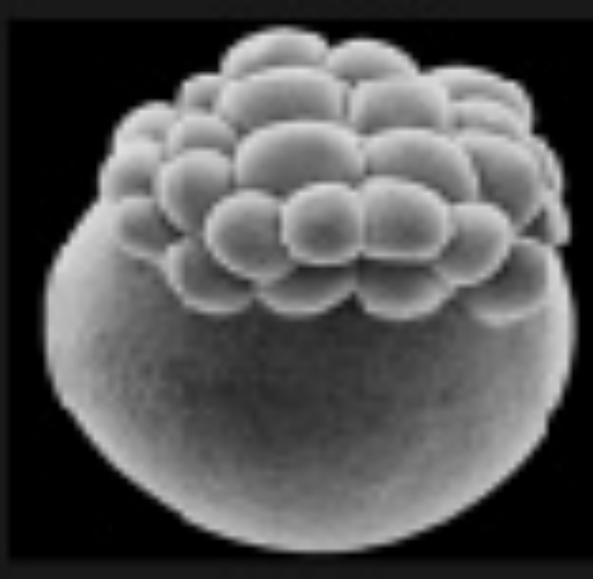
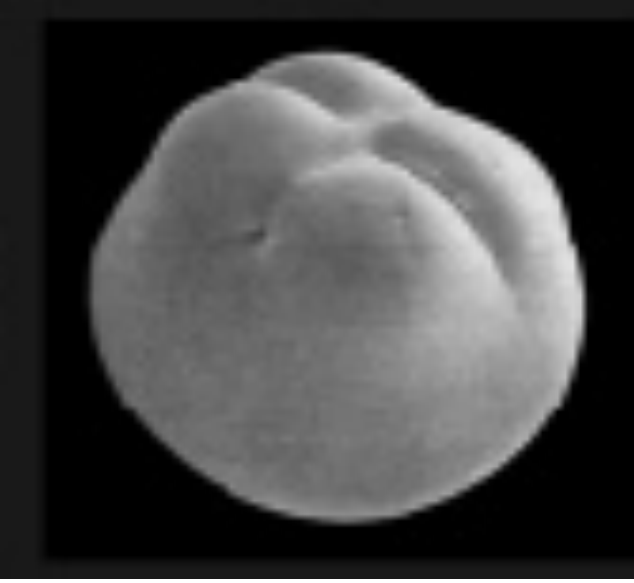
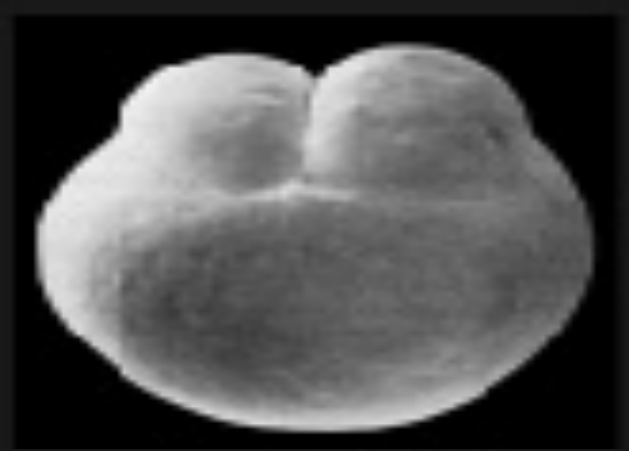
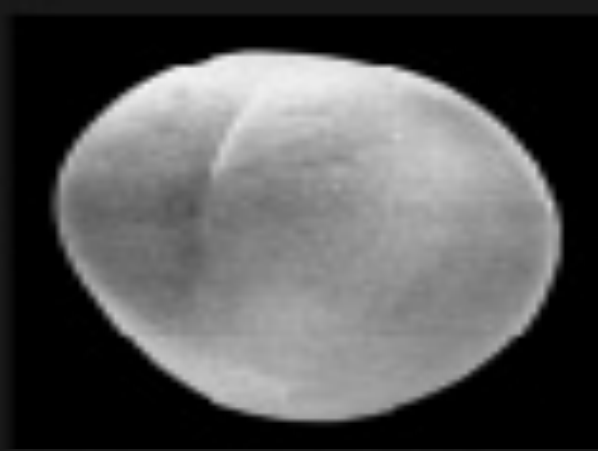
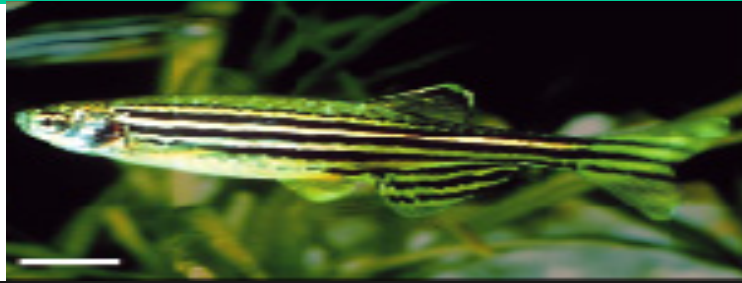
### B. Centrolecithal

Superficial

Most insects



# Segmentazione parziale discoidale





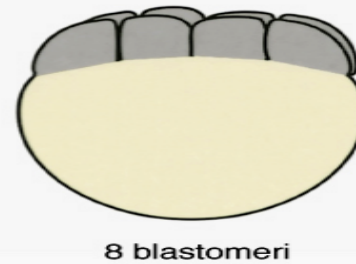
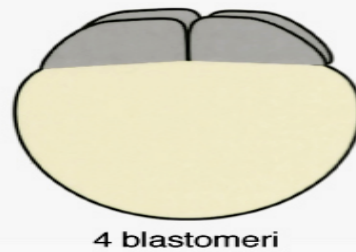
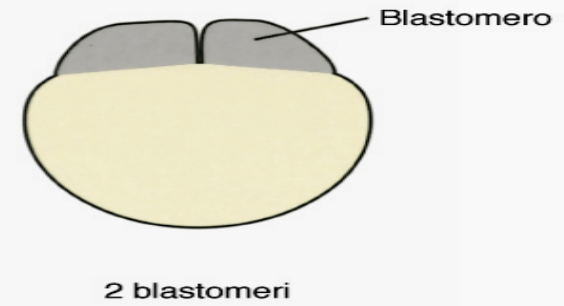
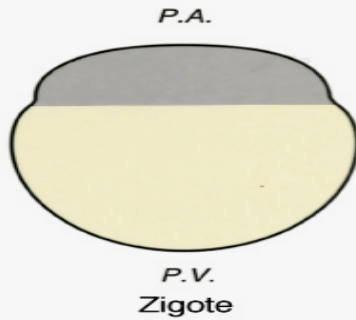
- il pesce zebra, *Danio rerio* è un teleosteo d'acqua dolce che vive nel delta dei fiumi dell'India. E' facile da allevare in laboratorio per le sue ridotte dimensioni (circa 4 cm.), per la sua prole numerosa, perché raggiunge la maturità sessuale in circa tre mesi, per la possibilità di ottenere uova embrionate tutto l'anno.
- Attualmente viene sempre più frequentemente usato per studi tossicologici, embriologici e genetici.

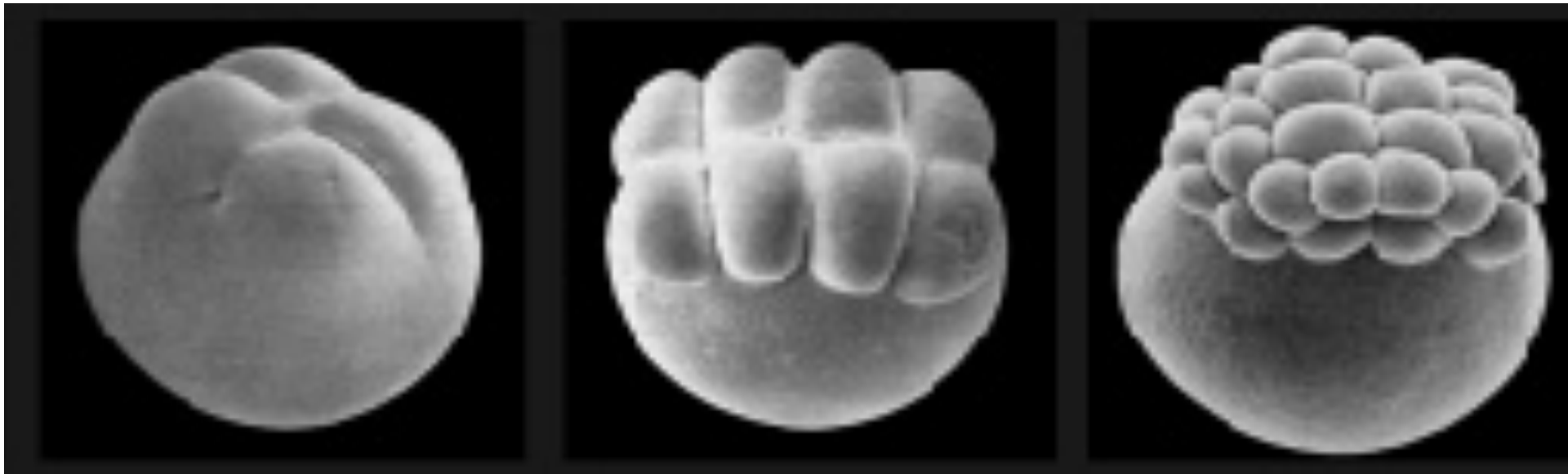
**Fig. 7.1: Prime tappe della segmentazione**

**a) L'uovo prima e dopo la fecondazione**

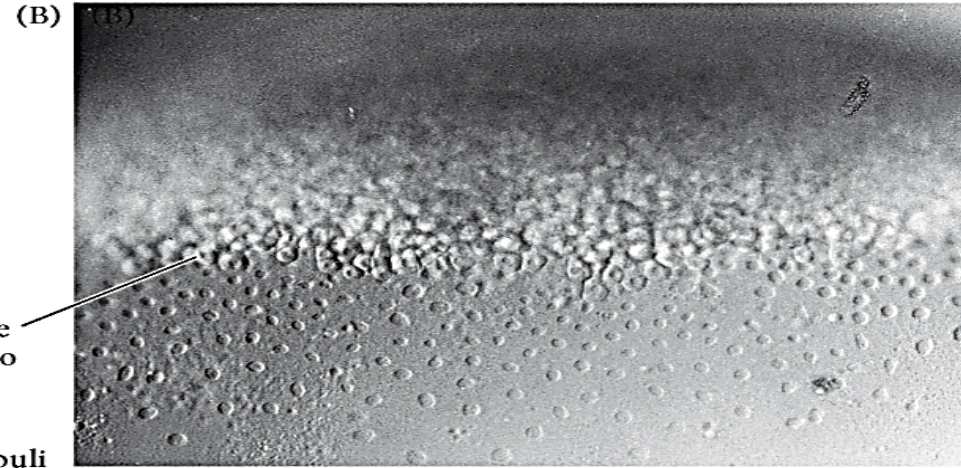
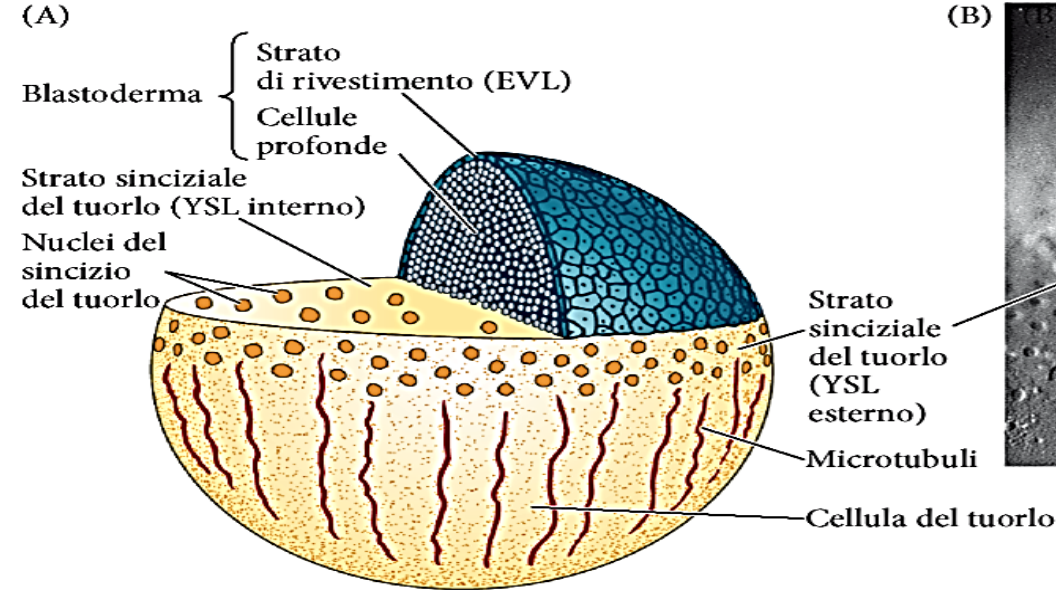


**b) La segmentazione: primi stadi (vedute laterali esterne)**

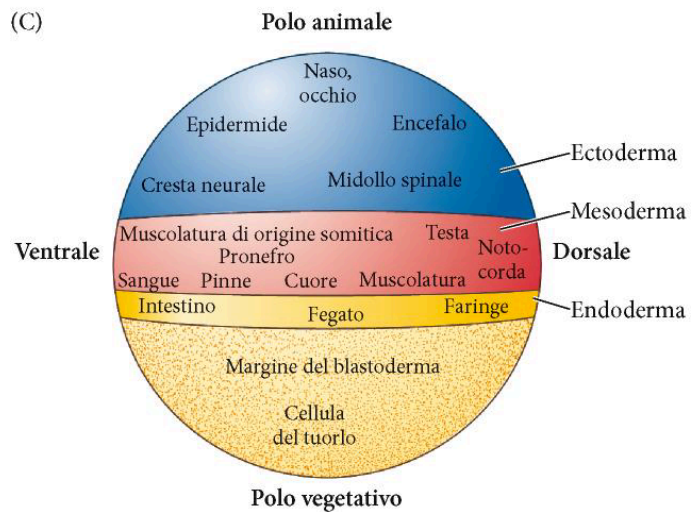




Cumulo di cellule : blastoderma , tutte le cellule sono connesse e mantengono e  
Mantengono la connessione con le cellule del tuorlo  
I microtubuli sono importanti



Fish blastula. (A) Prior to gastrulation, the deep cells are surrounded by the EVL. The animal surface of the yolk cell is flat and contains the nuclei of the YSL. Microtubules extend through the yolky cytoplasm and through the external region of the YSL. (B) Late-blastula stage embryo of the minnow *Fundulus*, showing the external YSL. The nuclei of these cells were derived from cells at the margin of the blastoderm, which released their nuclei into the yolky cytoplasm. (C) Fate map of the deep cells after cell mixing has stopped. The lateral view is shown, and not all organ fates are labeled (for the sake of clarity). (A and C after [Langeland and Kimmel 1997](#); B from [Trinkaus 1993](#), photograph courtesy of the author.)



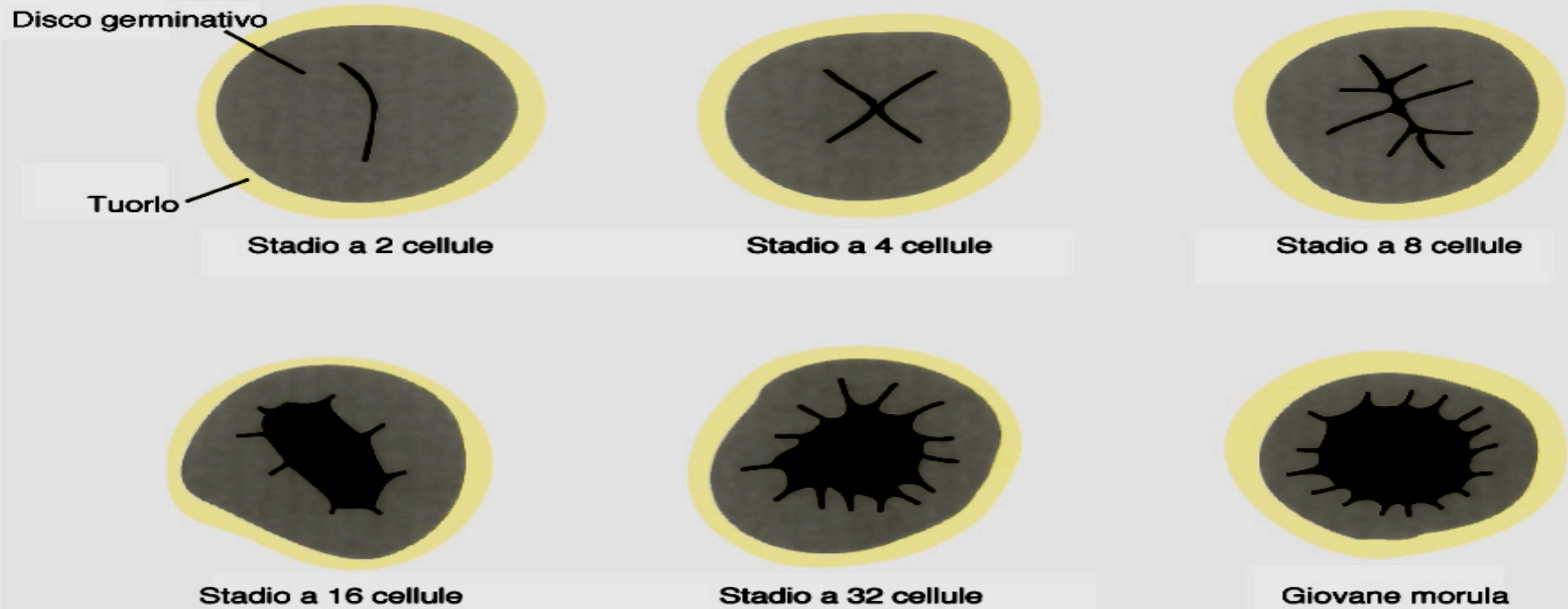
# Transizione blastula intermedia

Transizione blastula intermedia 10 divisione , inizia la trascrizione dei geni zigotici, inizia il movimento cellulare

Strato sinciziale del tuorlo

**Fig. 9.2: La segmentazione**

**a) Osservazione ed evoluzione in una veduta polare del disco germinativo**



**b) Osservazioni in sezione del disco germinativo**

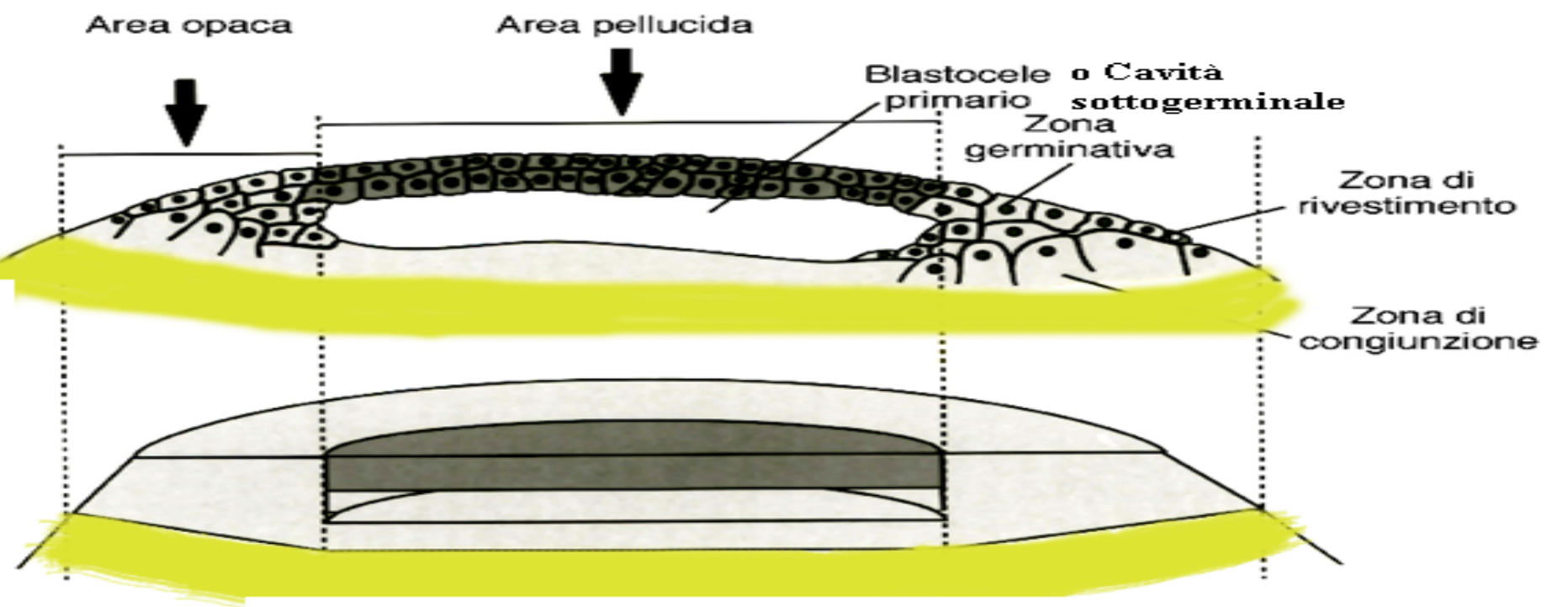
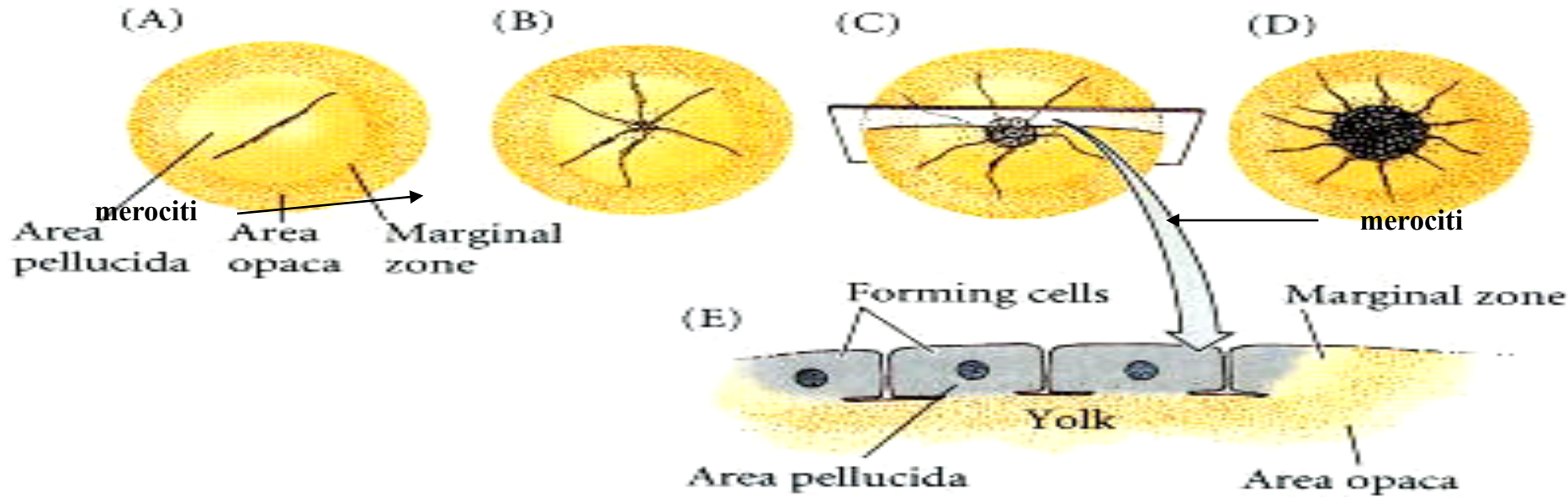


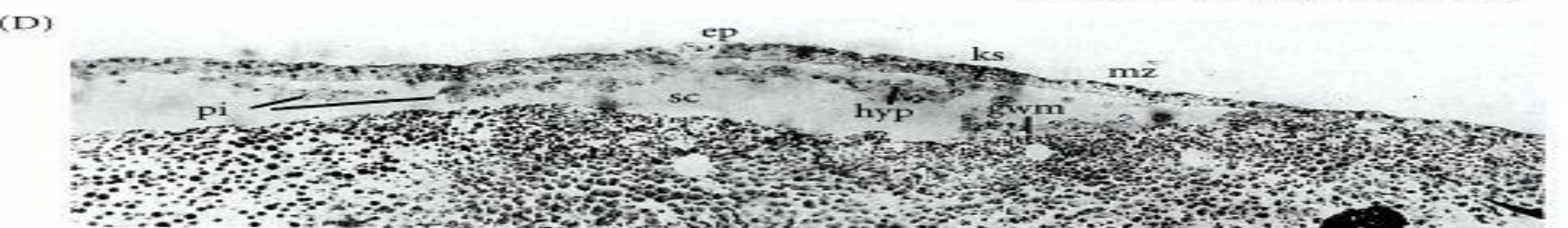
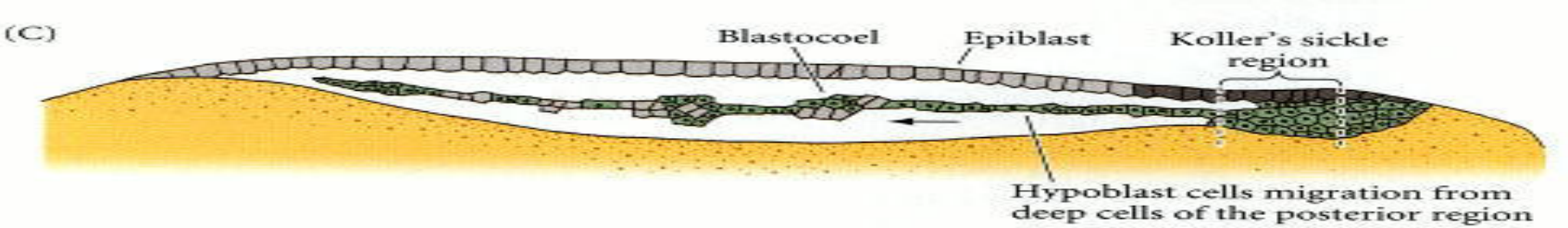
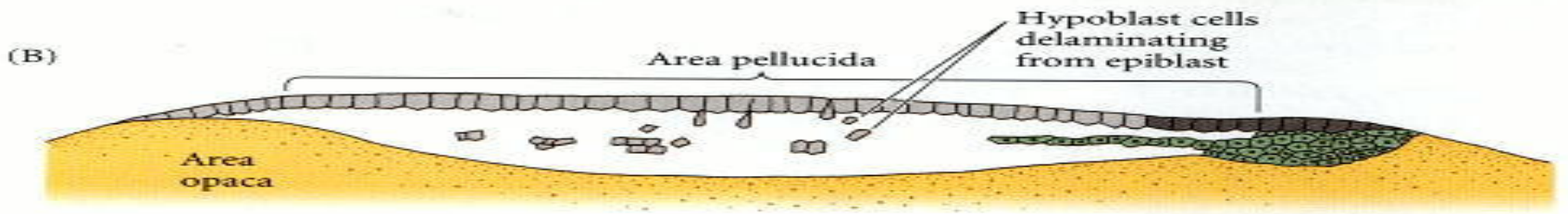
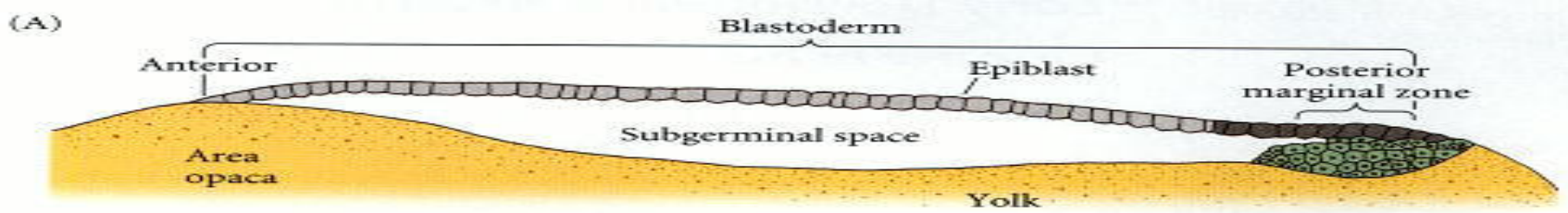


Tra il blastoderma ed il vitello si forma uno spazio ripieno di fluido : cavità subgerminale ( le cellule prendono acqua dall'albumine e secernono liquido

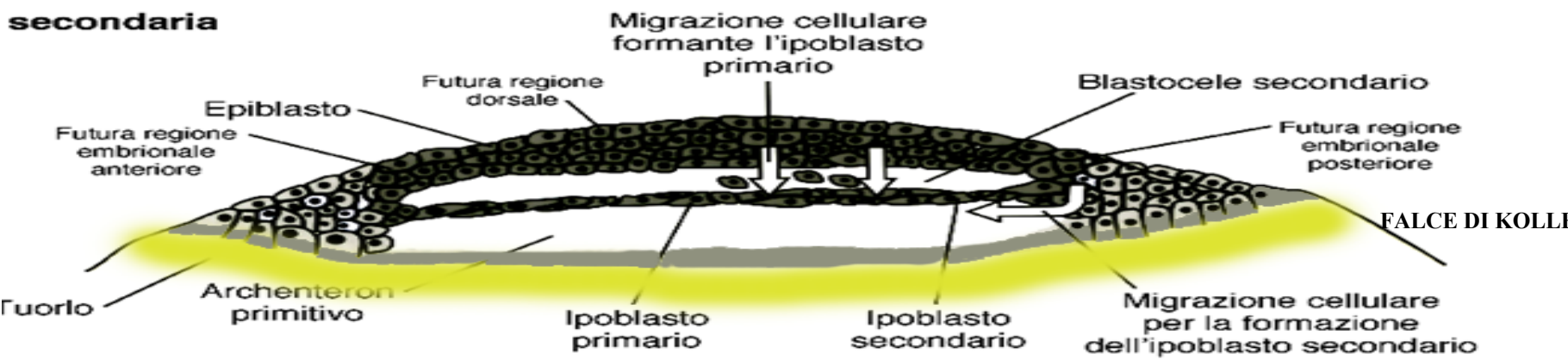
Le cellule profonde della parte centrale del blastoderma si staccano e degenerano , la parte centrale rimane costituita da un solo strato di cellule area pellucida

La parte sottostante in contatto con il vitello si chiama area opaca





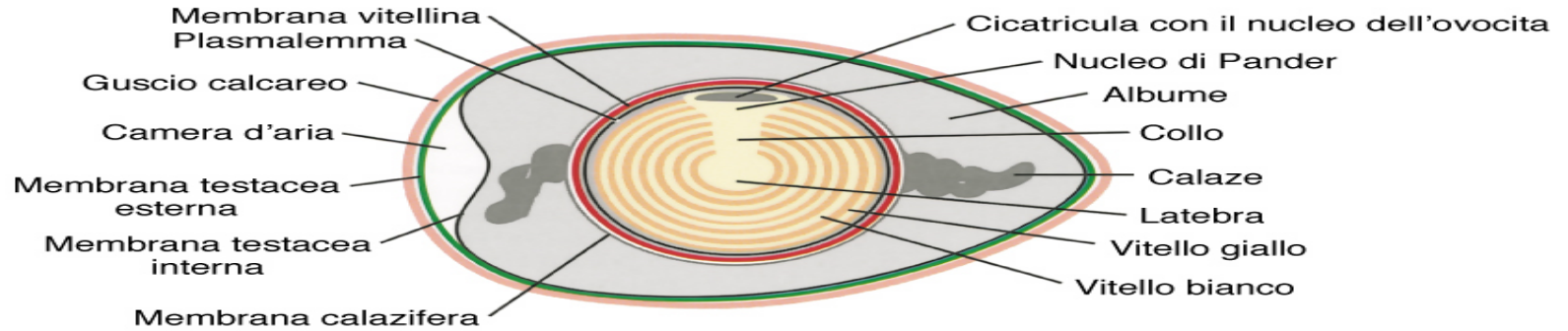
**secondaria**



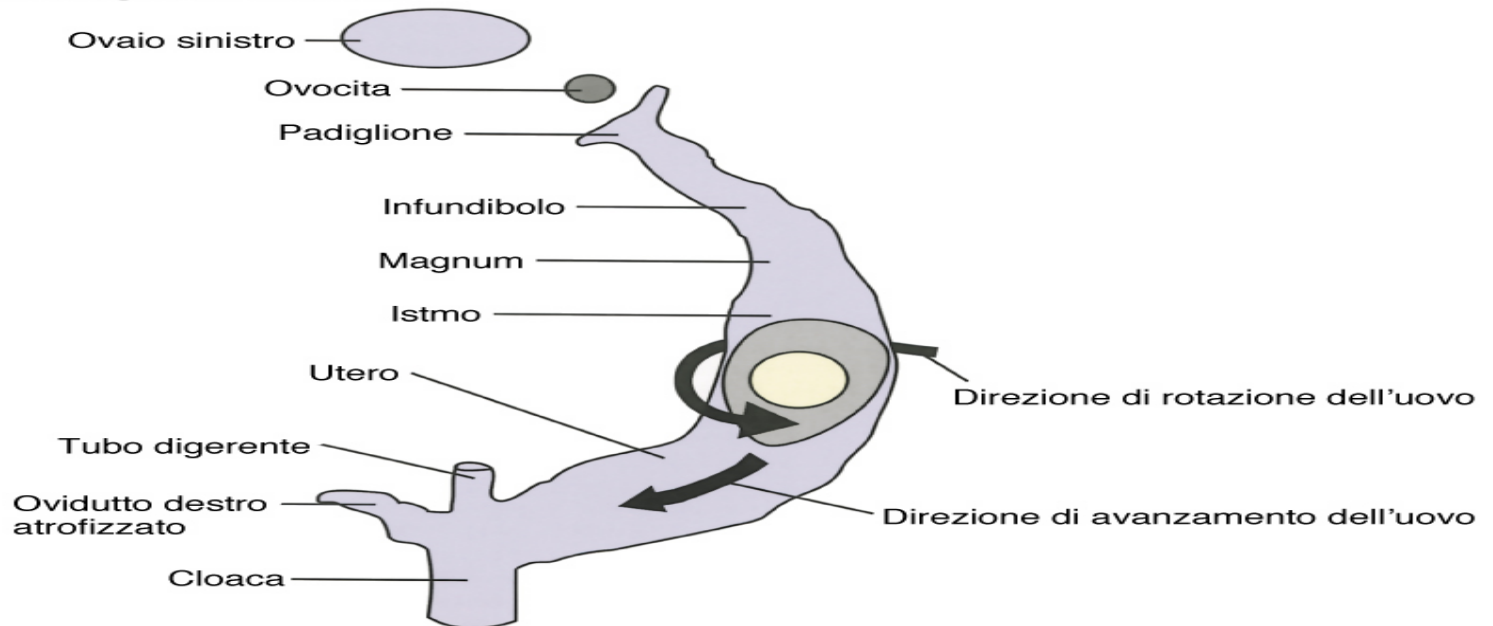
<https://www.youtube.com/watch?v=-Ah-gT0hTto>

**Fig. 9.1:** *Organizzazione dell'uovo e transito nel tratto genitale materno*

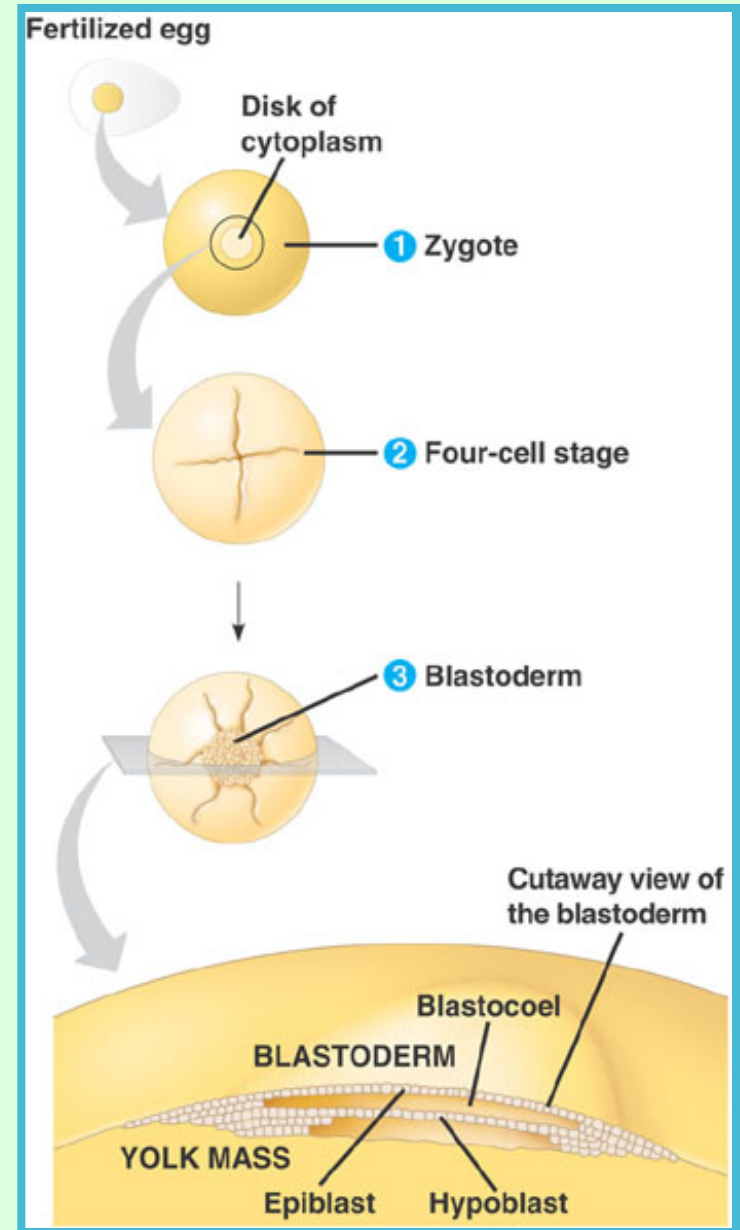
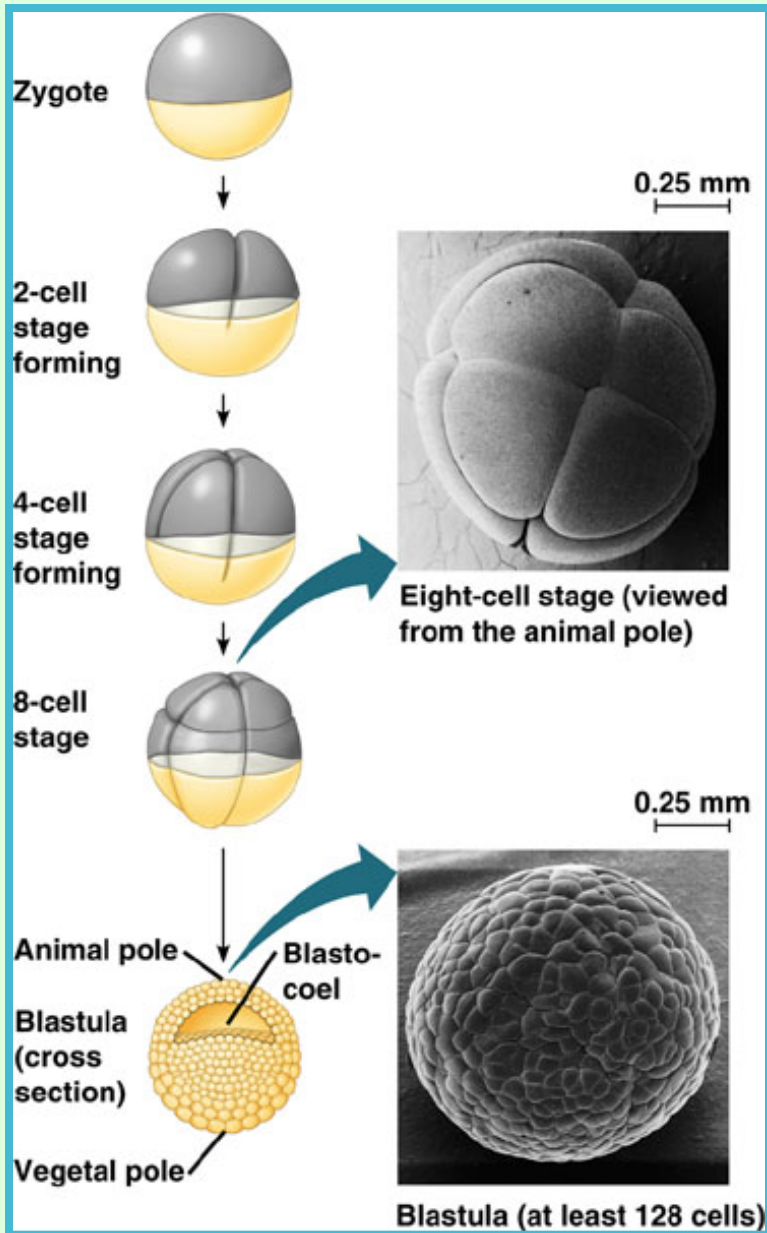
**a) Organizzazione dell'uovo**



**b) Transito nel tratto genitale materno**



# Segmentazione in Anfibi e in Uccelli

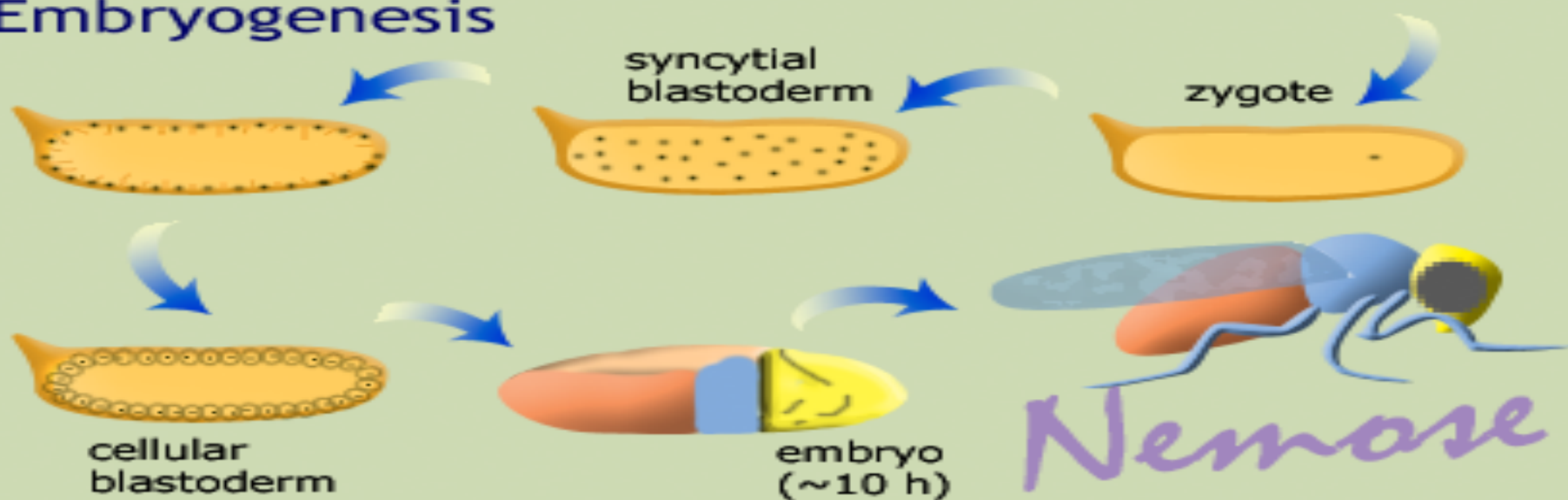


# *Drosophila melanogaster* development

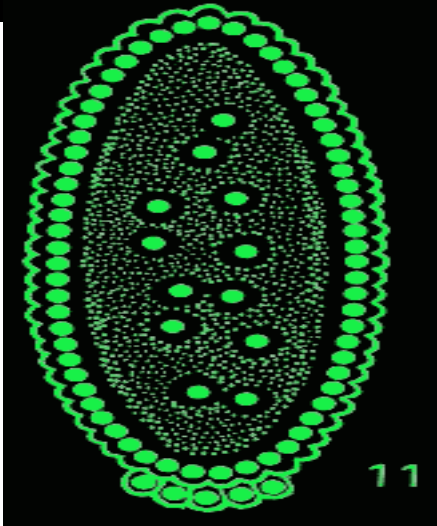
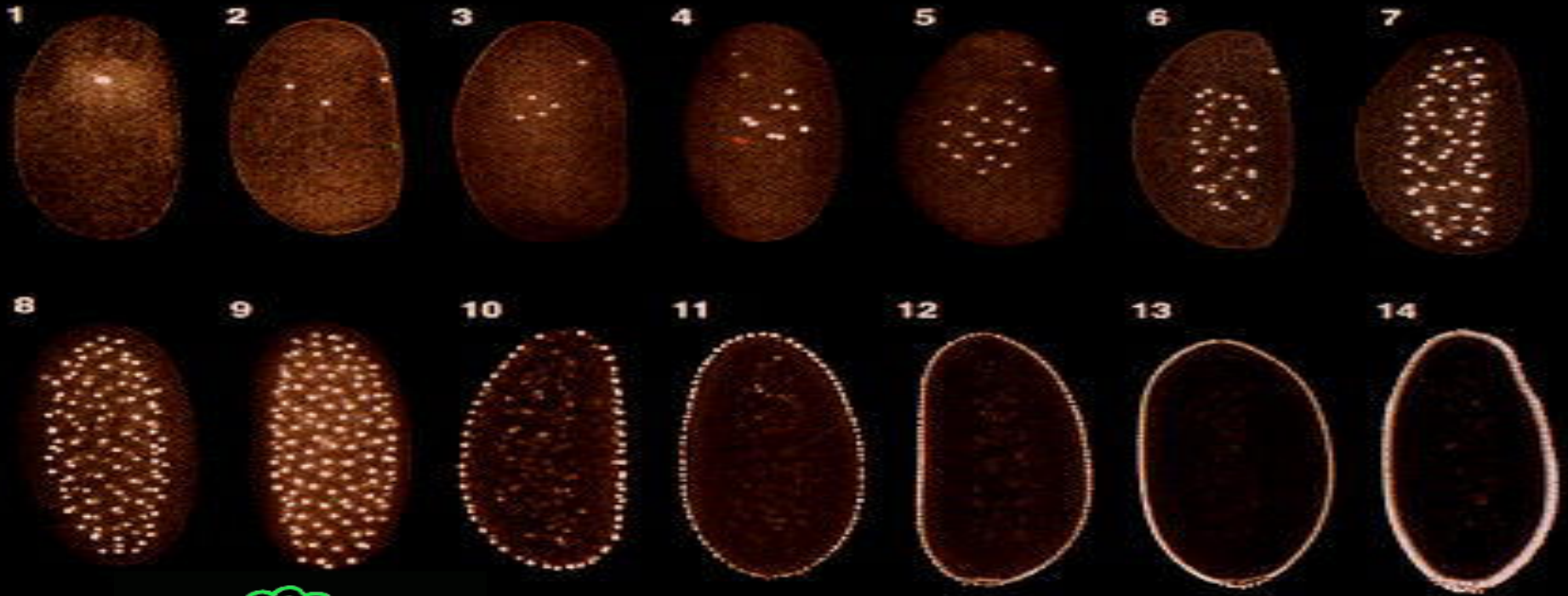
## Oogenesis



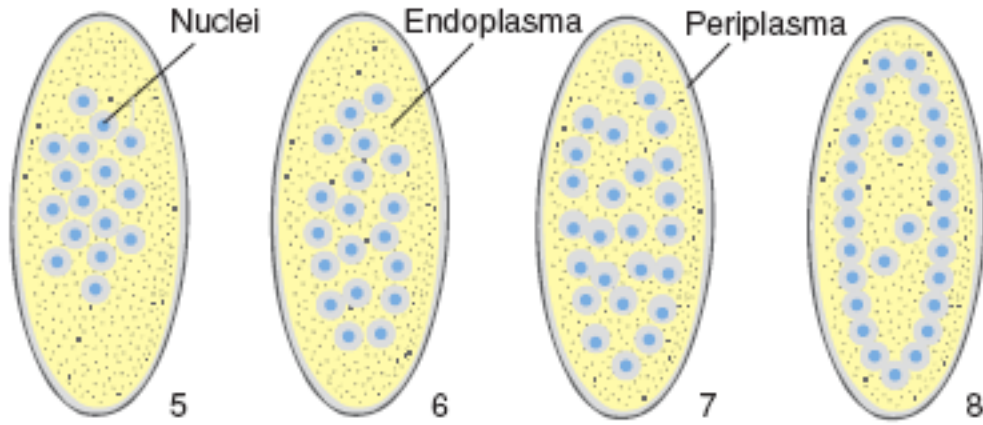
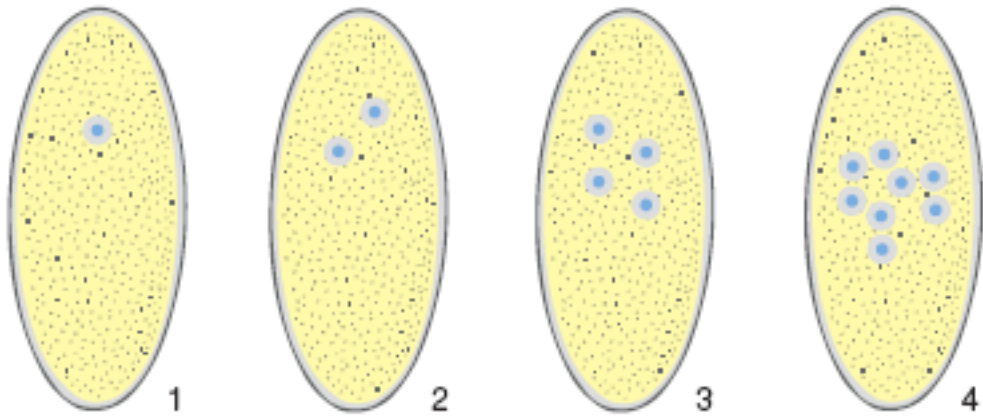
## Embryogenesis



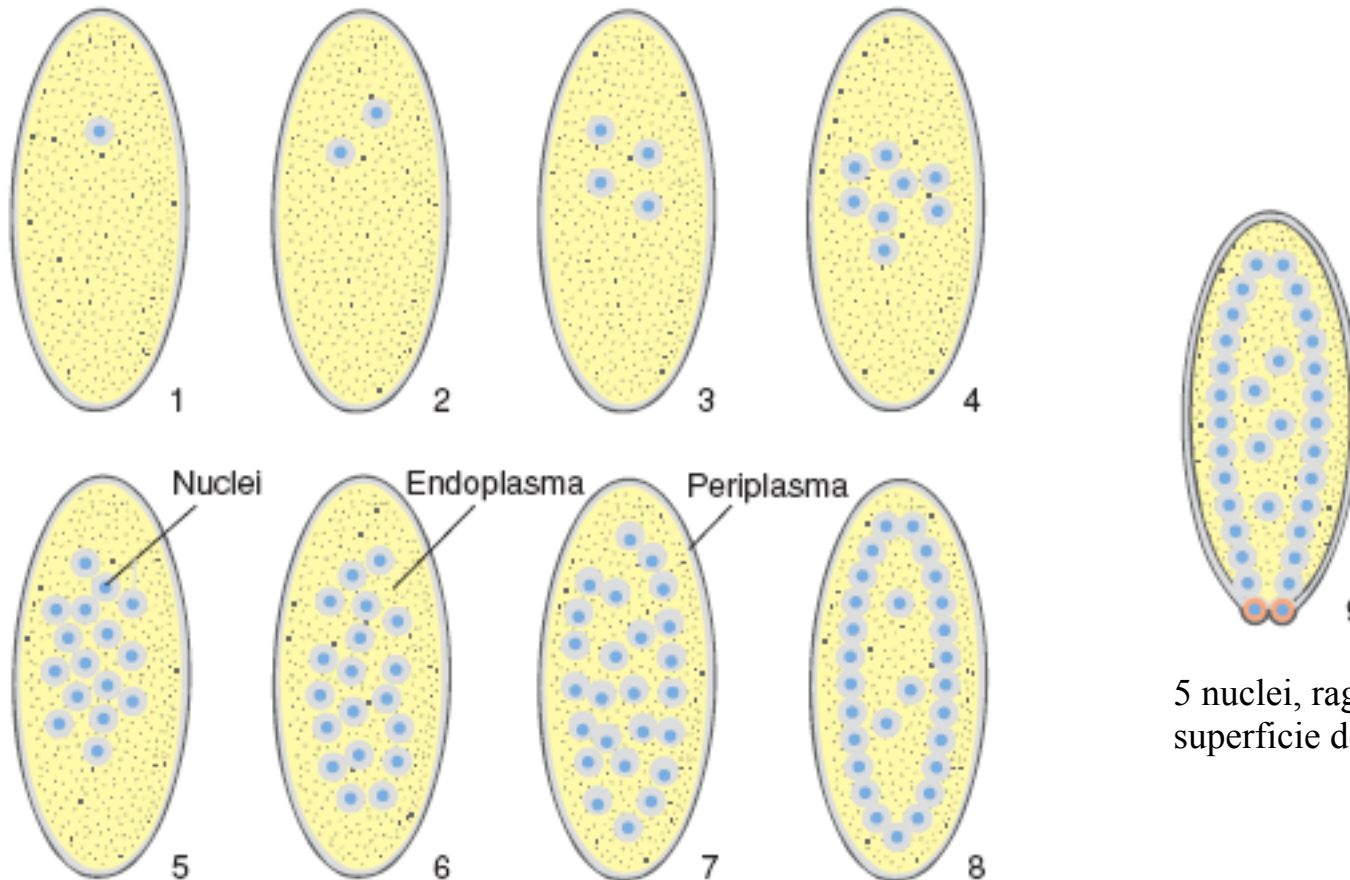
# Segmentazione parziale superficiale



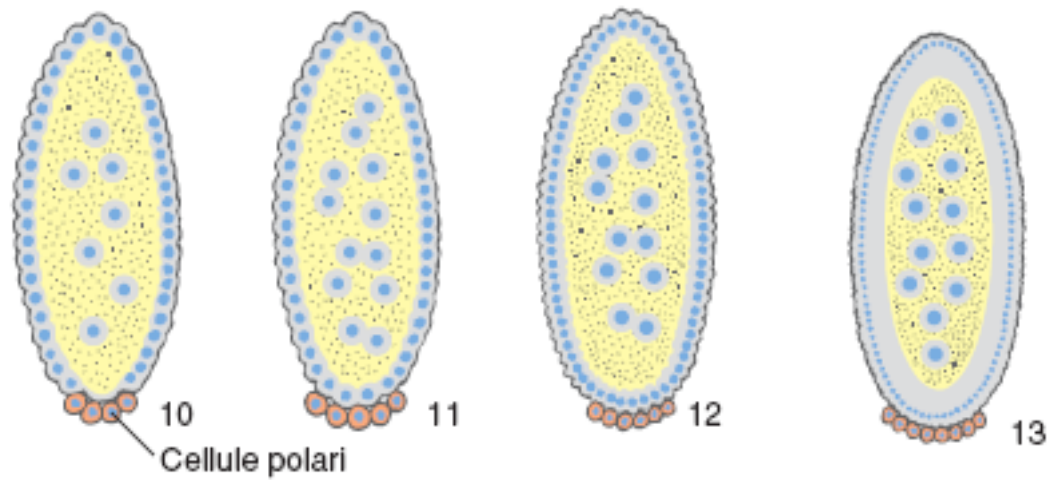




# Sincizio: un'unica cellula con molti nuclei, un solo citoplasma



5 nuclei, raggiungono la superficie del polo posteriore



Futuri gameti nell'individuo adulto

