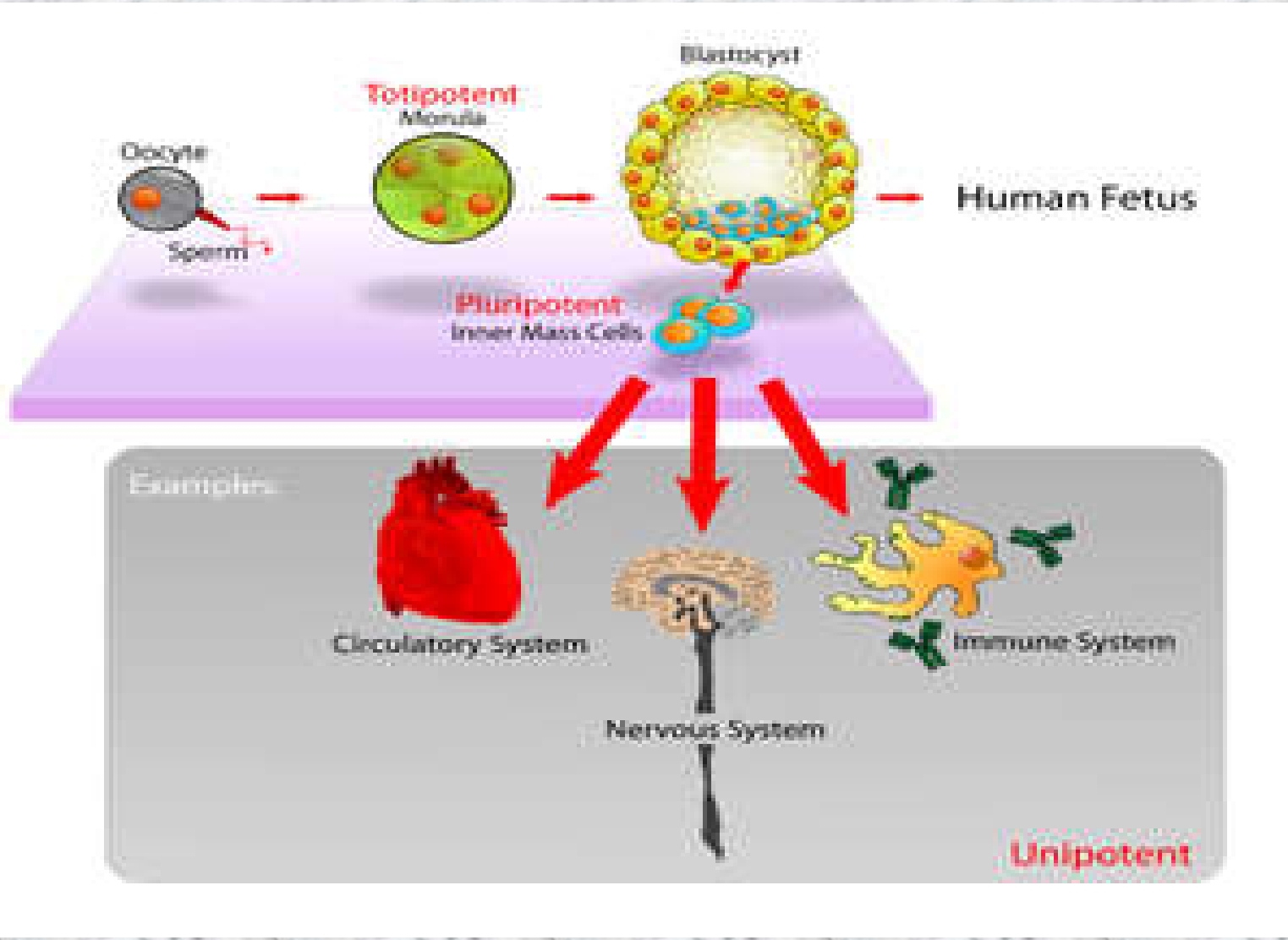
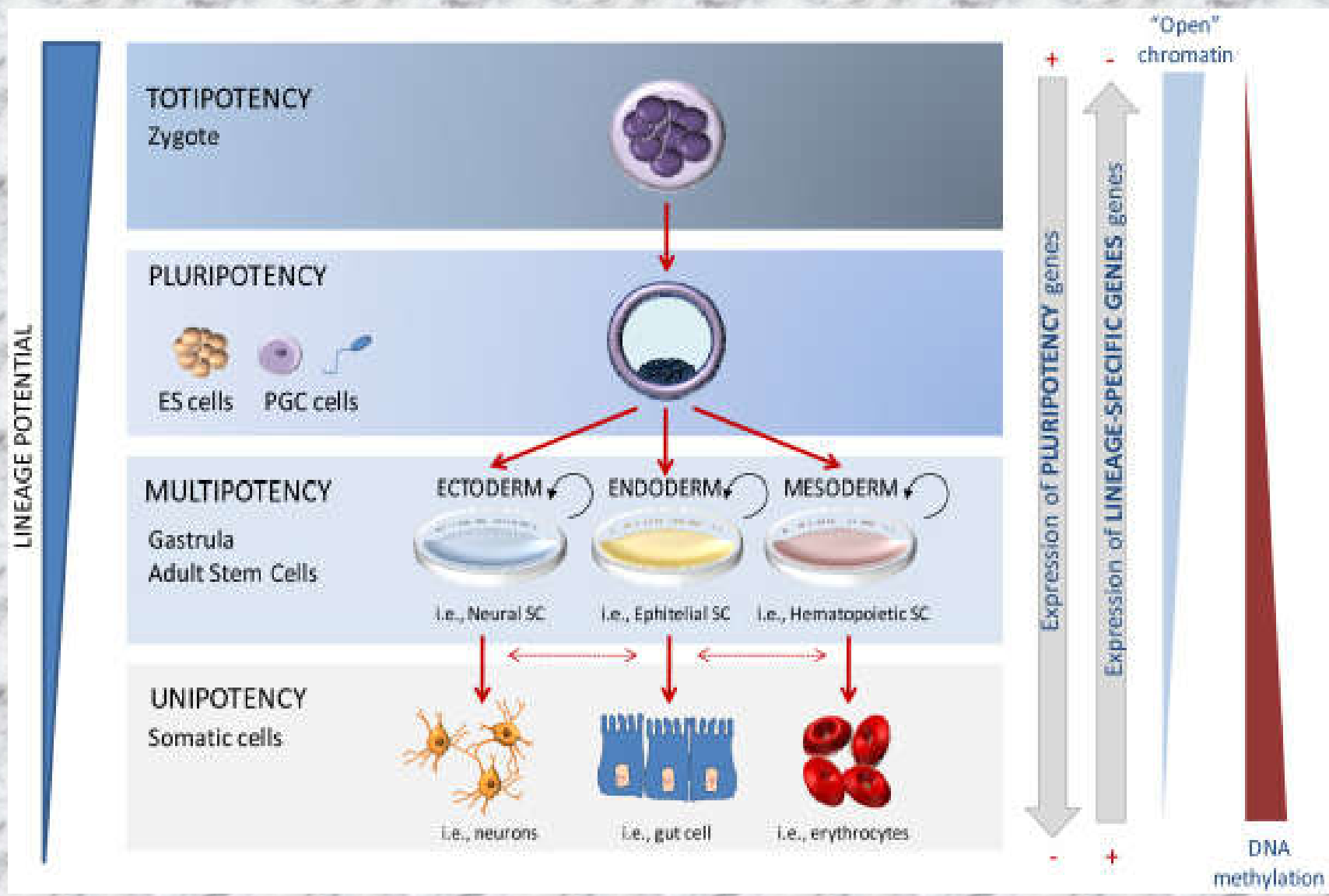


- **POTENCY, COMMITMENT, SPECIFICATION  
AND DETERMINATION  
FOR  
PG SEM II**

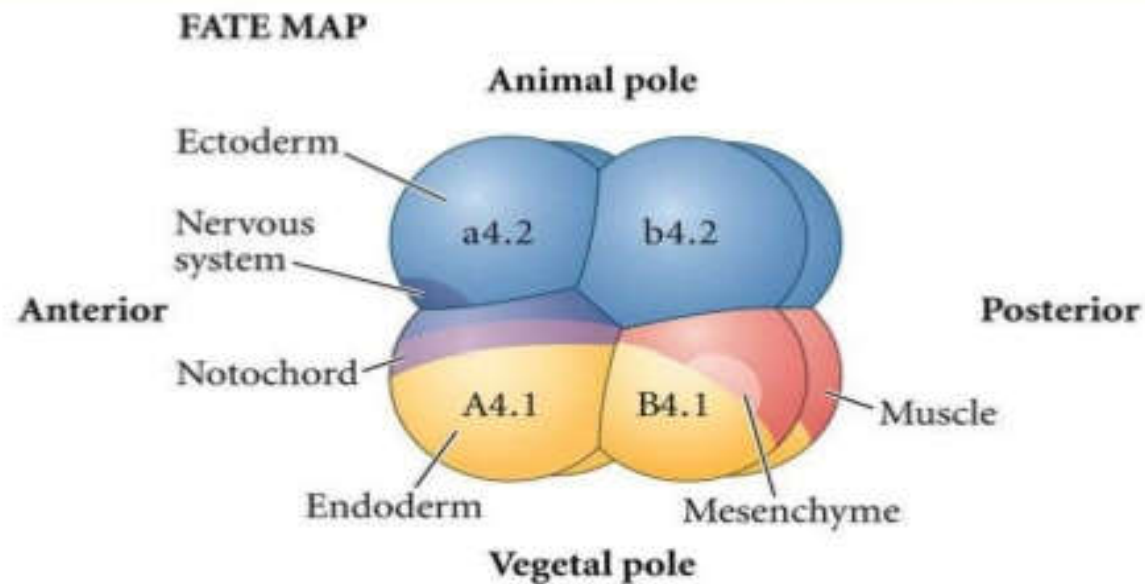
- ***Dr. Amit Chattopadhyay  
Dept. of Zoology  
Serampore College***





# Example of Autonomous Specification in Tunicates (Sea Squirt's)

Part Figure II.2 Autonomous specification in the early tunicate embryo (Part 1)



DEVELOPMENTAL BIOLOGY, 9e., Part Figure II.2 (Part 1)

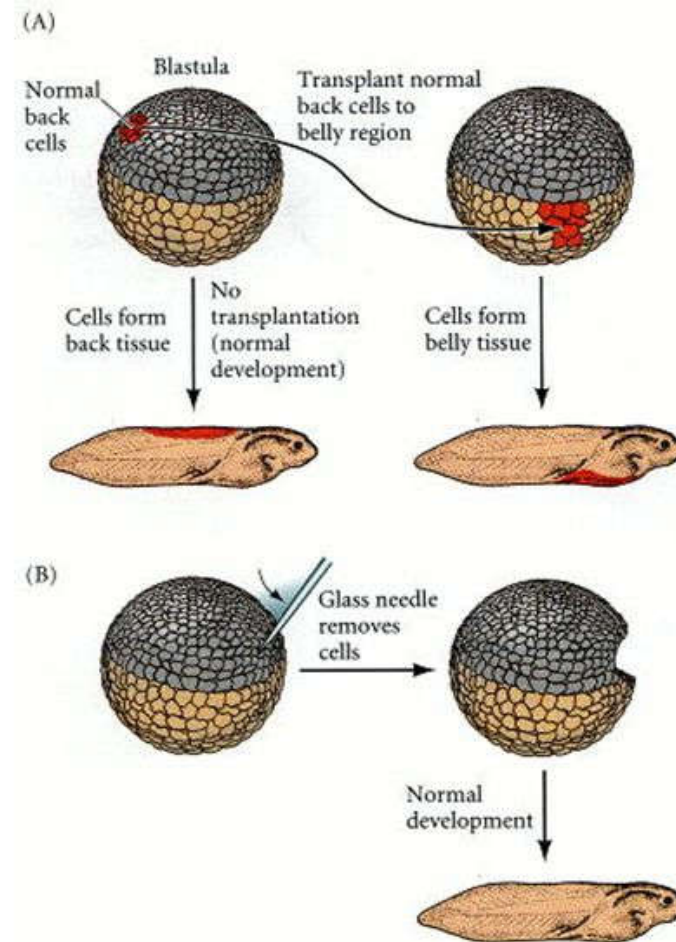
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# Conditional Specification-Regulative Development in a Frog

**Figure 3.11.** Conditional specification.  
(A) What a cell becomes depends upon its position in the embryo. Its fate is determined by interactions with neighboring cells.

(B) If cells are removed from the embryo, the remaining cells can regulate and compensate for the missing part.



# Conditional Specification

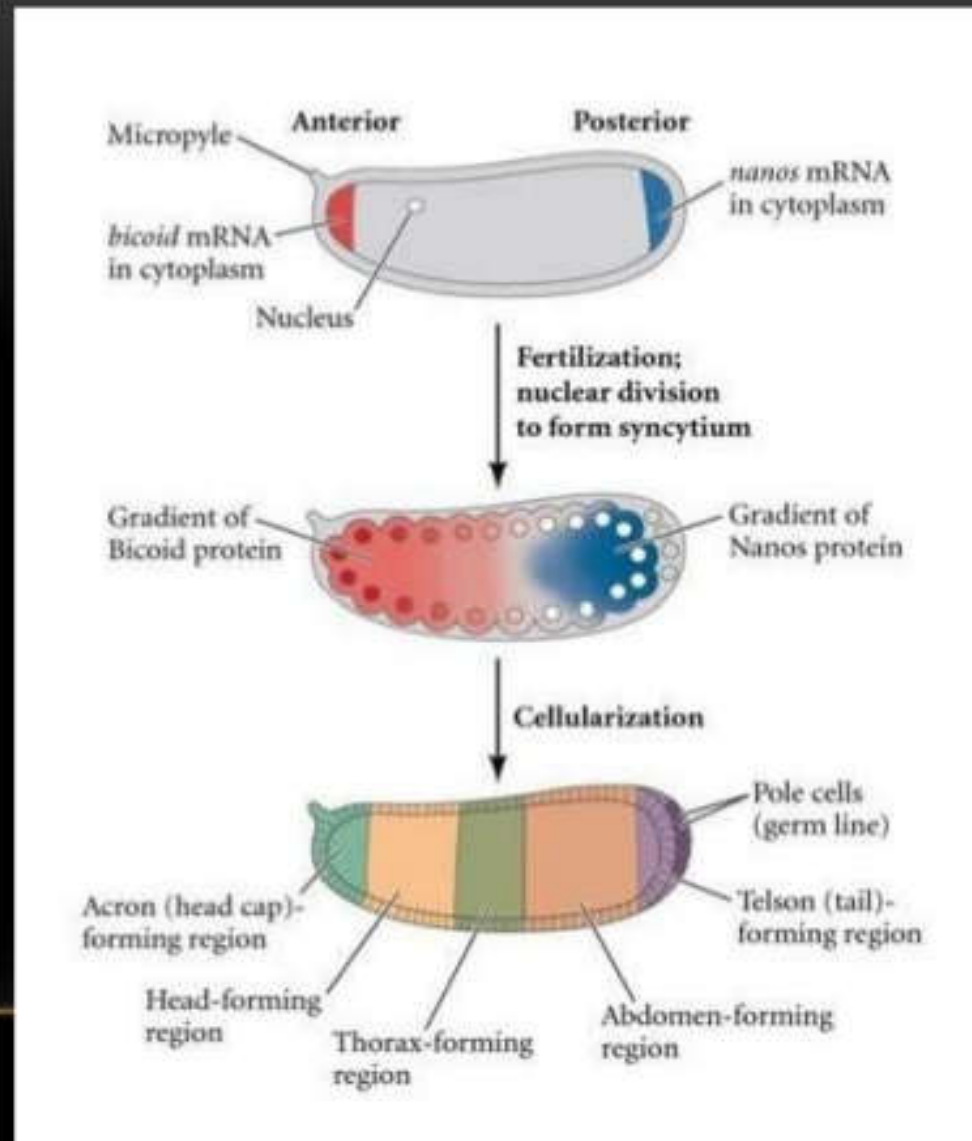
- **Conditional Specification** = cell fate is determined by the conditions surrounding the cell.
- Morphogenetic determinants produced by cells within the embryo. (signaling among cells)
- **Regulative Development** = cells of an embryo can change fate based on the conditions within the embryo.



## Example (in fruit fly)

**Syncytial specification in the fruit fly *Drosophila melanogaster*. Anterior-posterior specification originates from gradients within the egg cell. *Bicoid mRNA* is stabilized in the most anterior portion of the egg, while *Nanos mRNA* is restricted to the posterior portion of the egg.**

CELL FATE BY PROGRESSIVE DETERMINANTS



## **Syncytial Specification**

- **This type of a specification is a hybrid of the autonomous and conditional that occurs in insects. This method involves the action of morphogen gradients within the syncytium.**
- **There are no cell boundaries in the syncytium, these morphogens can influence nuclei in a concentration-dependent manner.**



A blue ballpoint pen is shown writing the words "Thank you!" in a cursive script on a white card. The card is placed on a light-colored, textured surface. The entire scene is framed by a green oval border.

Thank you!