

Anne K. Knecht & Marianne Bronner-Fraser ; Nature Reviews Genetics 3, 453–461 (1 June 2002)

Kraniális velőléc:

anterior eredet; arc, kopolyú ívek csont, porc, idegi és kötőszöveti sejtek

- Beépülnek és indukálják a thymus fejlődést.
- Pajzsmirigy parafollicularis sejtei (ultimobranchial bodies).
- **parathyroid** mirigy fejlődést.
- **Az arc izmai, csont, és porcsejtjei.**
- **Odontoblast (dentin-termelő) fog-sejtek.**
- **optikus hólyag és a fejlődő szem:** cornea, sclera, and sugárizom, szemizom
- Belső fül.
- Az V., VII., IX., X. **agyidegek érző magjai**

Vagalis és sacralis velőléc

Nyaki, illetve faroktáji eredet; sejtek a gyomor-bél rendszer számára:

- **parasympathikus neuronok** (perisztaltika, szekréción, vérellátás szabályozás)
- **enterális ganglionok.**

Törzs velőléc

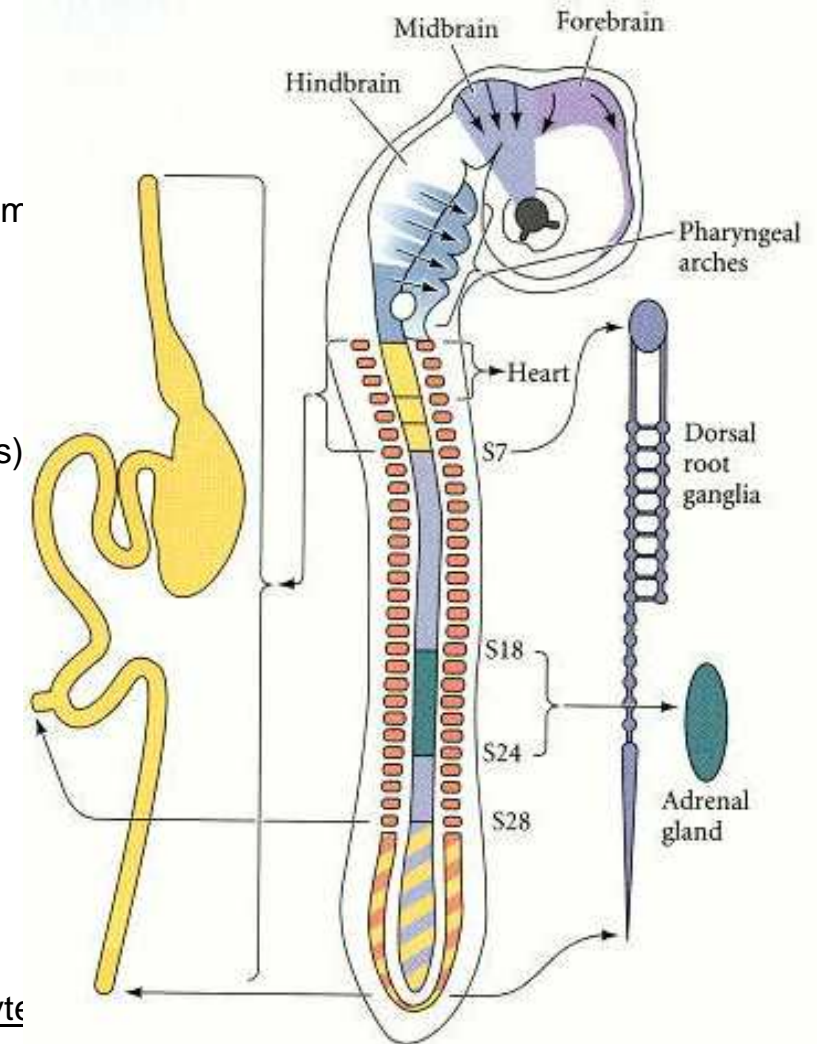
- Dorsolaterális migráció → bőr pigment és érzékszöveti sejtek
- Ventrolaterális migráció → az anterior sclerotome epinephrine-termelő **mellékvesevelő** sejtek **sympathicus ganglionok.**

Rövid migráció: **háti érző ganglionok**

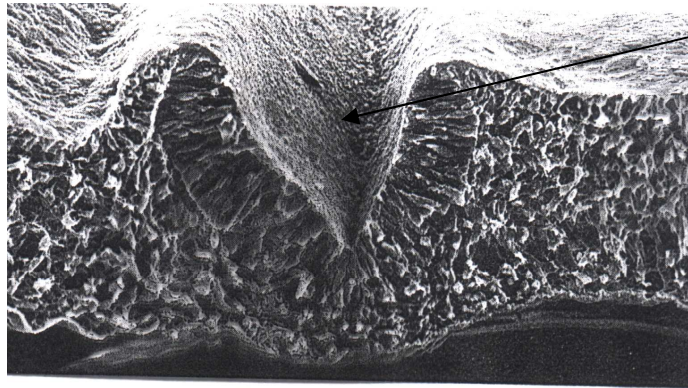
Kardiális velőléc

Eredete átfed a vagalis velőléccel; sejtszelei a 3., 4. és 6.kopolyúívbe és a szívbe kötőszöveti sejtek, amelyek a szív nagy ereit választják el.

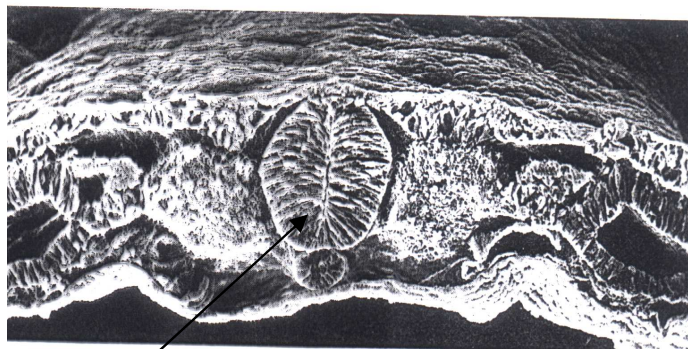
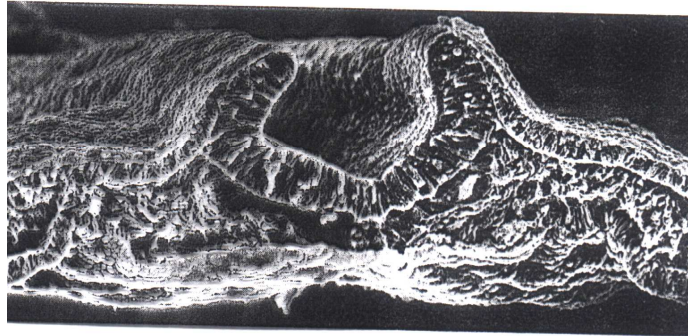
- Truncus arteriosus (embrio), aorta-artéria pulmonaris septum és a nagy-artériák simaizomzata.
- Az aortától anterior: **pre-aortic ganglia** (g. coeliaca ganglion, g. superior mesentericum, g. inferior mesentericum)



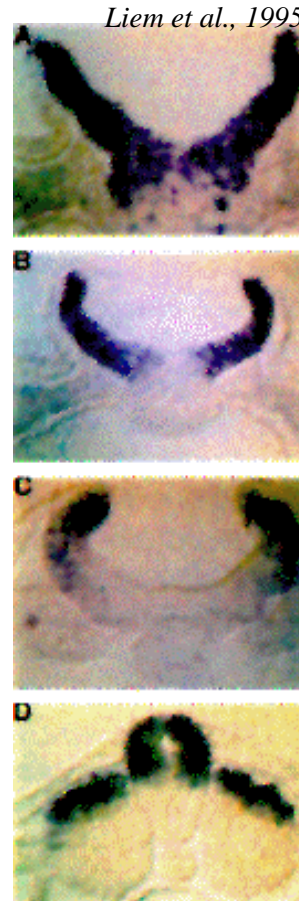
BMP, Wnt → Fox3D, RhoB, Slug ↑, E-cadherin ↓.



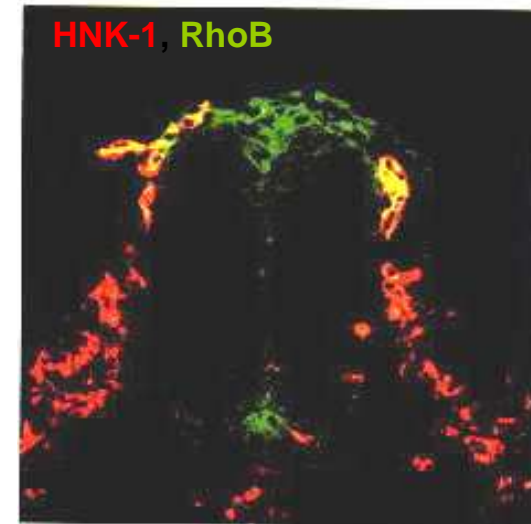
Neural groove



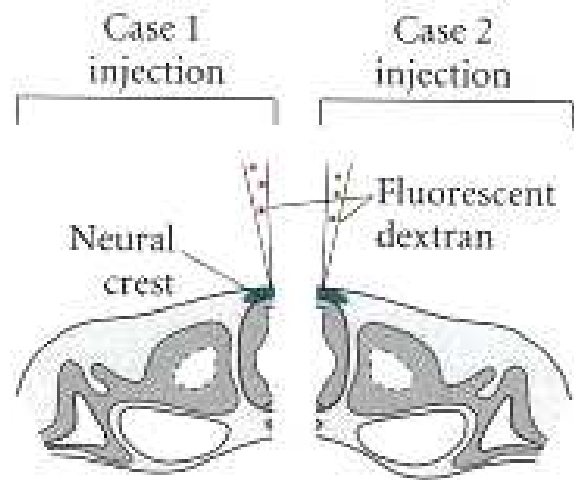
Neural tube



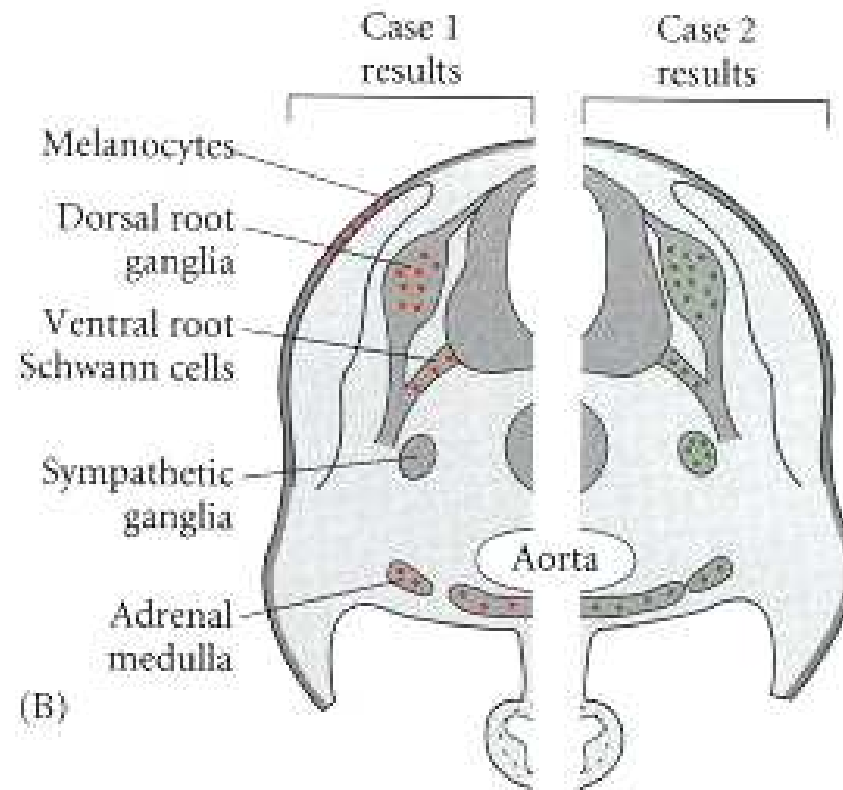
Pax3



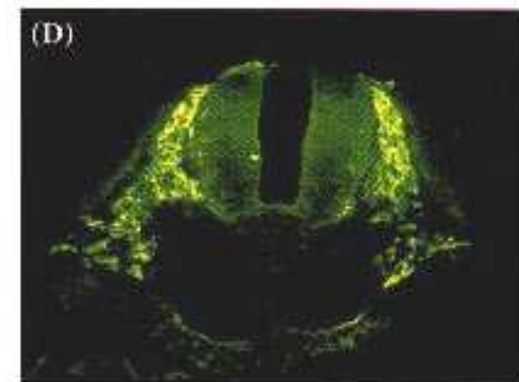
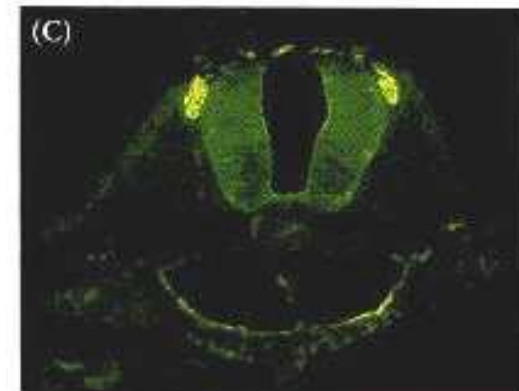
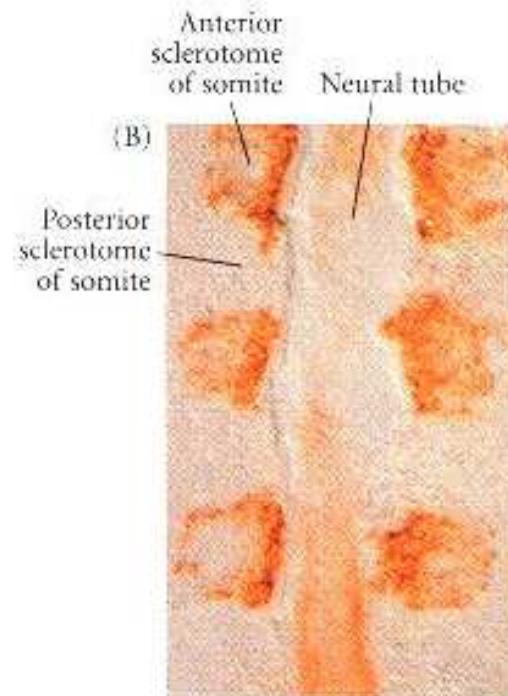
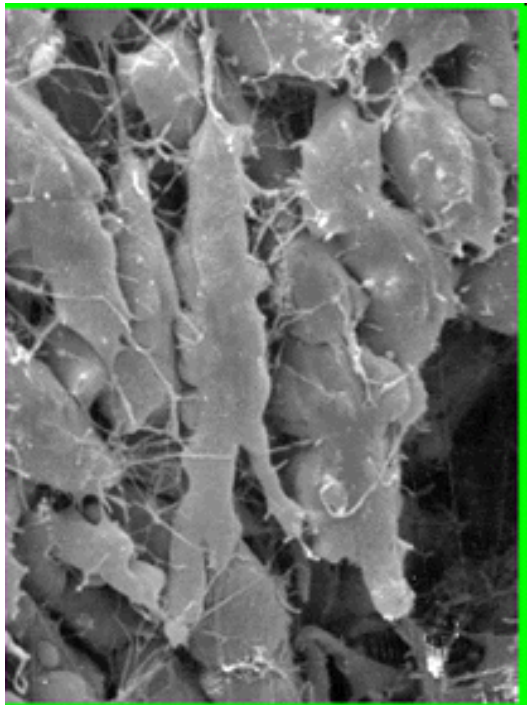
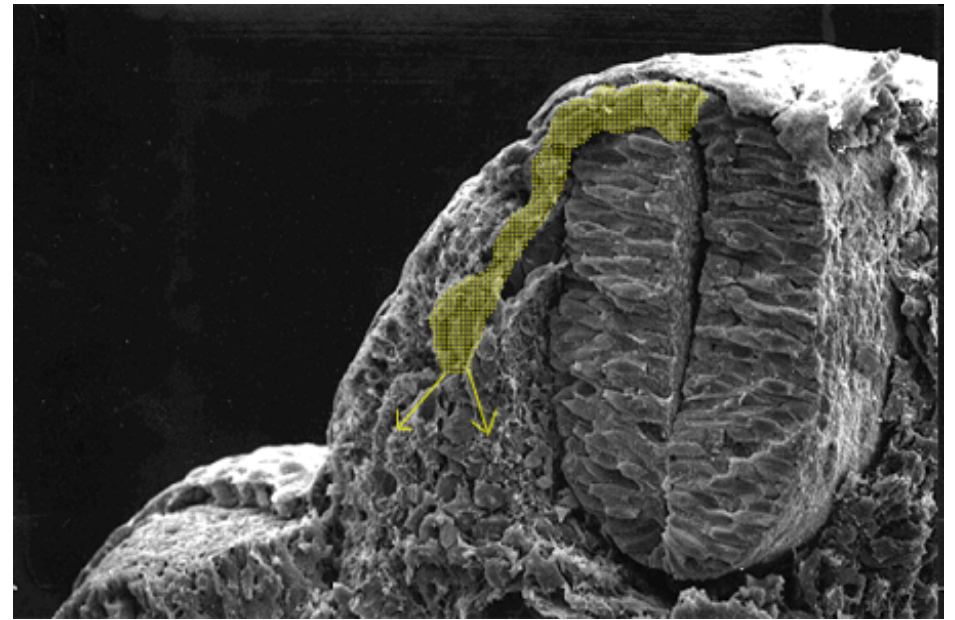
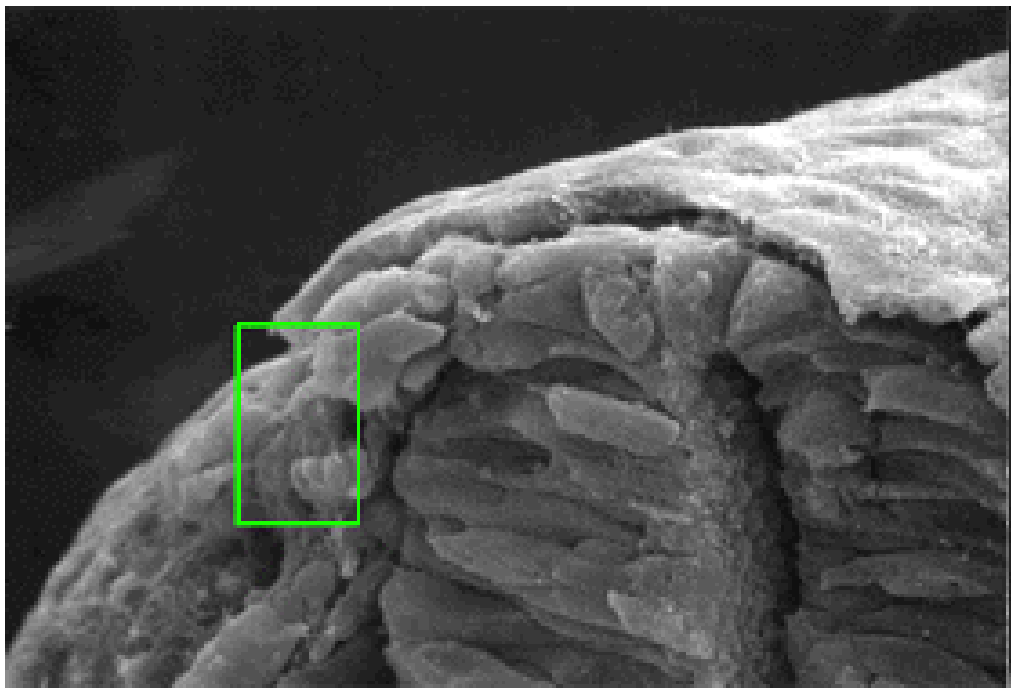
Liu and Jessell 1998;



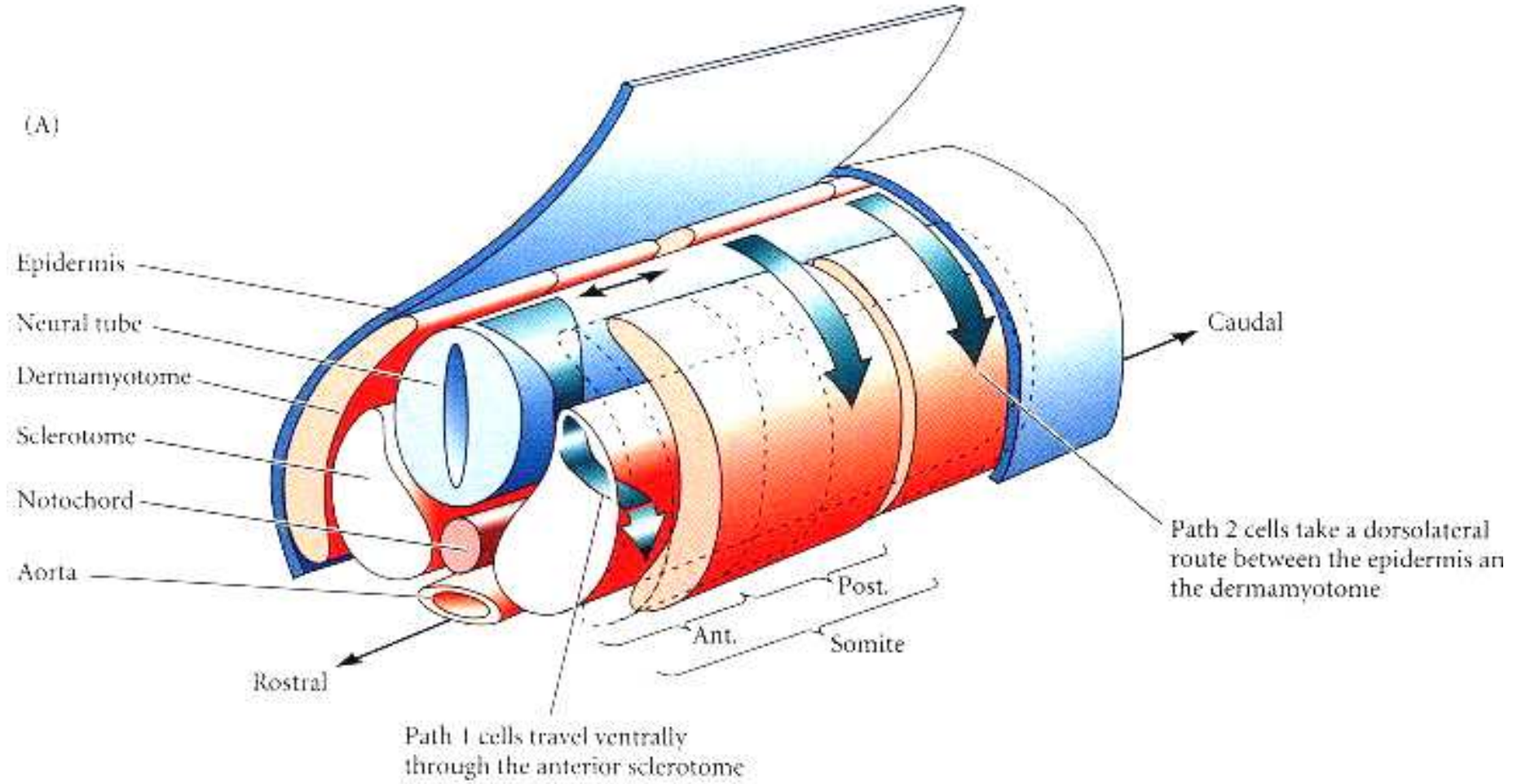
(A)

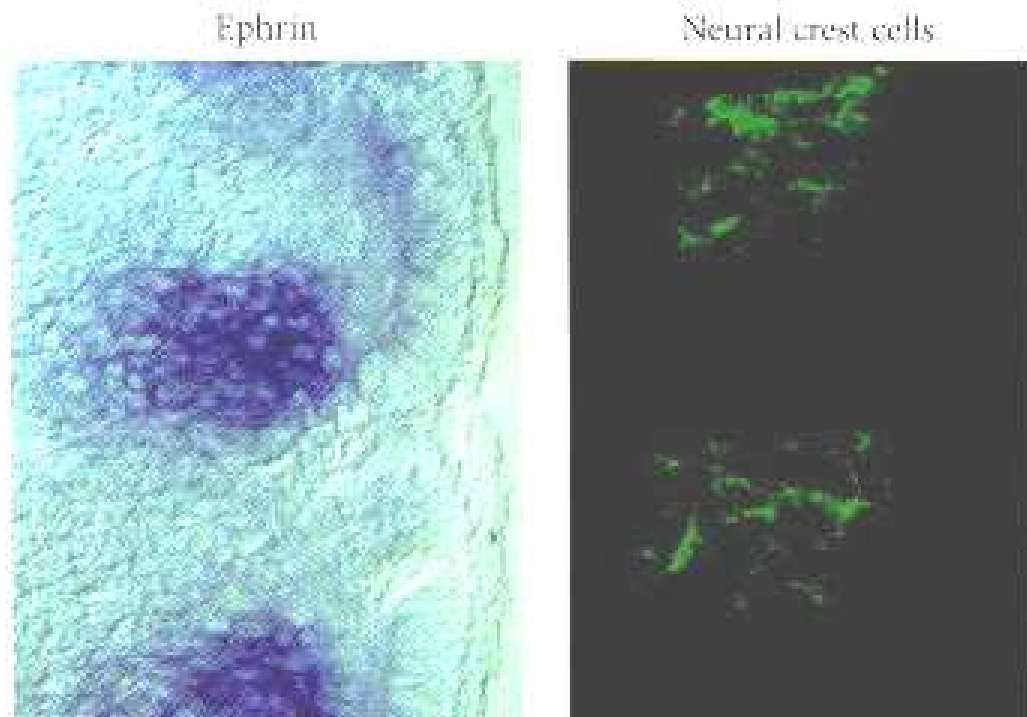


(B)



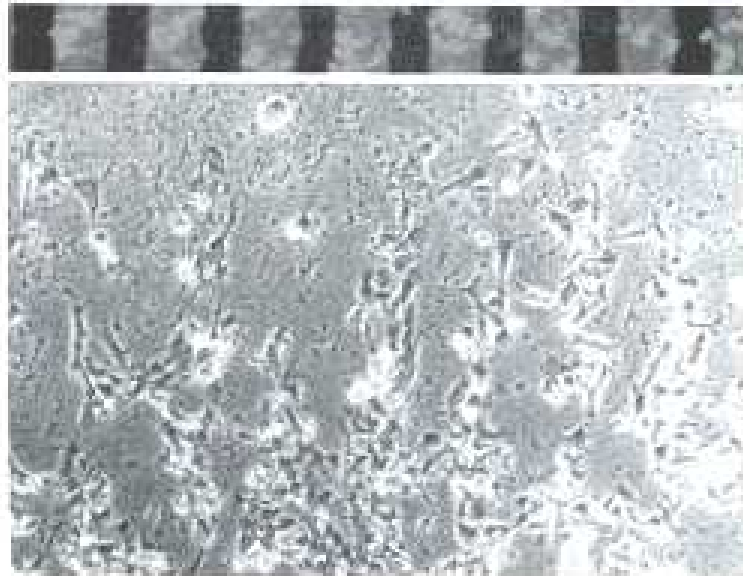
(A)



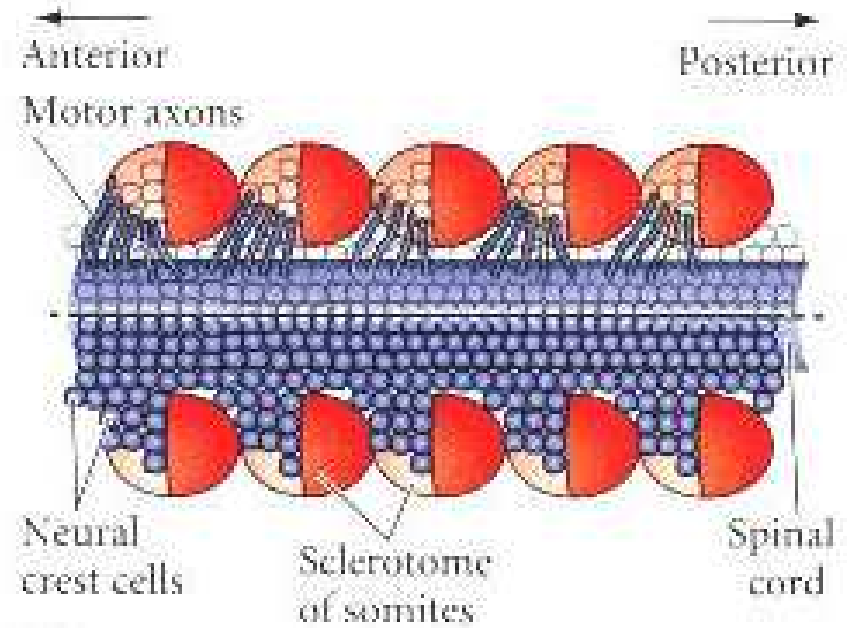


(A)

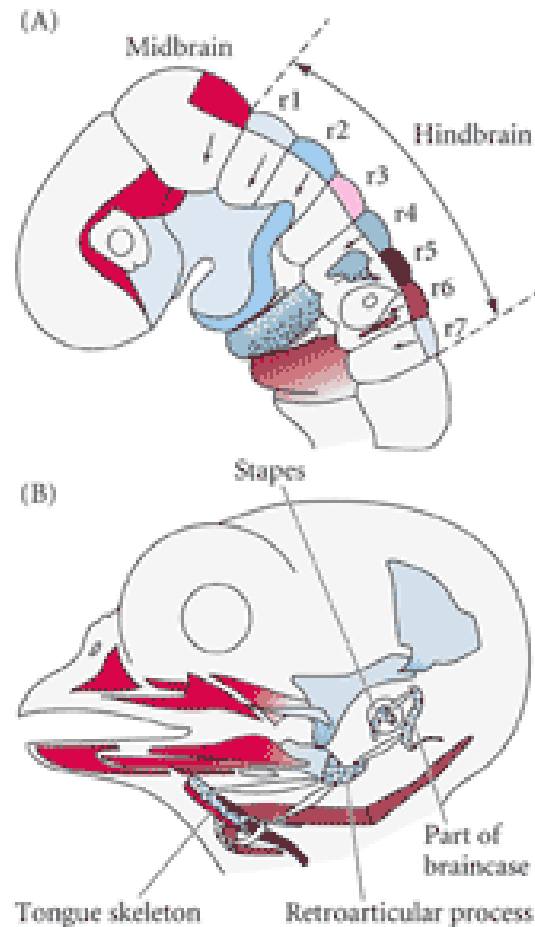
- + - + - + - + - - - + - + - + Ephrin



(B)



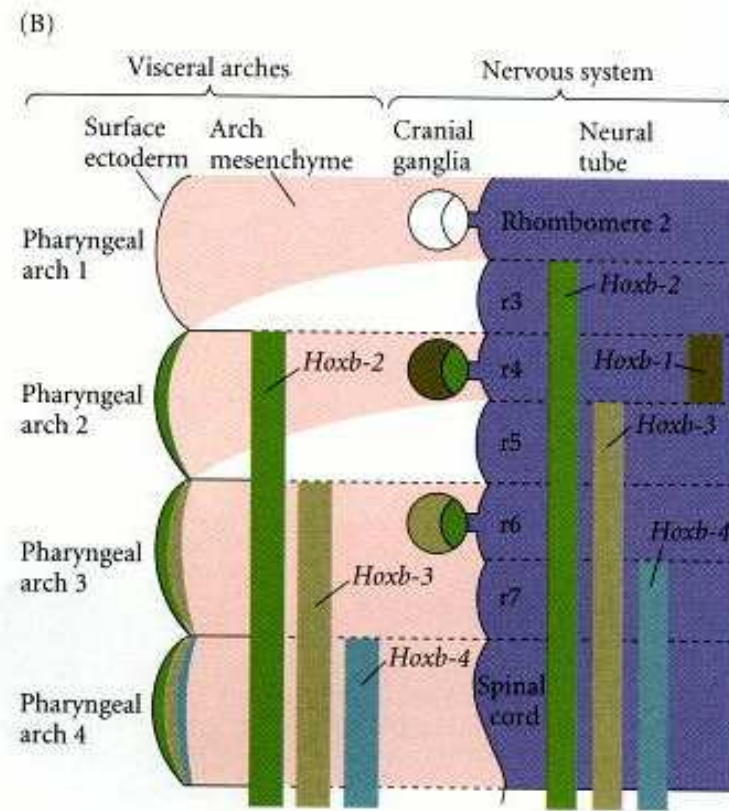
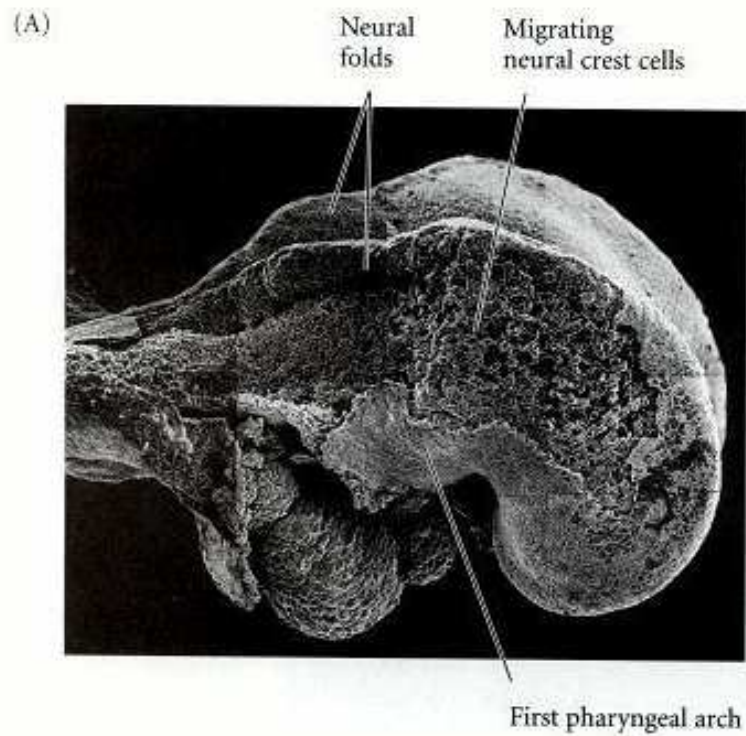
Ephrin / EphR
SEMA3a / Neuropilin 1



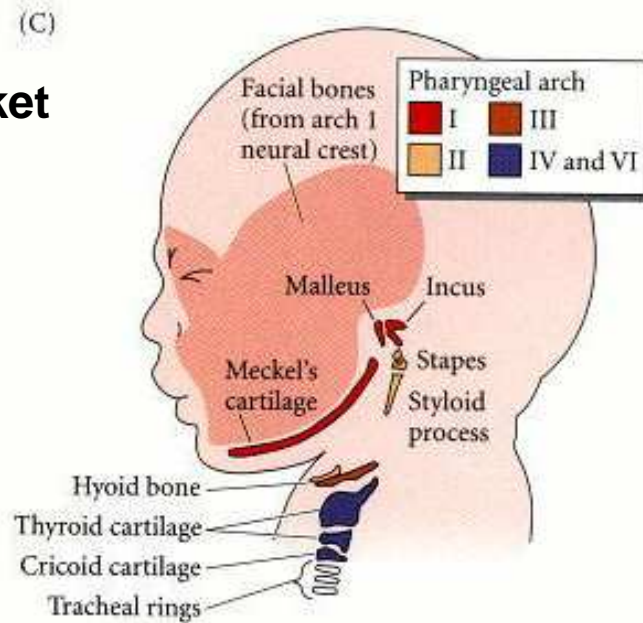
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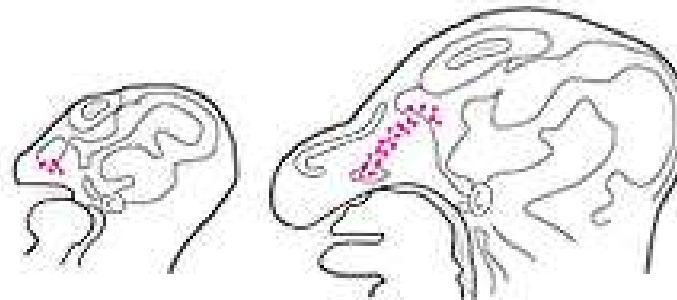
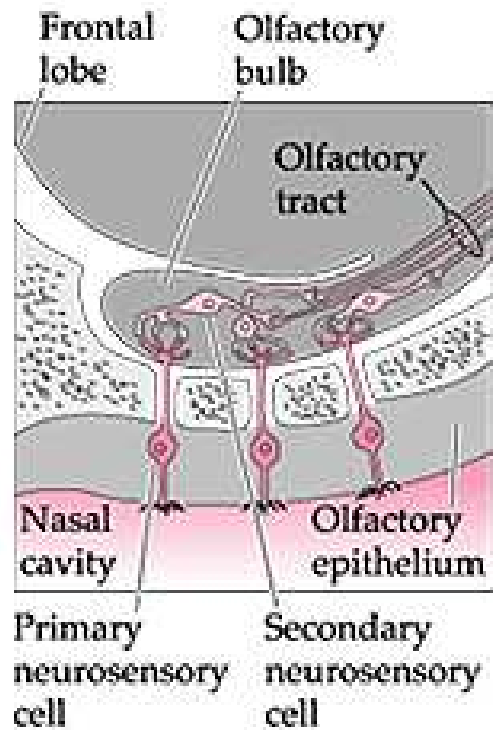
Chick embryo rhombomere neural crest cells and their musculoskeletal "packets."

- (A) 2-day chick embryo showing the contribution of the rhombomere neural crest cells to the pharyngeal arches. (Most of the neural crest cells from r3 and r5 undergo apoptosis, while the rest of these cells contribute to the larger population of r4 neural crest cells.)
- (B) 10-day embryo showing the bones of the upper and lower jaws, tongue skeleton, and middle ear derived from the rhombomeric crest cells. The muscles derived from r4 are attached to bones from the same rhombomere, and the part of the braincase attached to the r4-derived jaw-opening muscle is also derived from r 4. (Other muscles have been omitted for clarity.) (After Ahlberg 1997.)



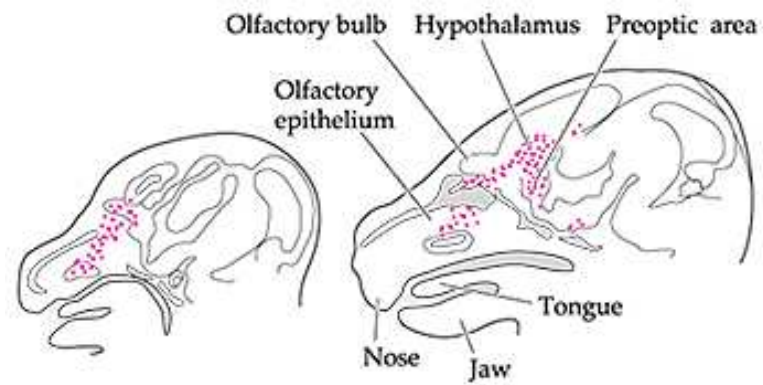
A vándorló lécs-sejtek őrzik regionális eredetüket





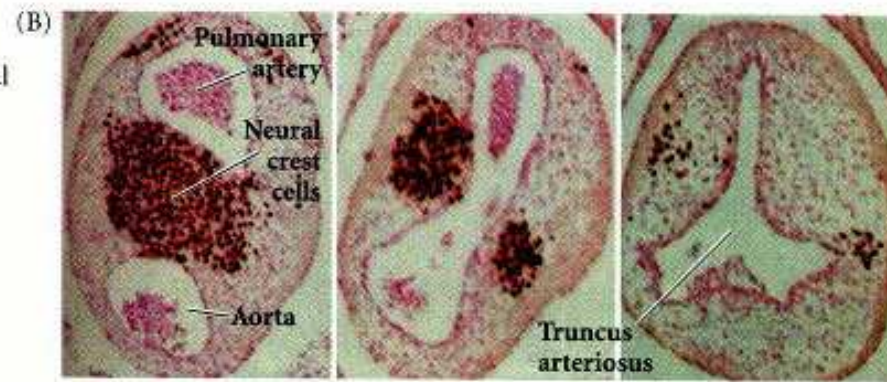
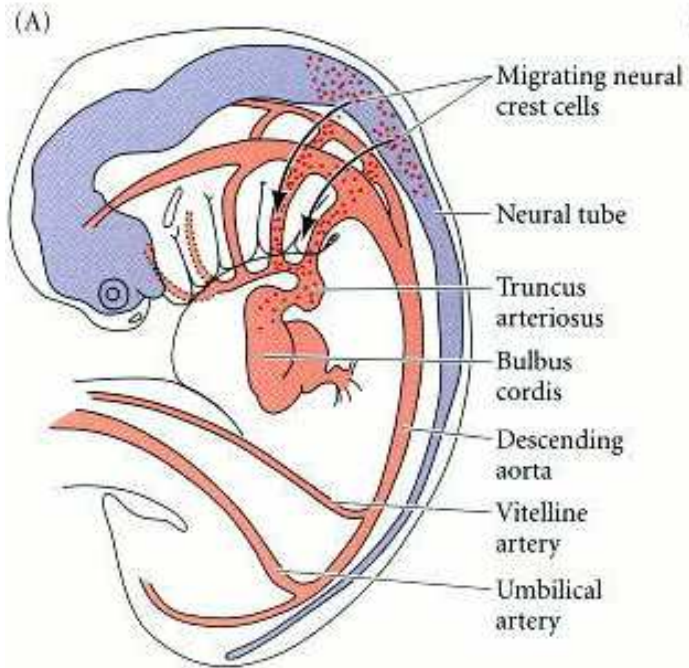
Day 11

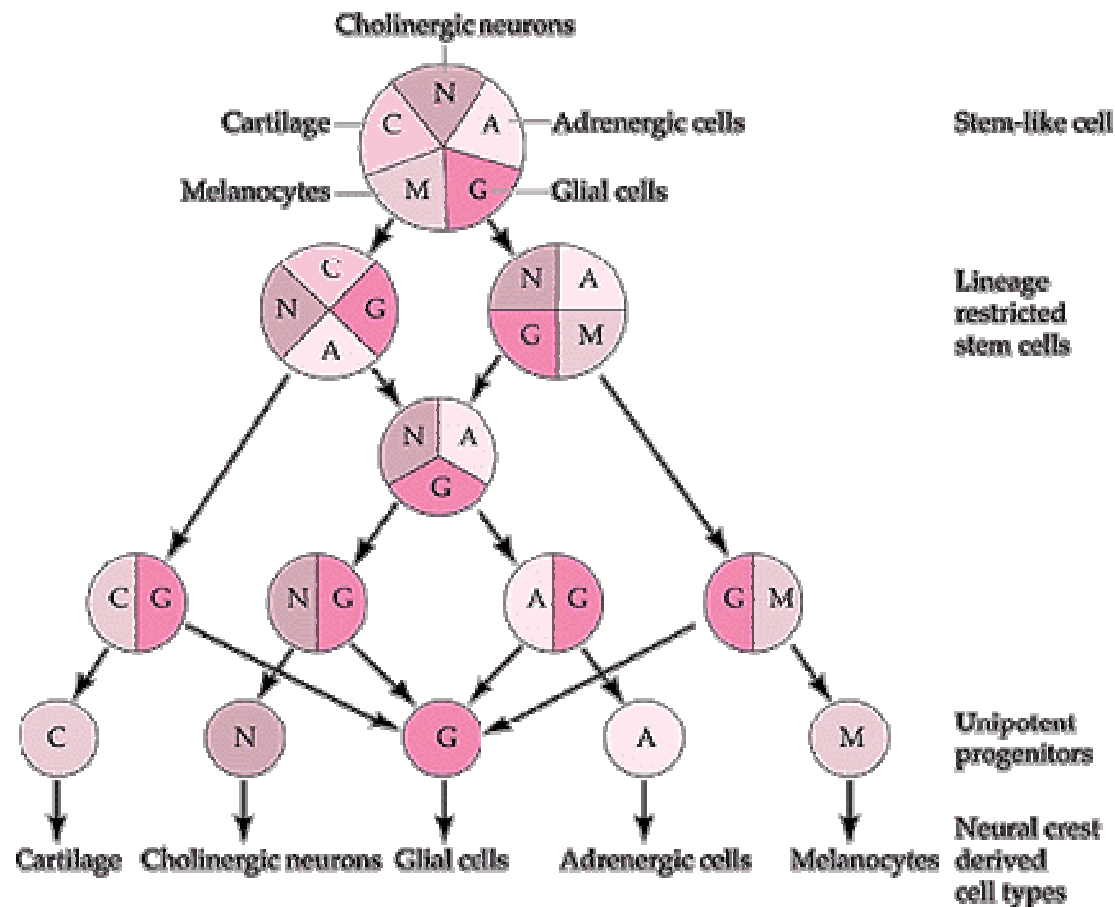
Day 13



Day 14

Day 15





Hypothetical lineage restriction in the cells of the quail cephalic neural crest. 533 clones, each derived from a single cell, were observed for the cell types derived from each cell. The results are consistent with the progressive restriction in cell fate from a pluripotent stem cell through more restricted stem cells to a "unipotential" progenitor cell.

A, adrenergic neuron; C, cartilage; G, glial cells; M, melanocytes; N, cholinergic neurons.
 (After Le Douarin et al., 1994.)

