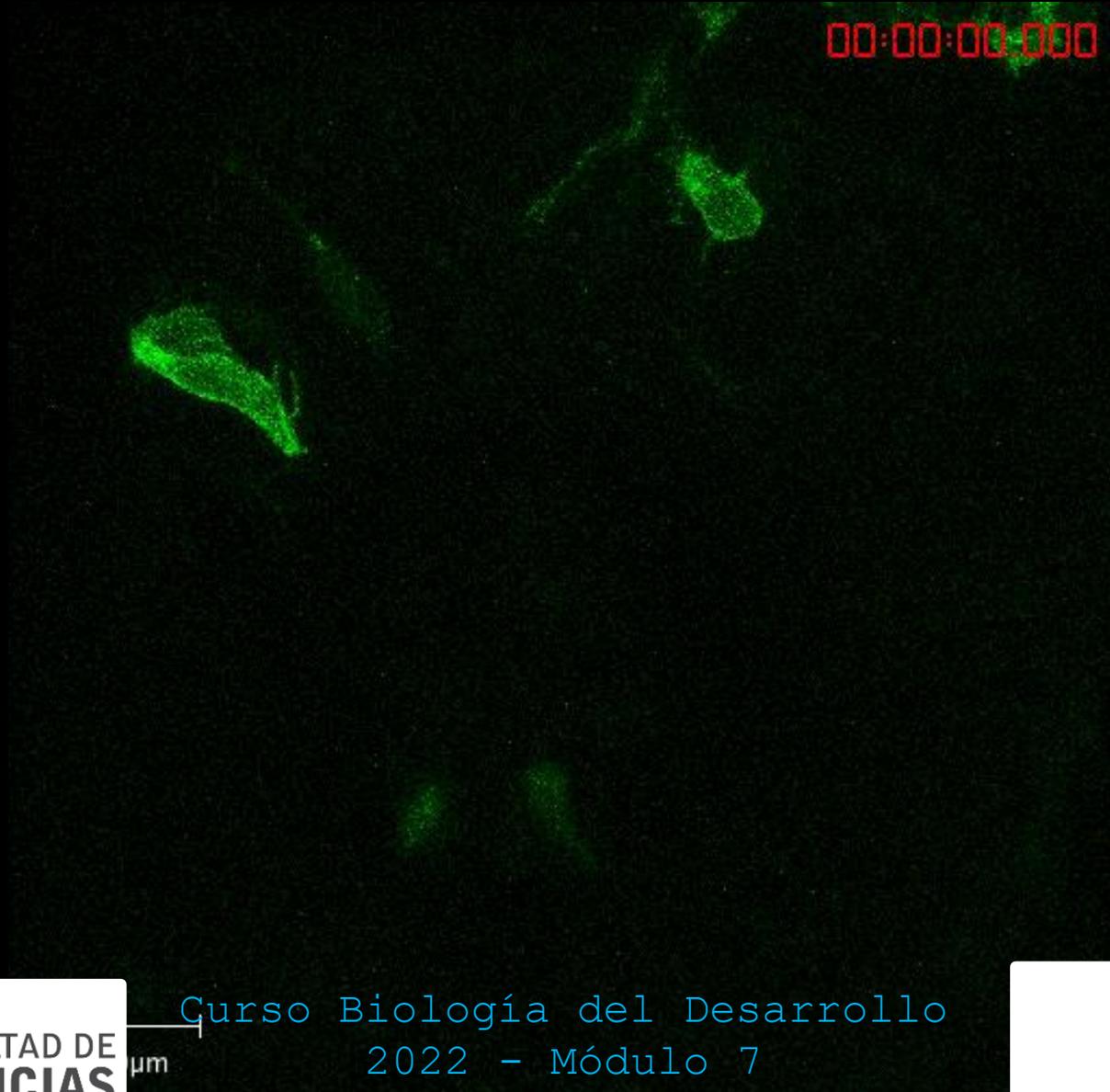


# Desarrollo neural: Neurogénesis



<https://youtu.be/CG71BM0nrIY>

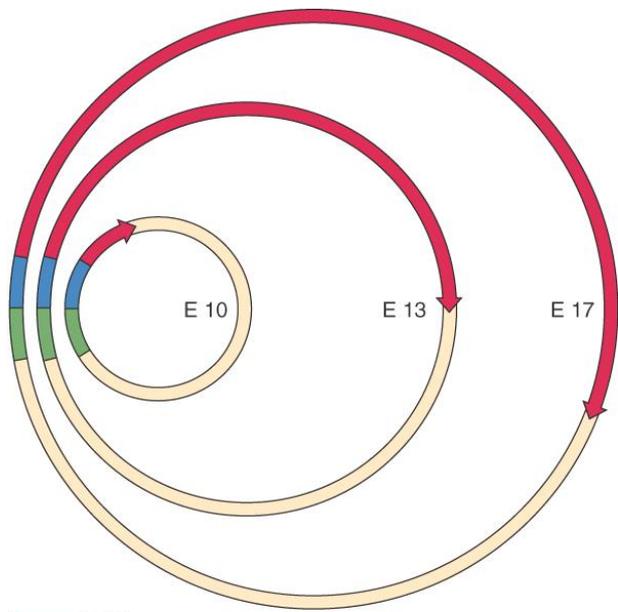


Curso Biología del Desarrollo  
2022 - Módulo 7  
Flavio Zolessi  
fzolessi@fcien.edu.uy

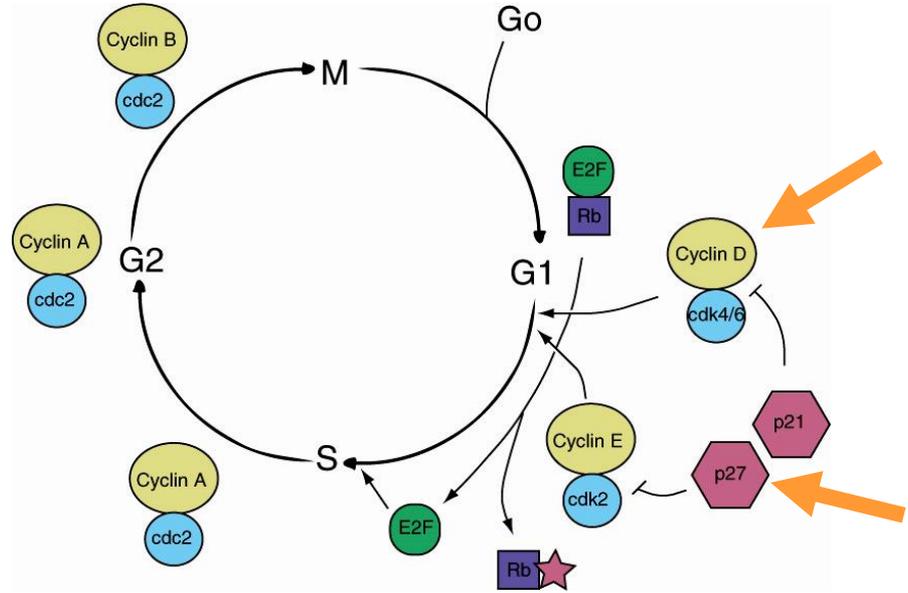




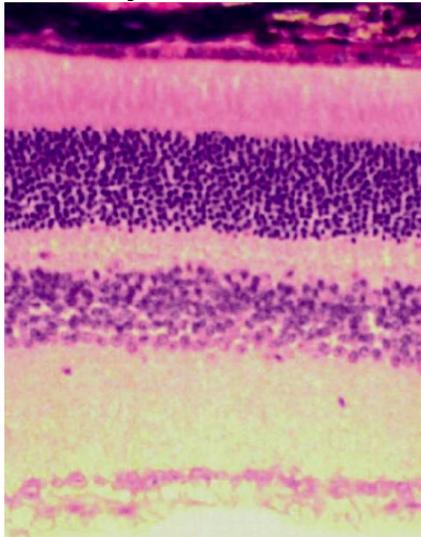
# El ciclo celular y la neurogénesis



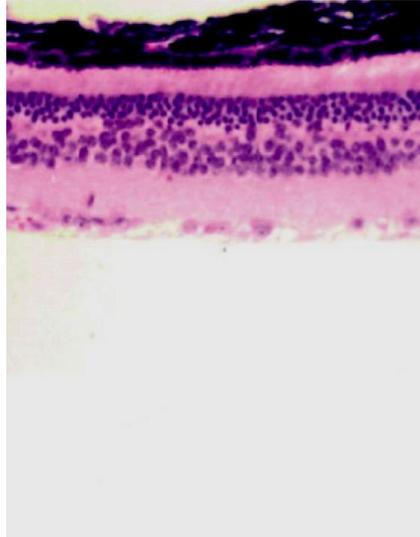
- █ G 1
- █ Synthesis
- █ G 2
- █ Mitosis



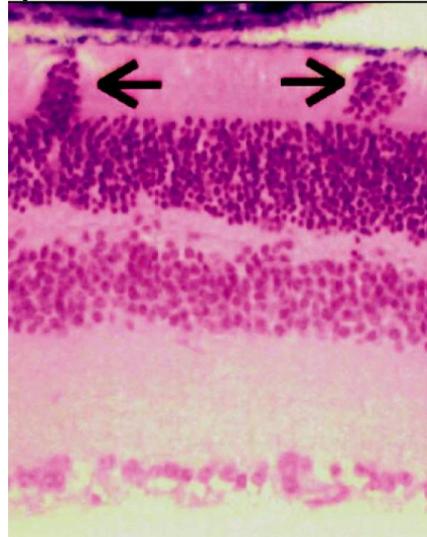
Salvaje



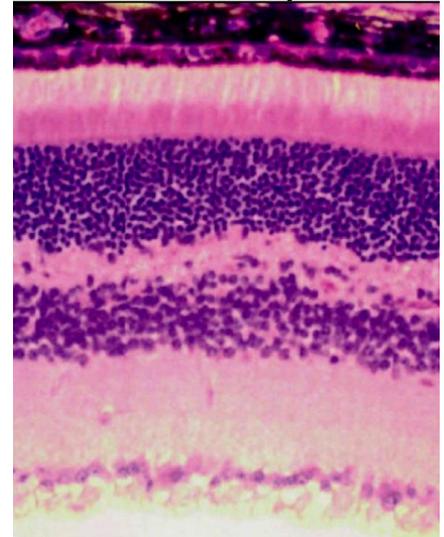
Ciclina D1 -/-

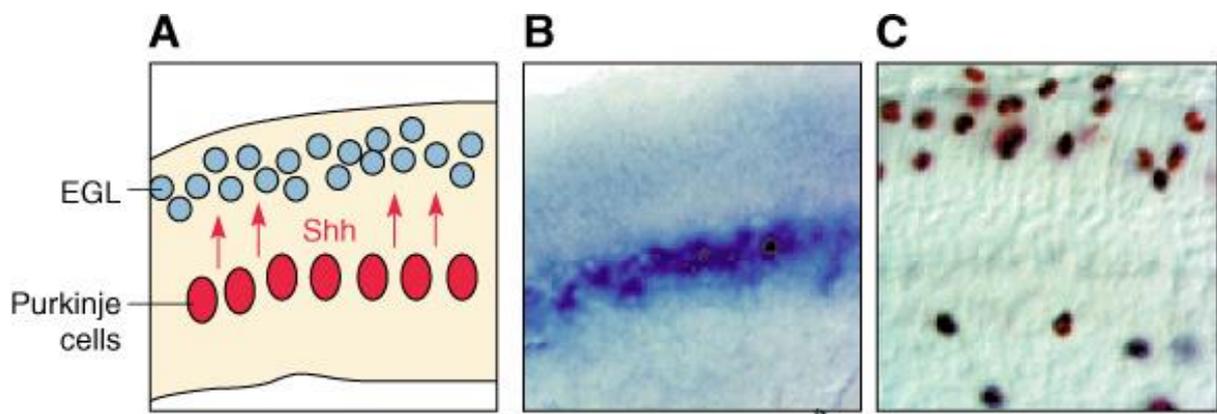


p27 -/-

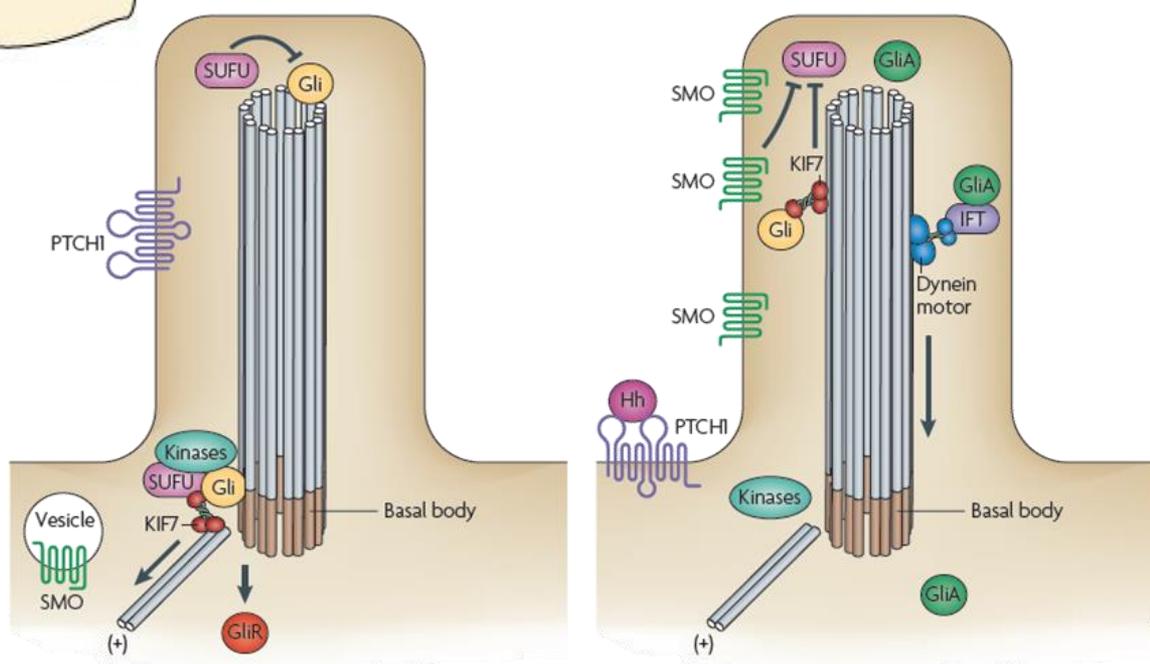
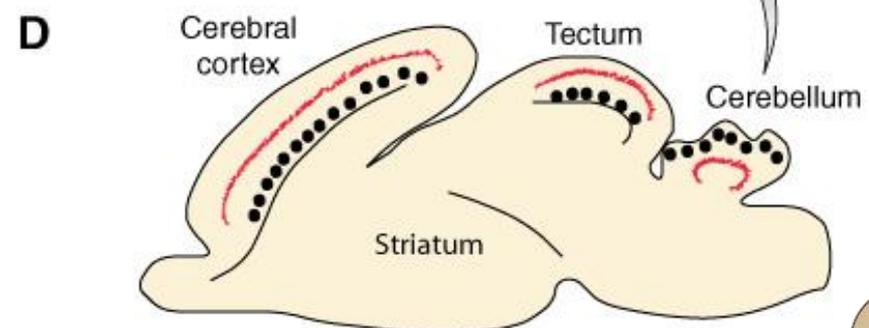


Ciclina D1 / p27 -/-

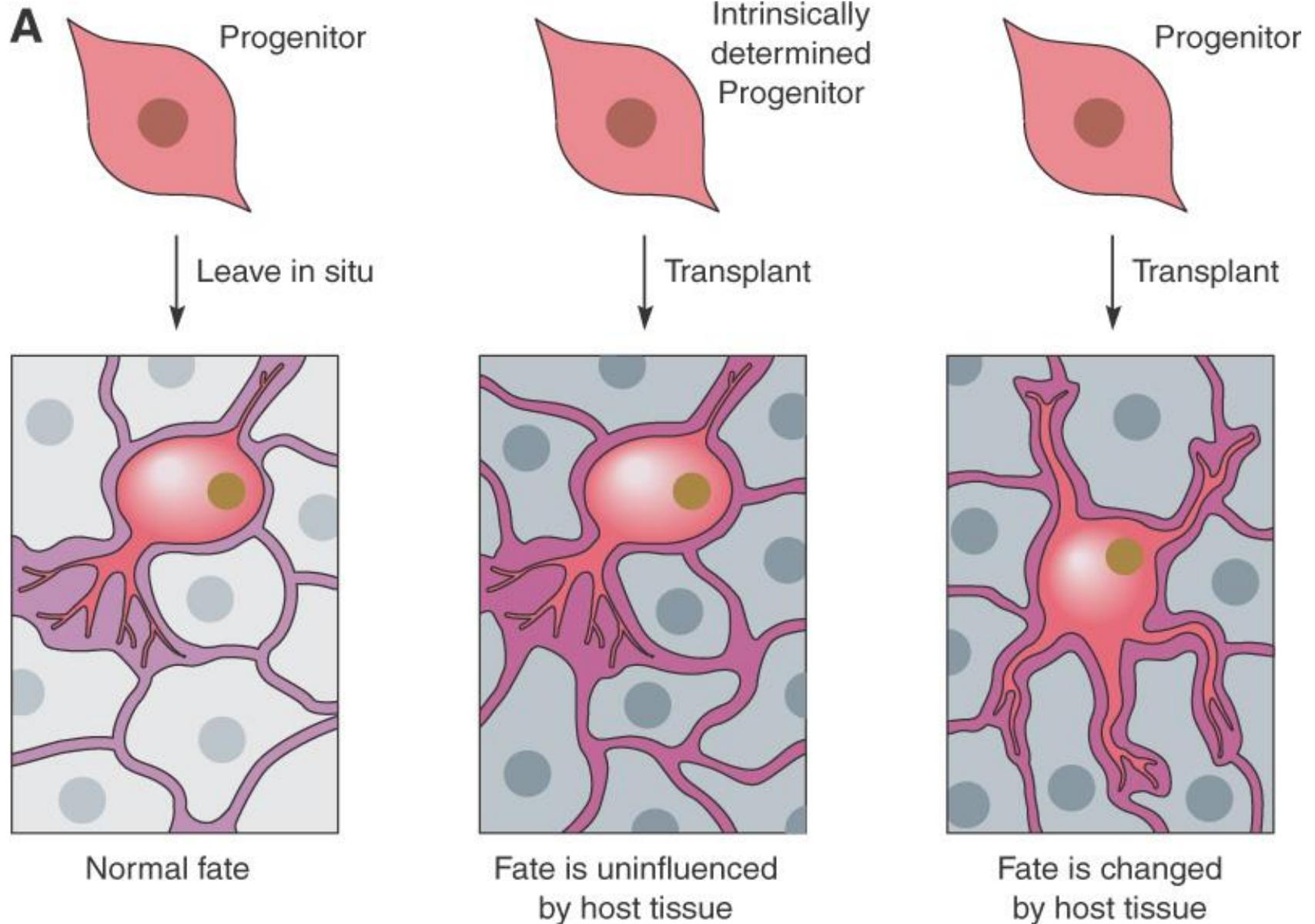




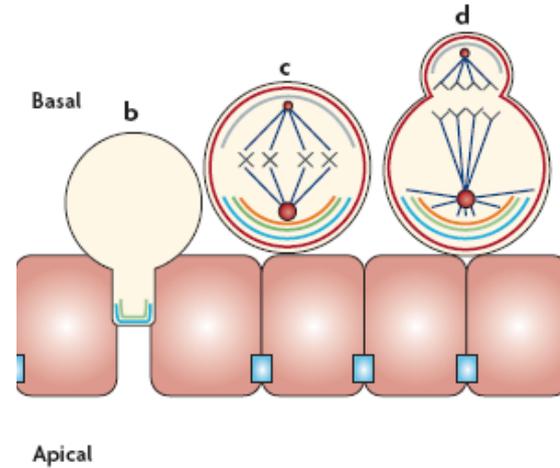
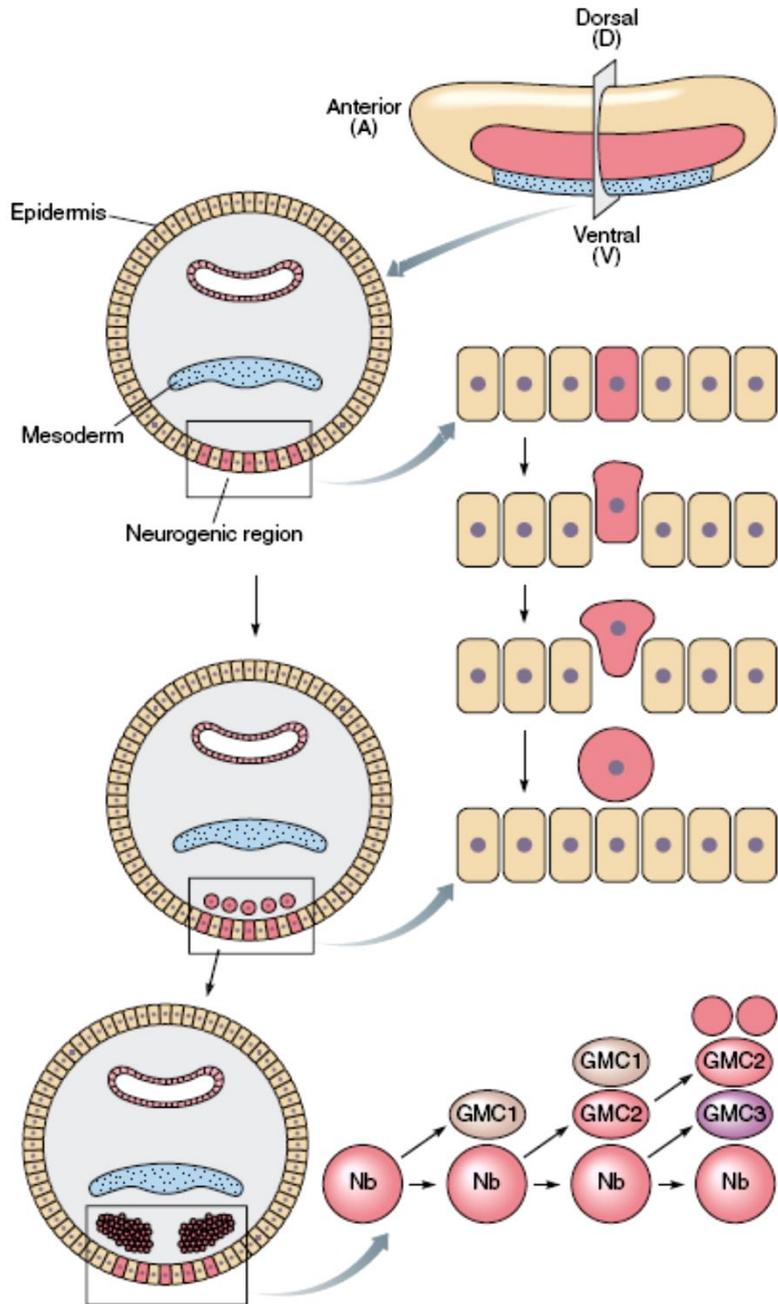
Mantenimiento de la capacidad proliferante de las células progenitoras: rol de *Sonic hedgehog*



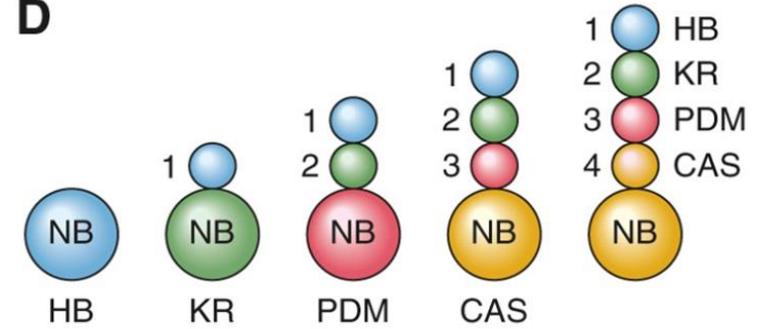
# Destino y determinación celular



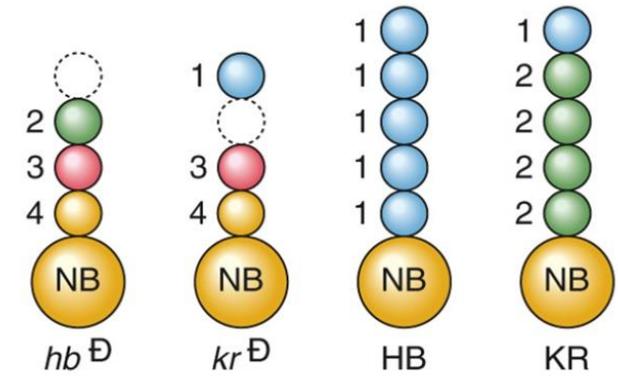
# Neurogénesis en *Drosophila*



**D**

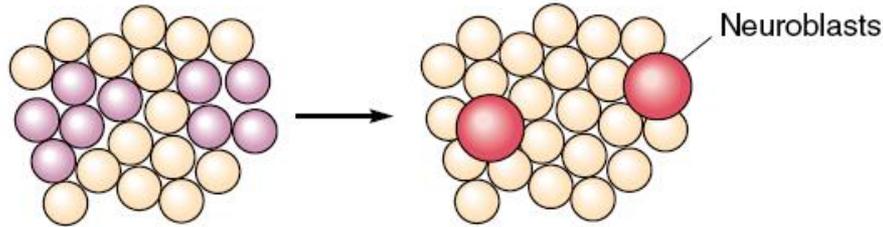


**E**

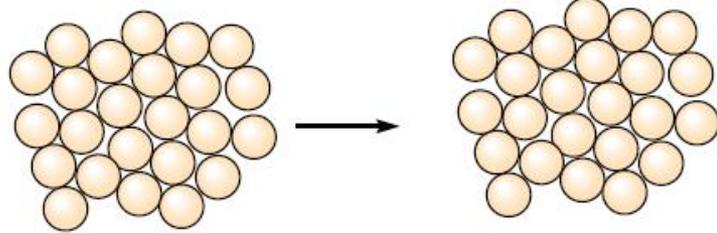


# Neurogénesis en *Drosophila*: Genes proneurales y neurogénicos

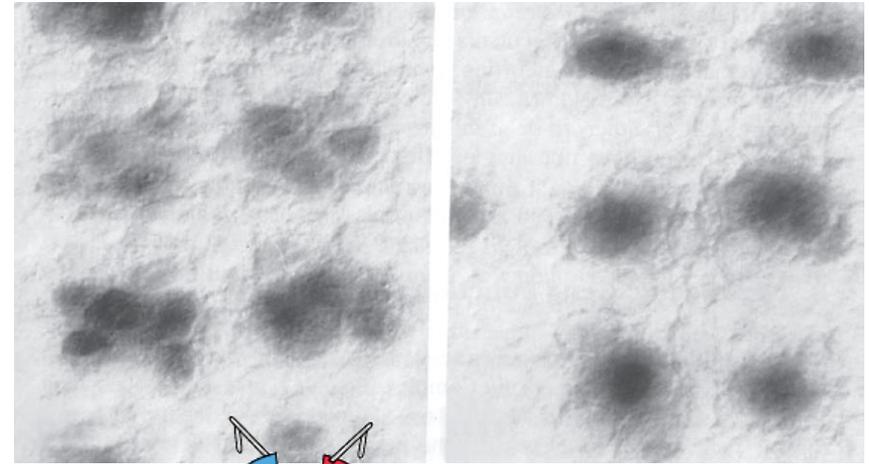
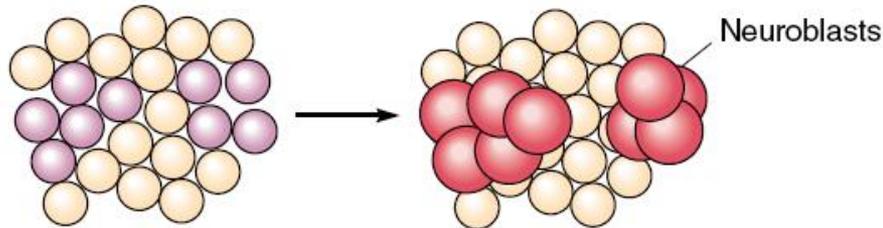
Wild type



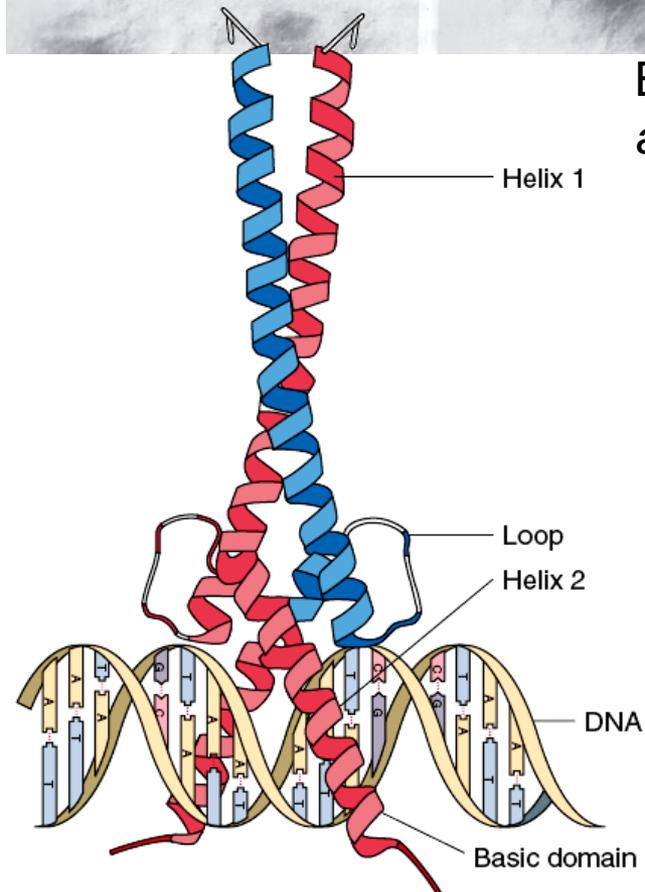
Proneural mutant



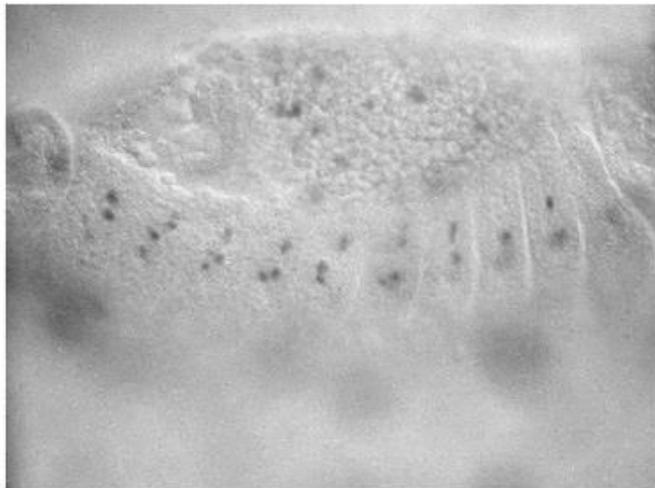
Neurogenic mutant



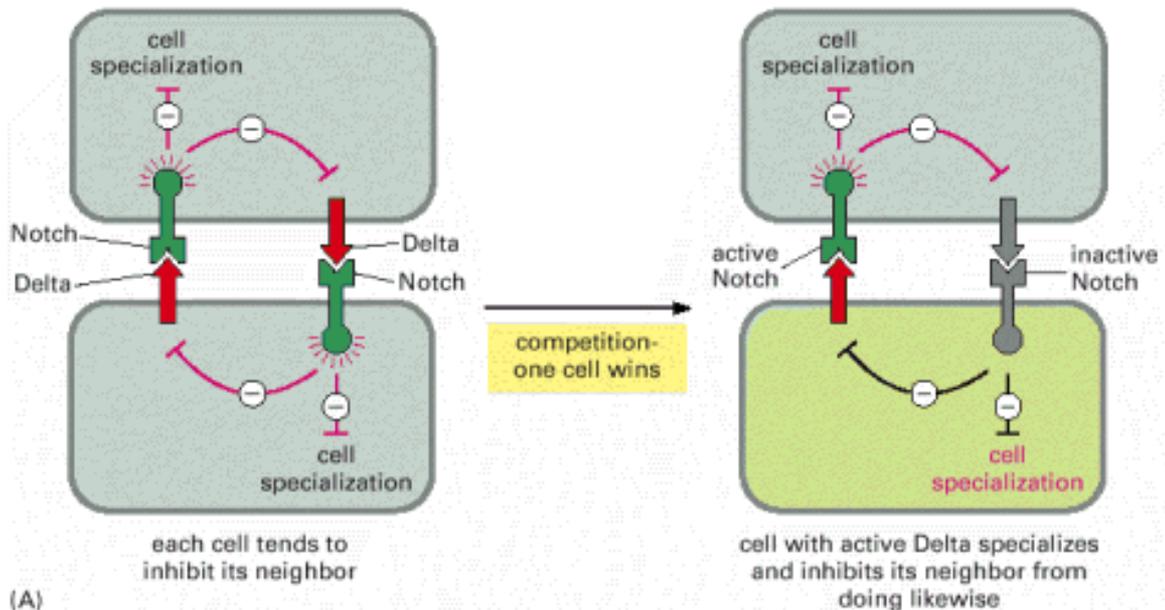
Expresión de  
*achaete-scute*



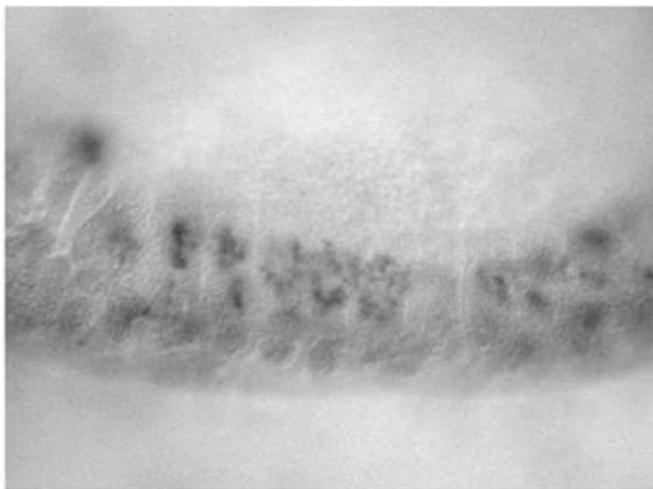
# Inhibición lateral y genes neurogénicos: Notch-Delta



(a) wild type

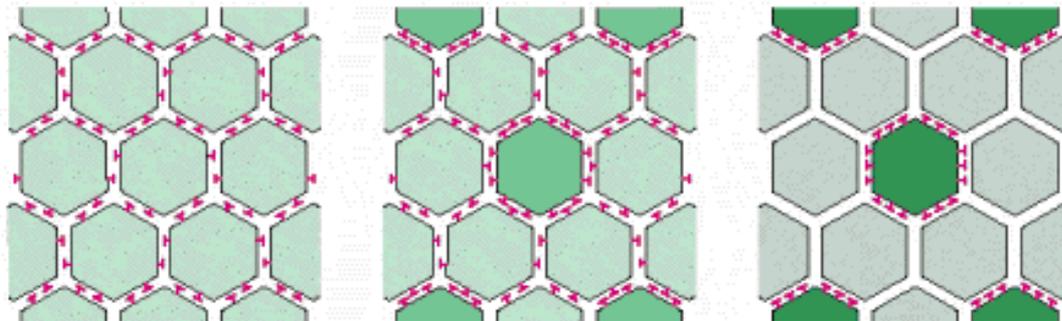


(A)

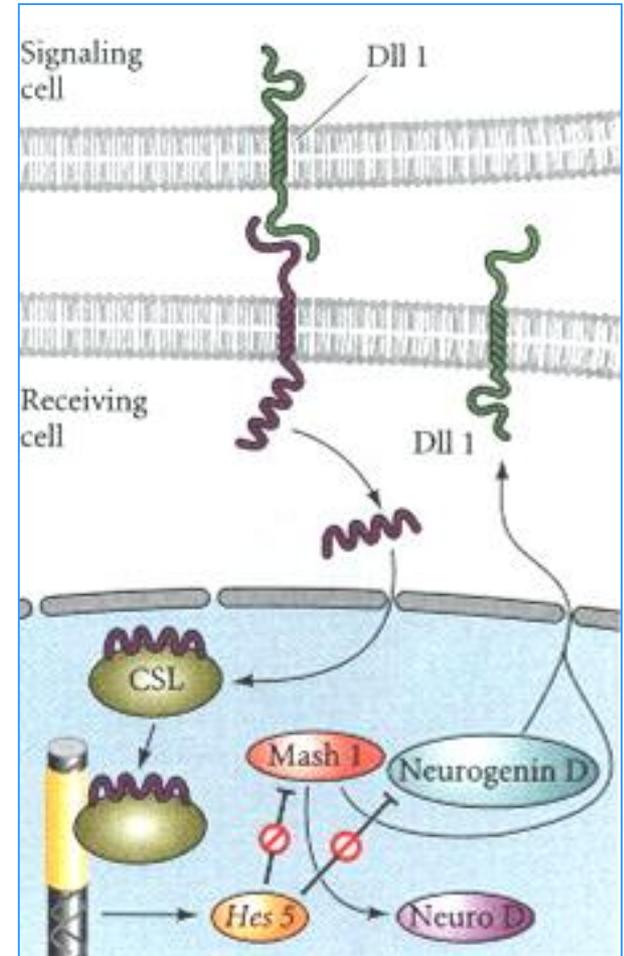
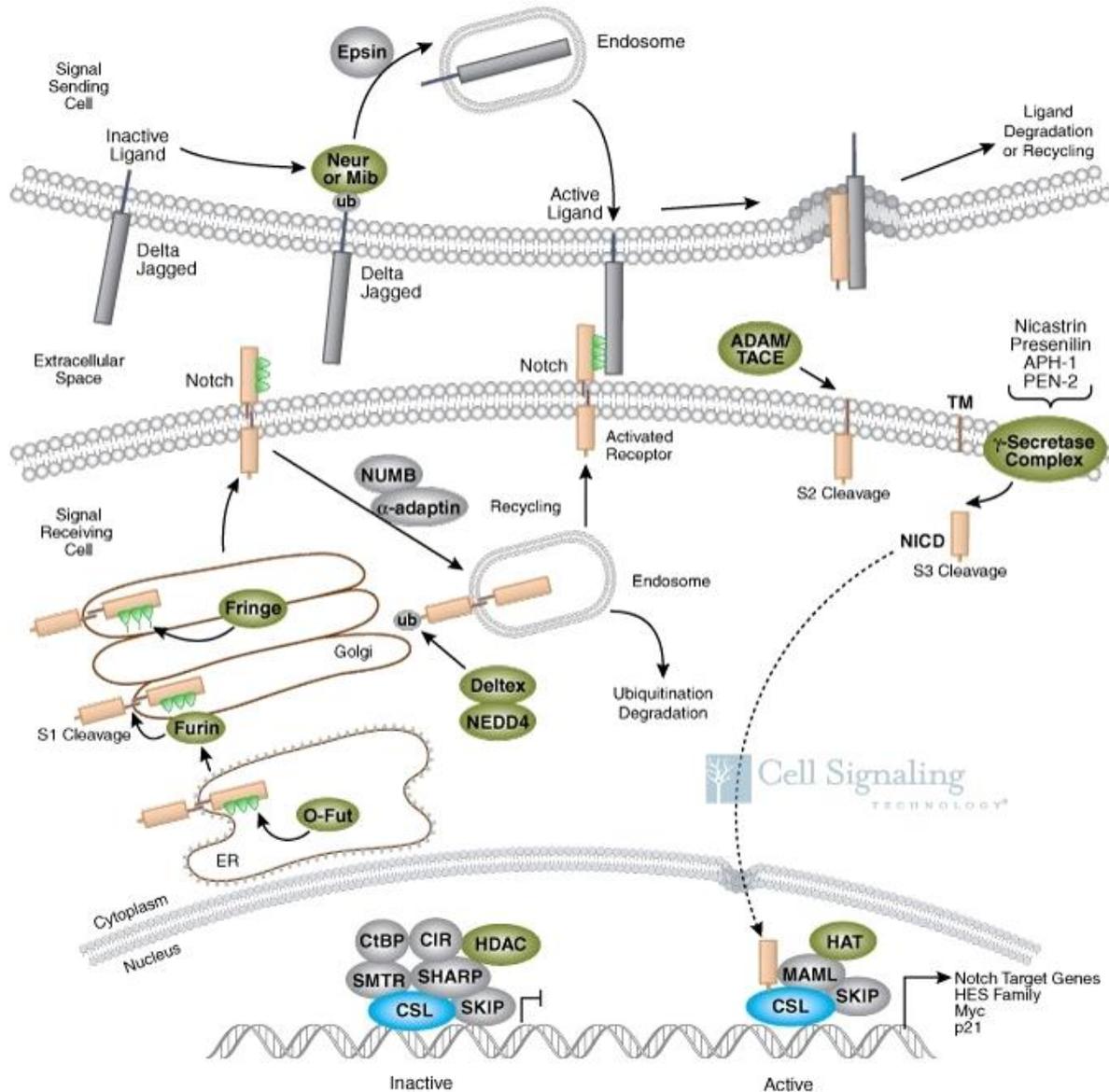


(b) Notch mutant

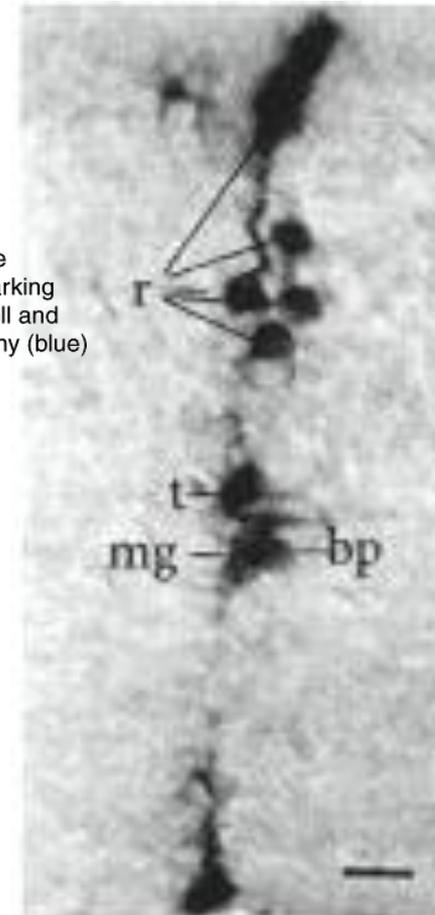
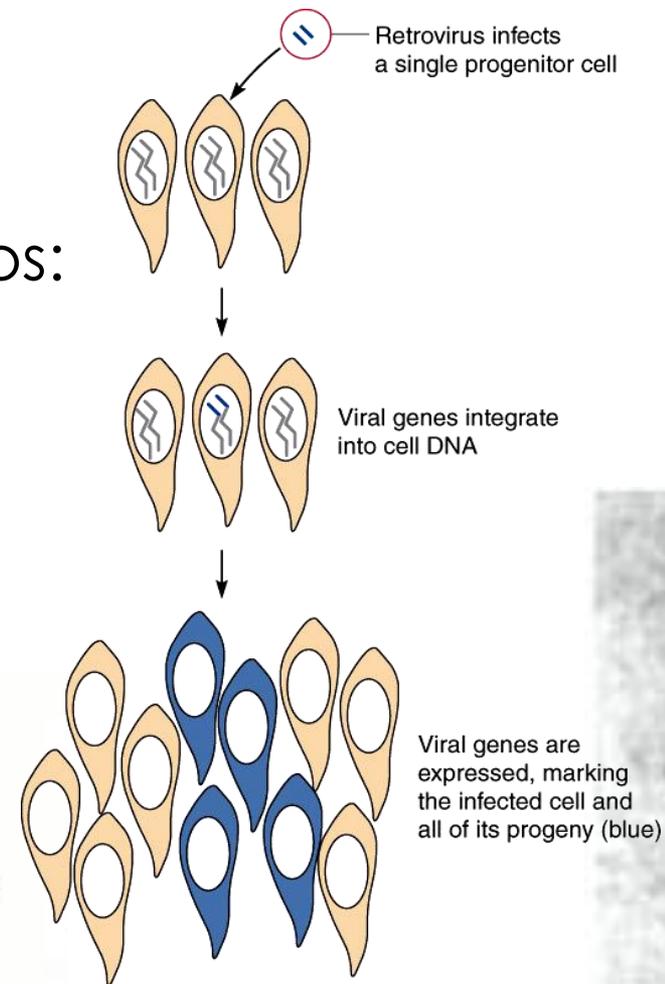
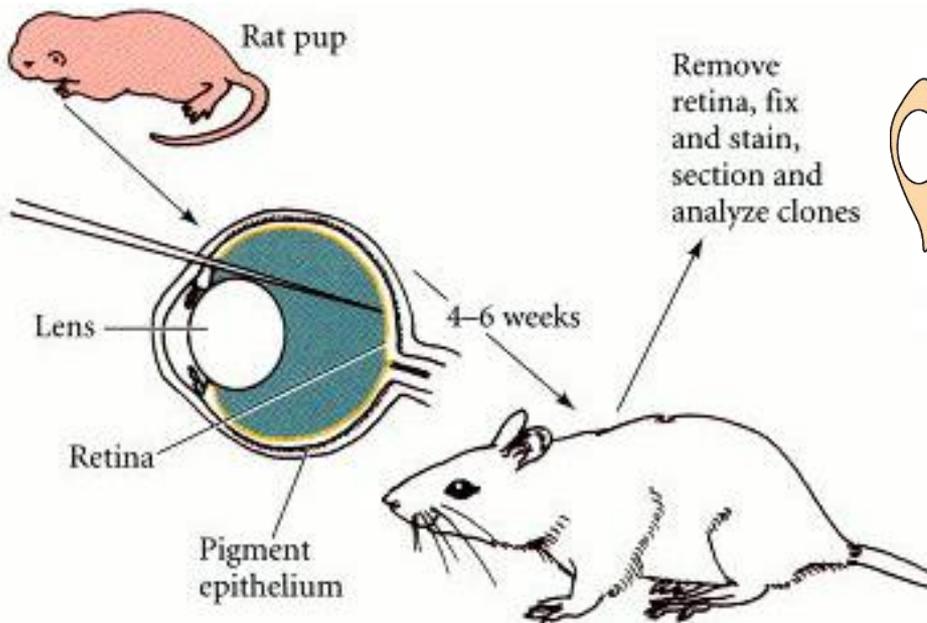
(B)



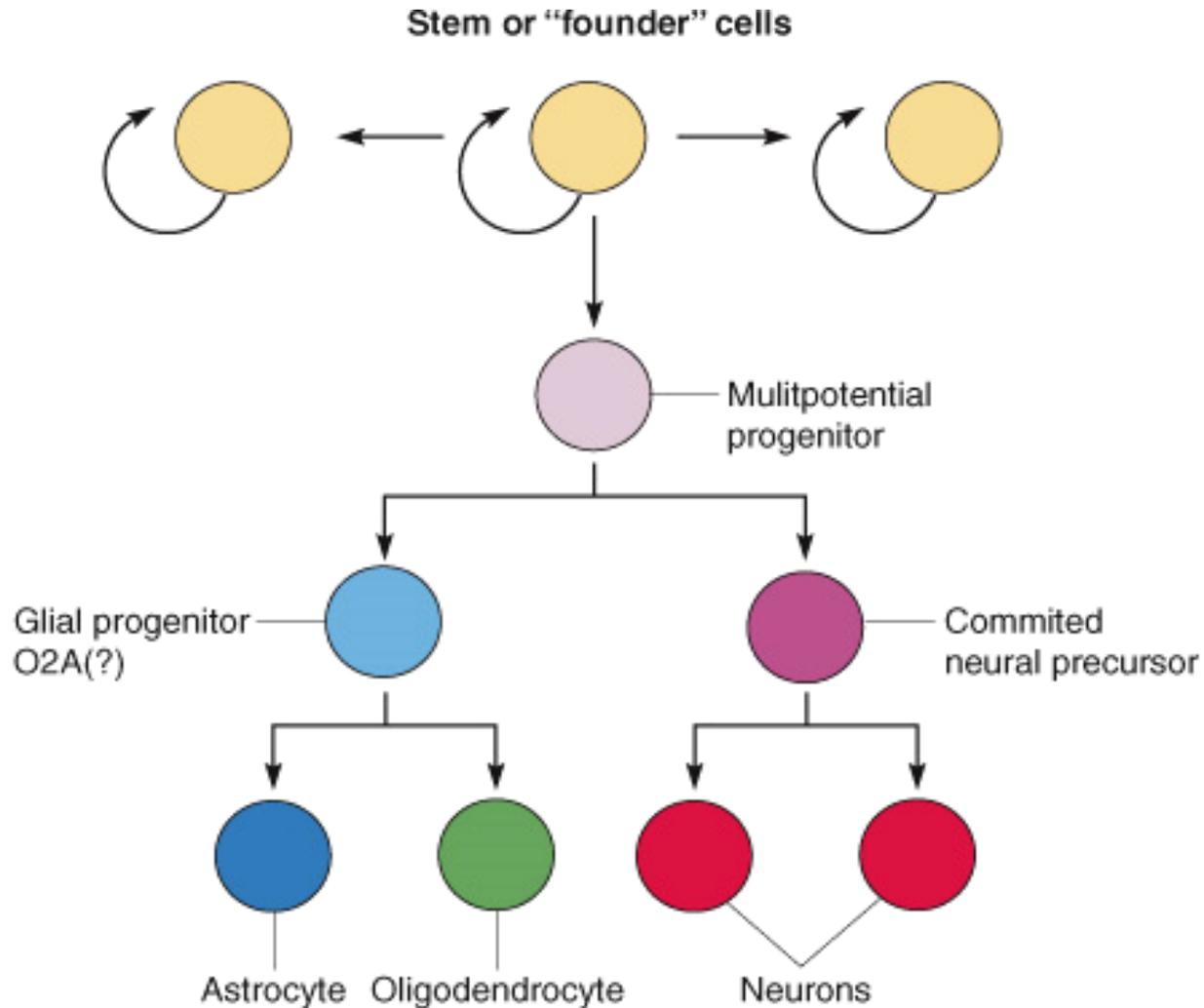
# Inhibición lateral y genes neurogénicos: Notch-Delta



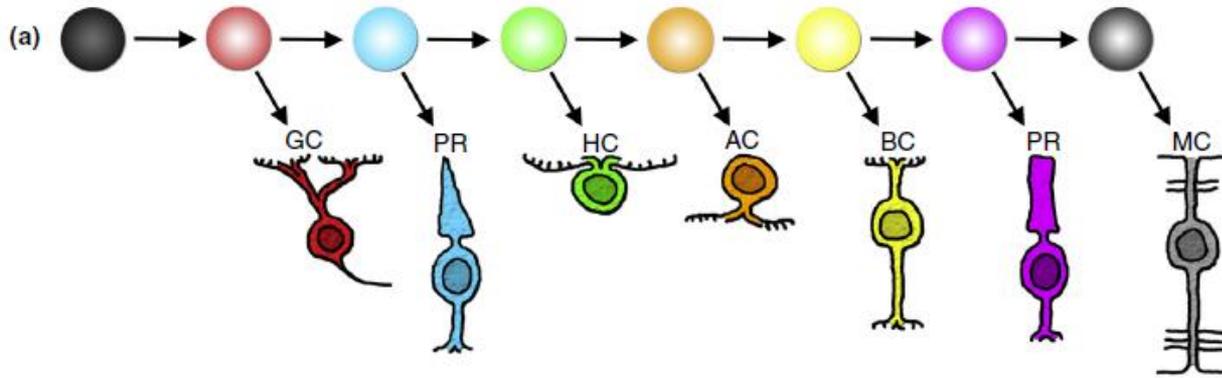
# Regulación de la neurogénesis en vertebrados: linajes celulares



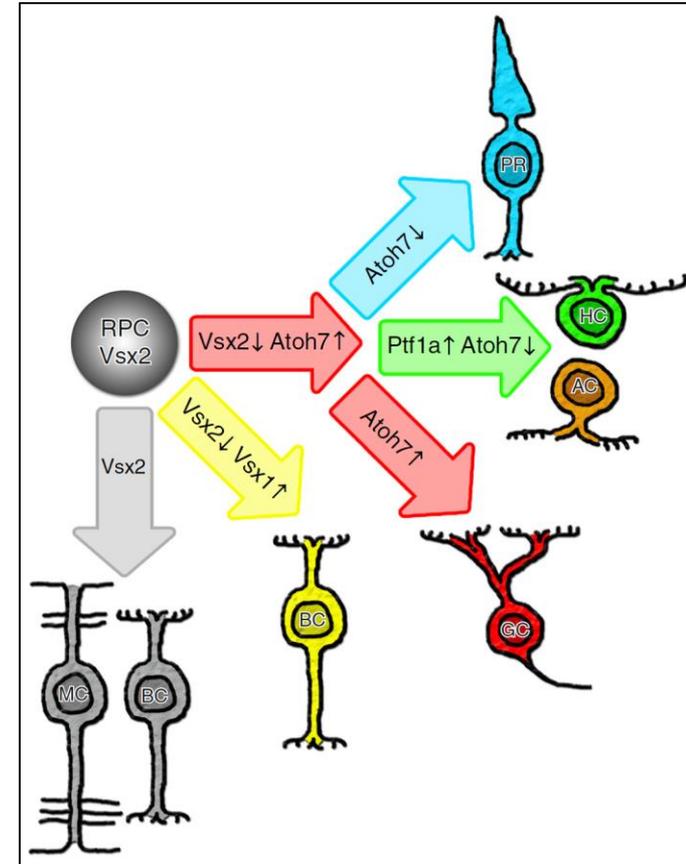
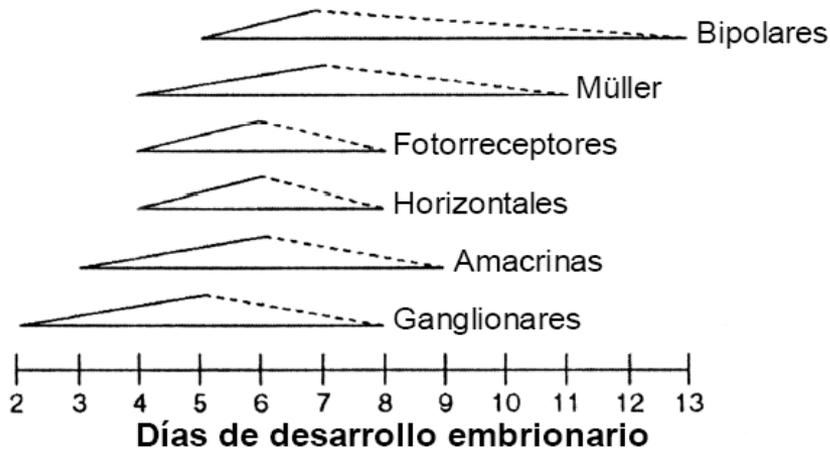
# Regulación de la neurogénesis en vertebrados: linajes celulares



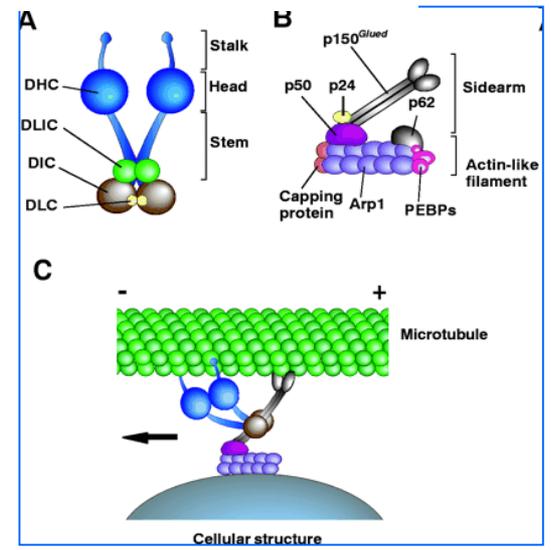
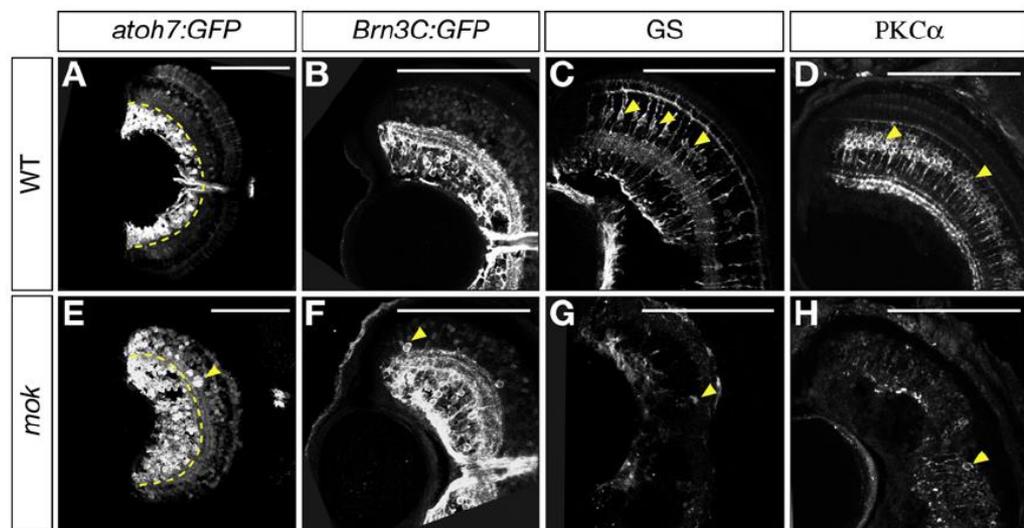
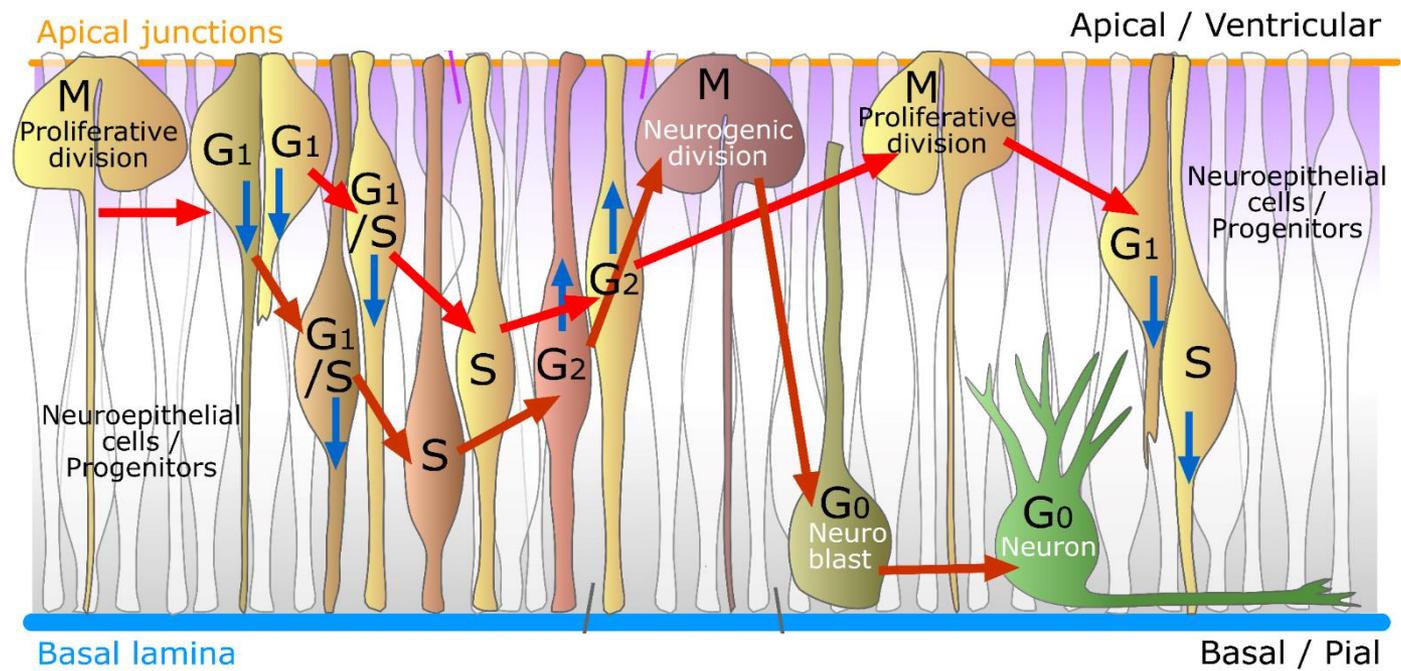
# Selección de destinos celulares y estocasticidad en vertebrados



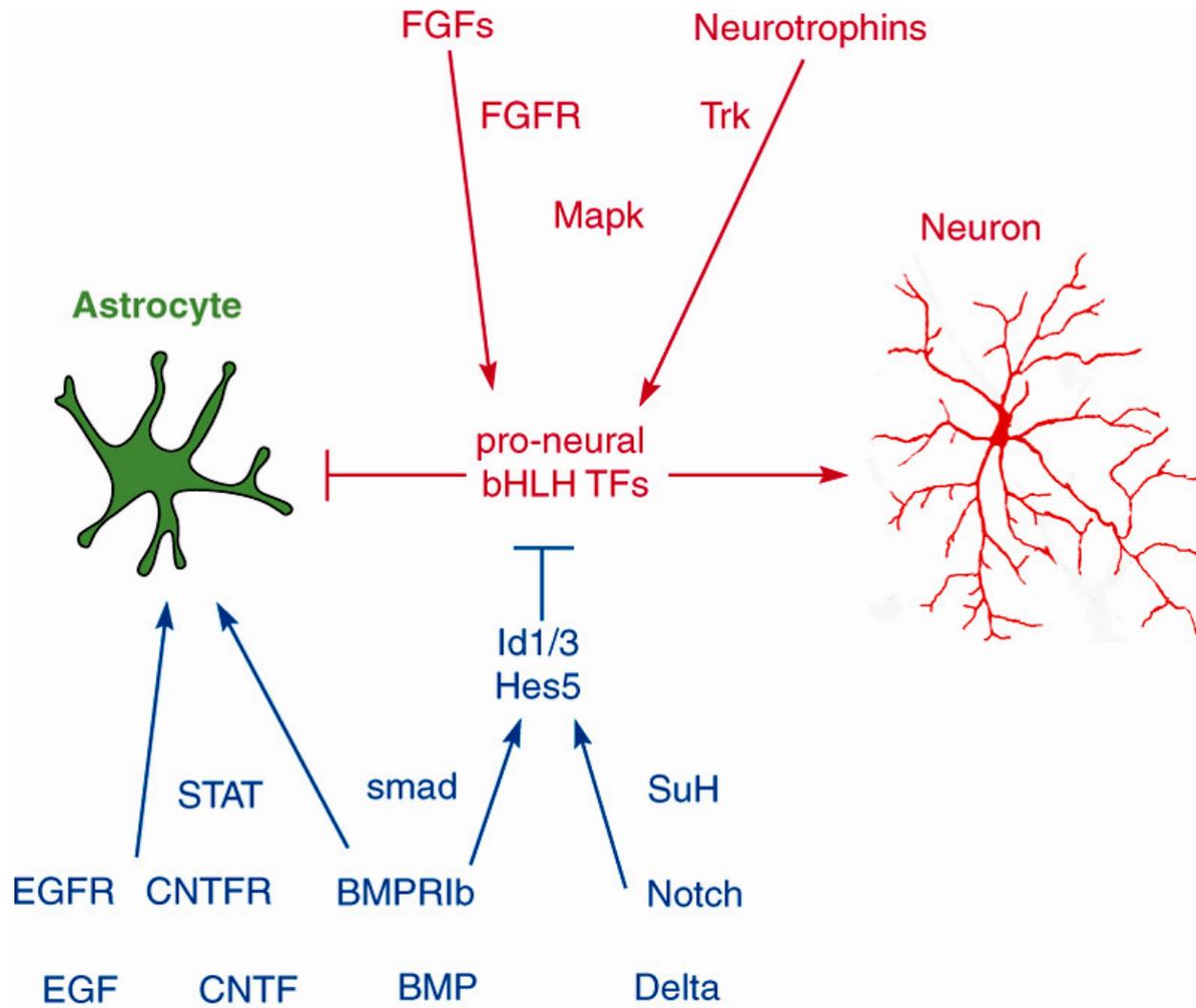
Boije et al., 2014



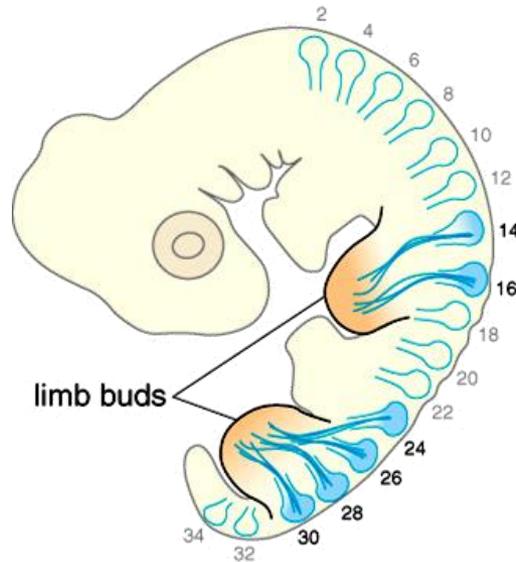
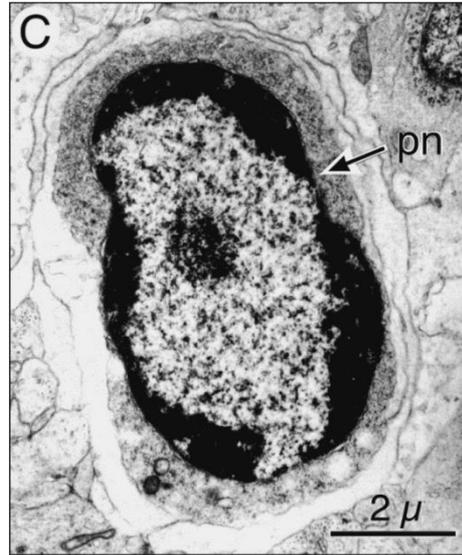
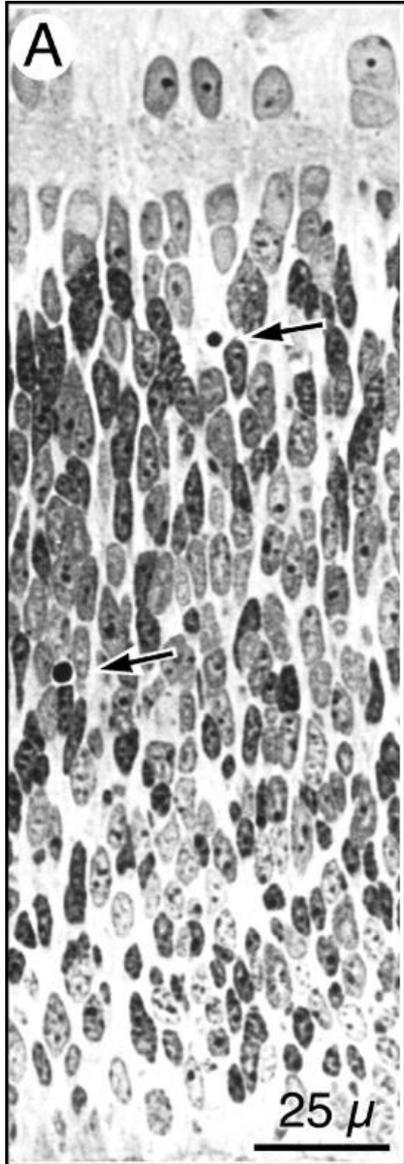
# ¿Una función de la migración nuclear intercinética en la neurogénesis?



# Regulación de la determinación celular: factores extrínsecos e intrínsecos

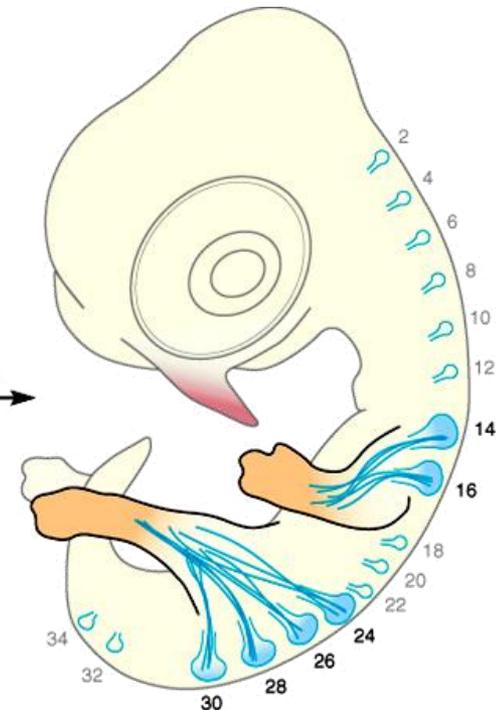


# La muerte celular como otro paso en la neurogénesis



Day 4.5

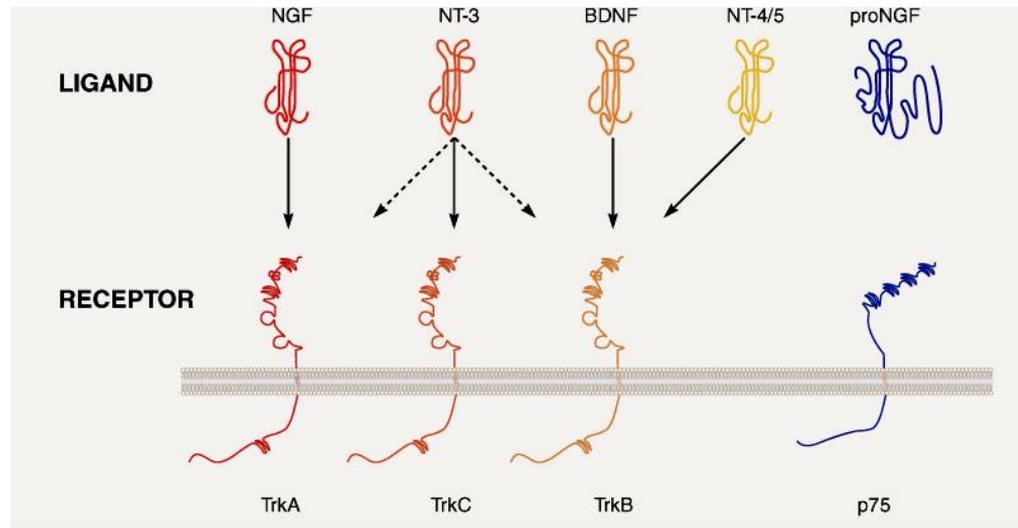
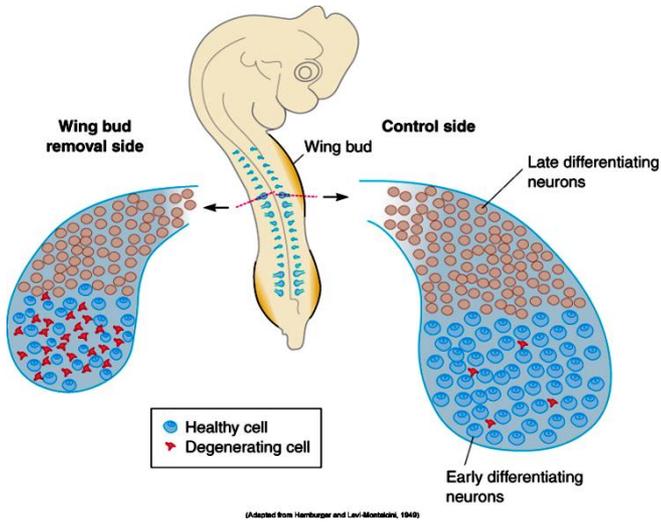
Less cell death  
in limb DRG



Day 7

(Reprinted from Wong and Hughes, 1987).

# Factores neurotróficos



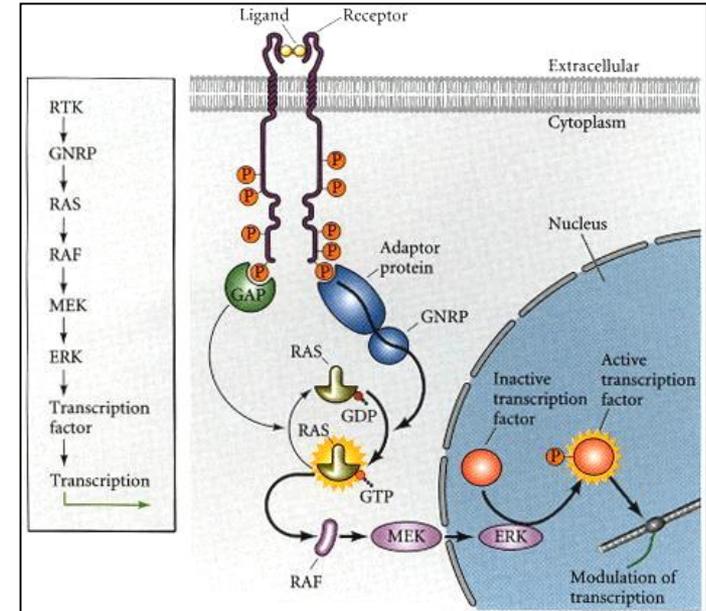
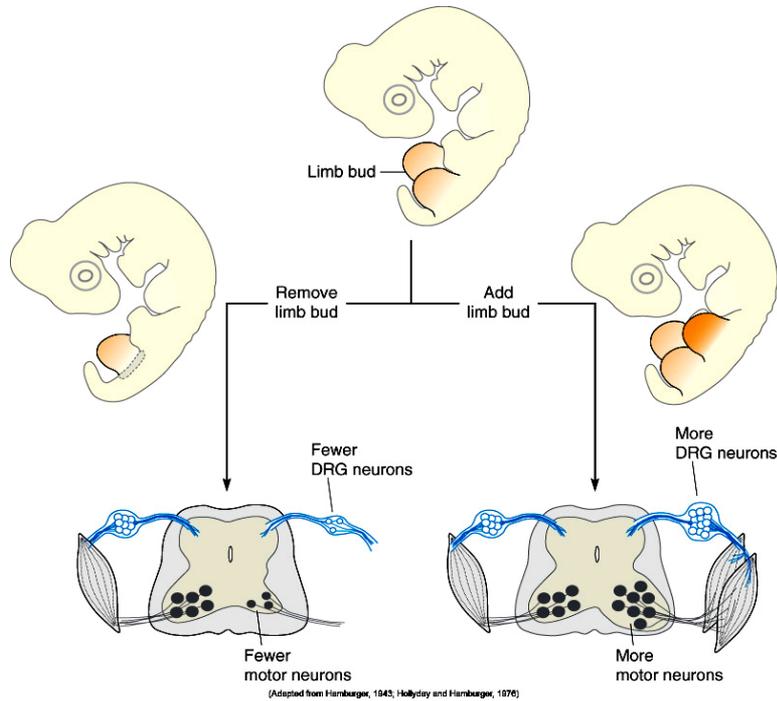
## CELL DEATH FOLLOWING RECEPTOR ELIMINATION

70% DRG  
95% SCG  
70% trigeminal  
0% cochlear  
0% vestibular  
basal forebrain atrophy

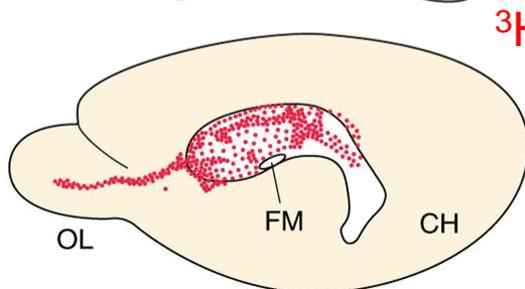
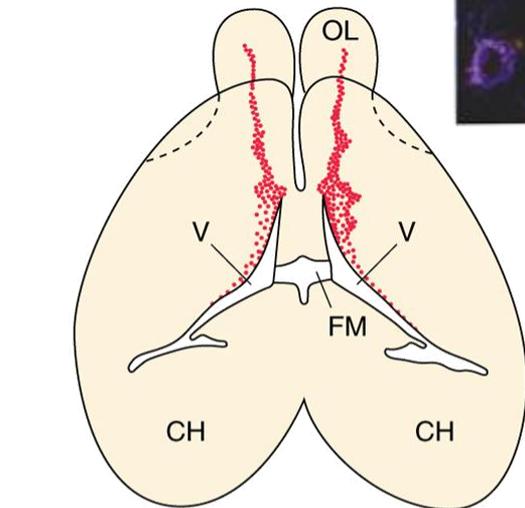
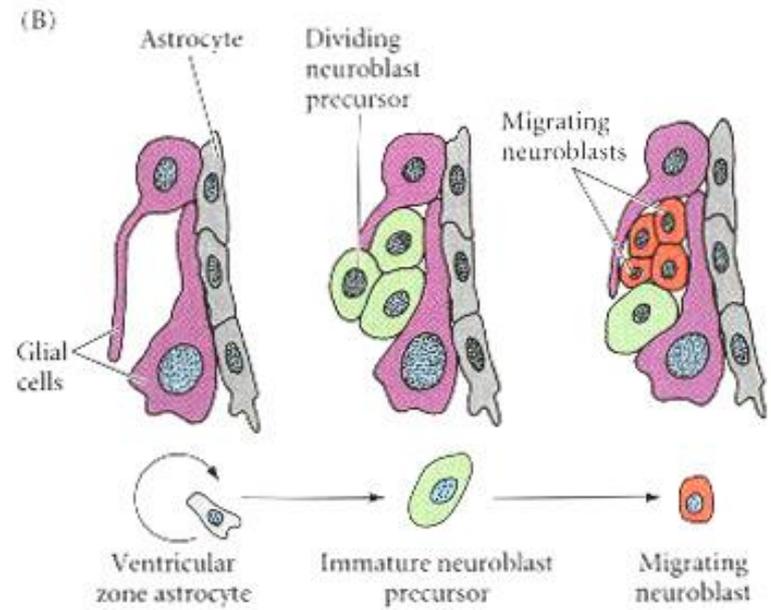
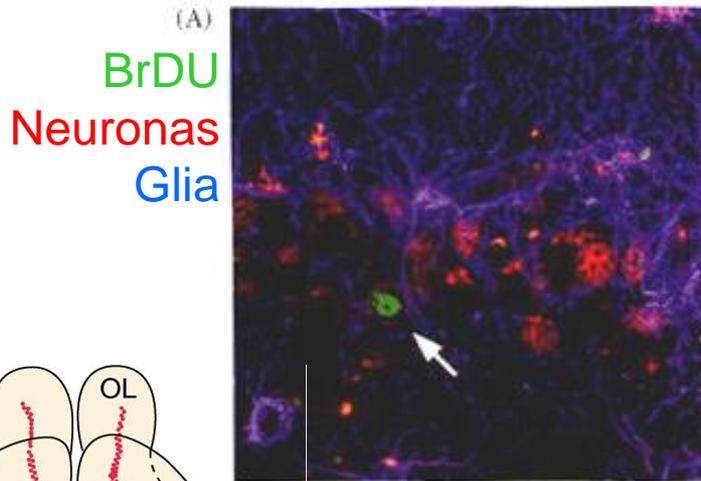
20% DRG  
0% SCG  
20% trigeminal  
50% cochlear  
15% vestibular

30% DRG  
60% trigeminal  
15% cochlear  
60% vestibular  
90% nodose  
basal forebrain cerebellum

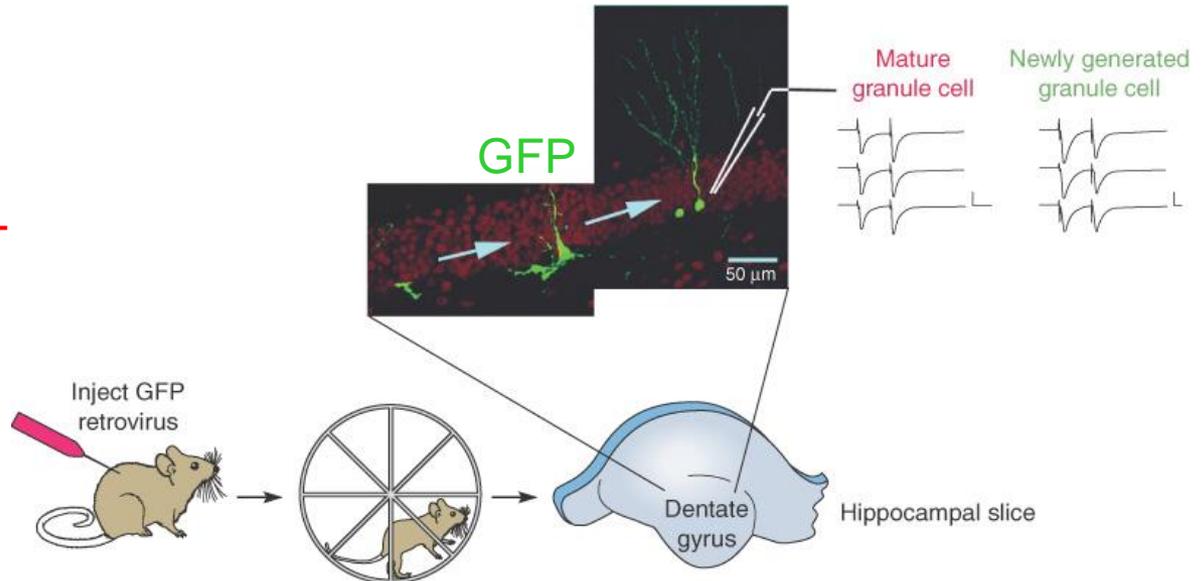
50% DRG  
reduced death in cholinergic forebrain



# Neurogénesis en el adulto



(Modified from Smart, 1961; see also Jacobson, 1991).



(Modified from Reh, 2002)