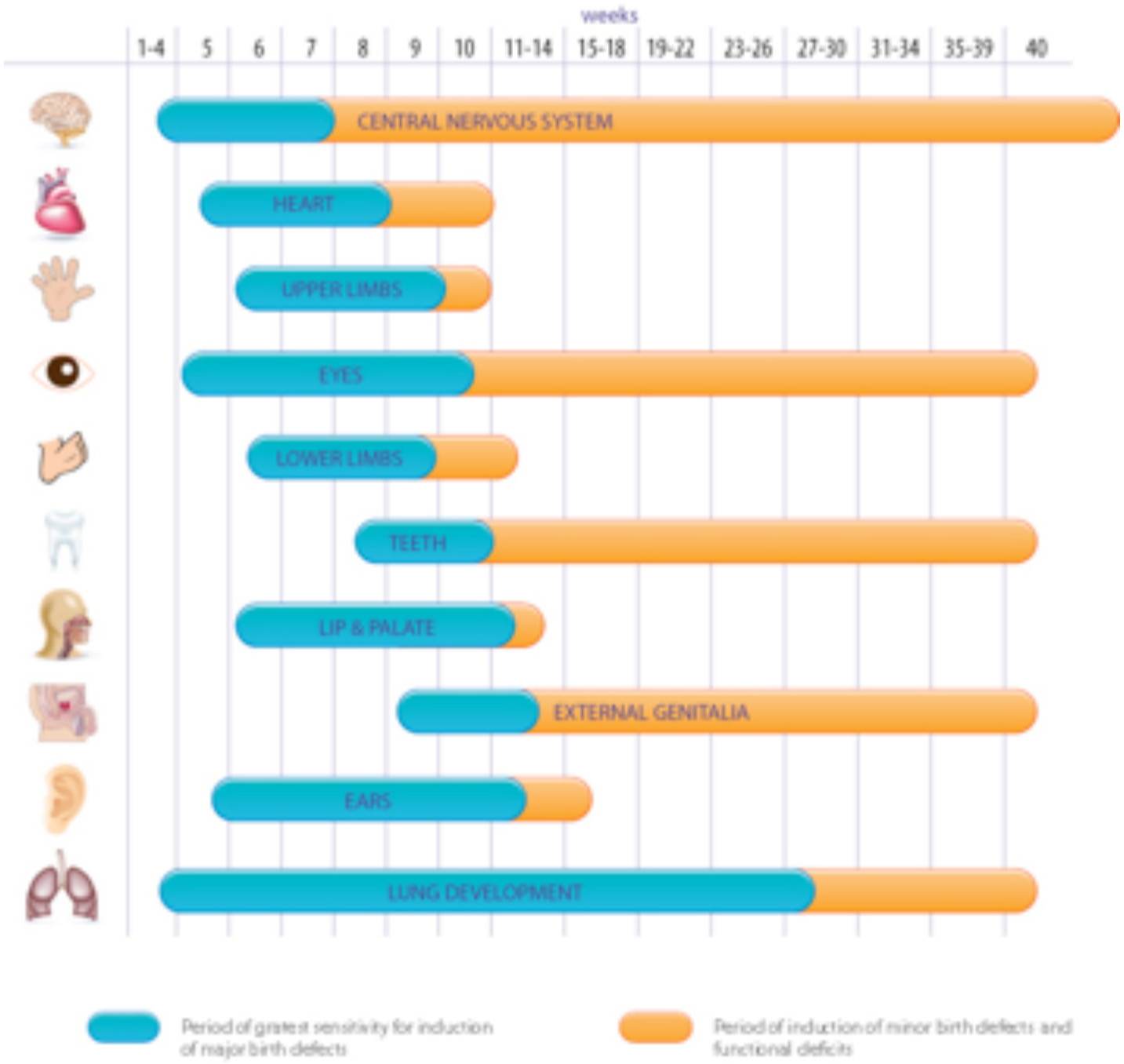
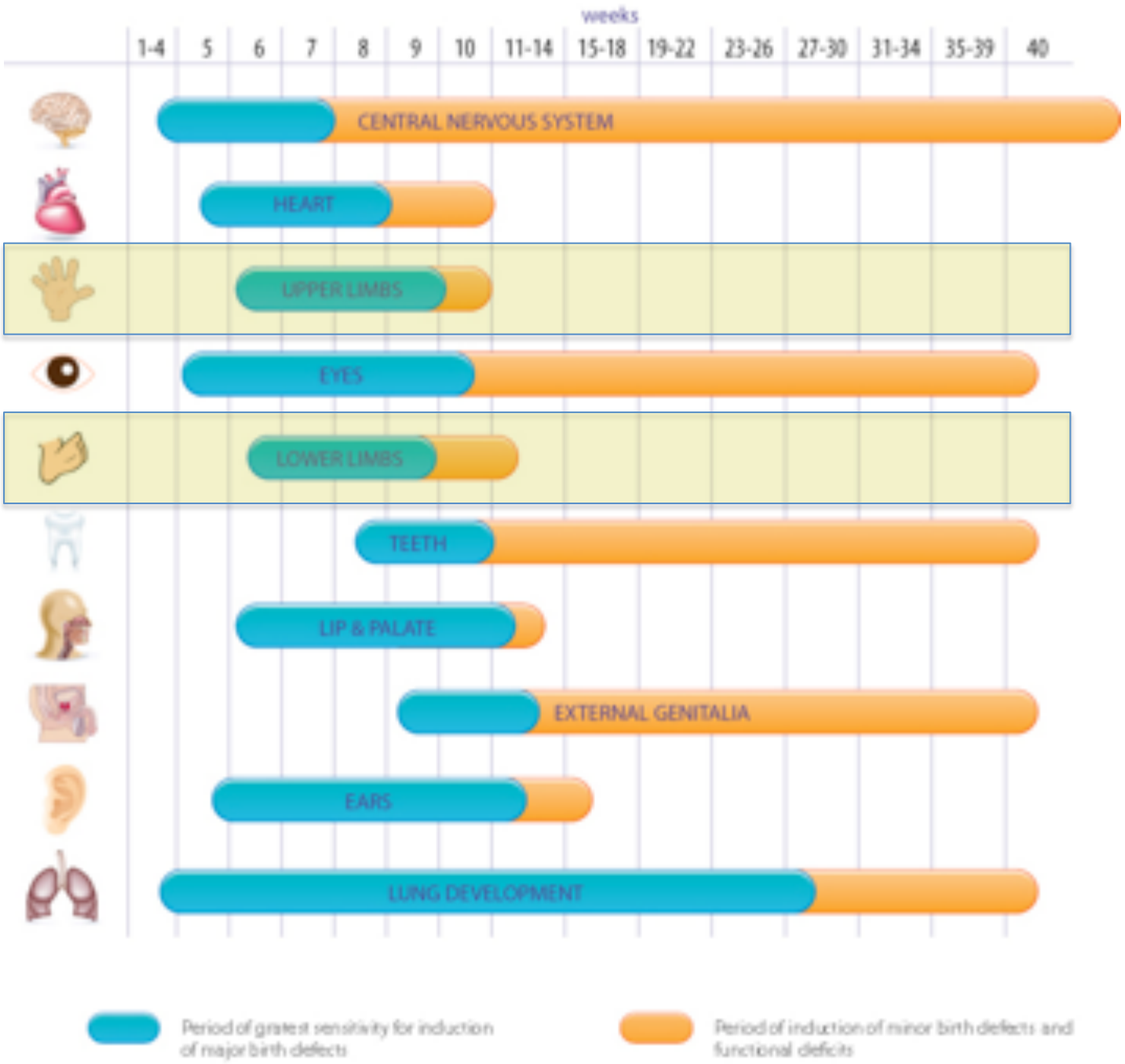
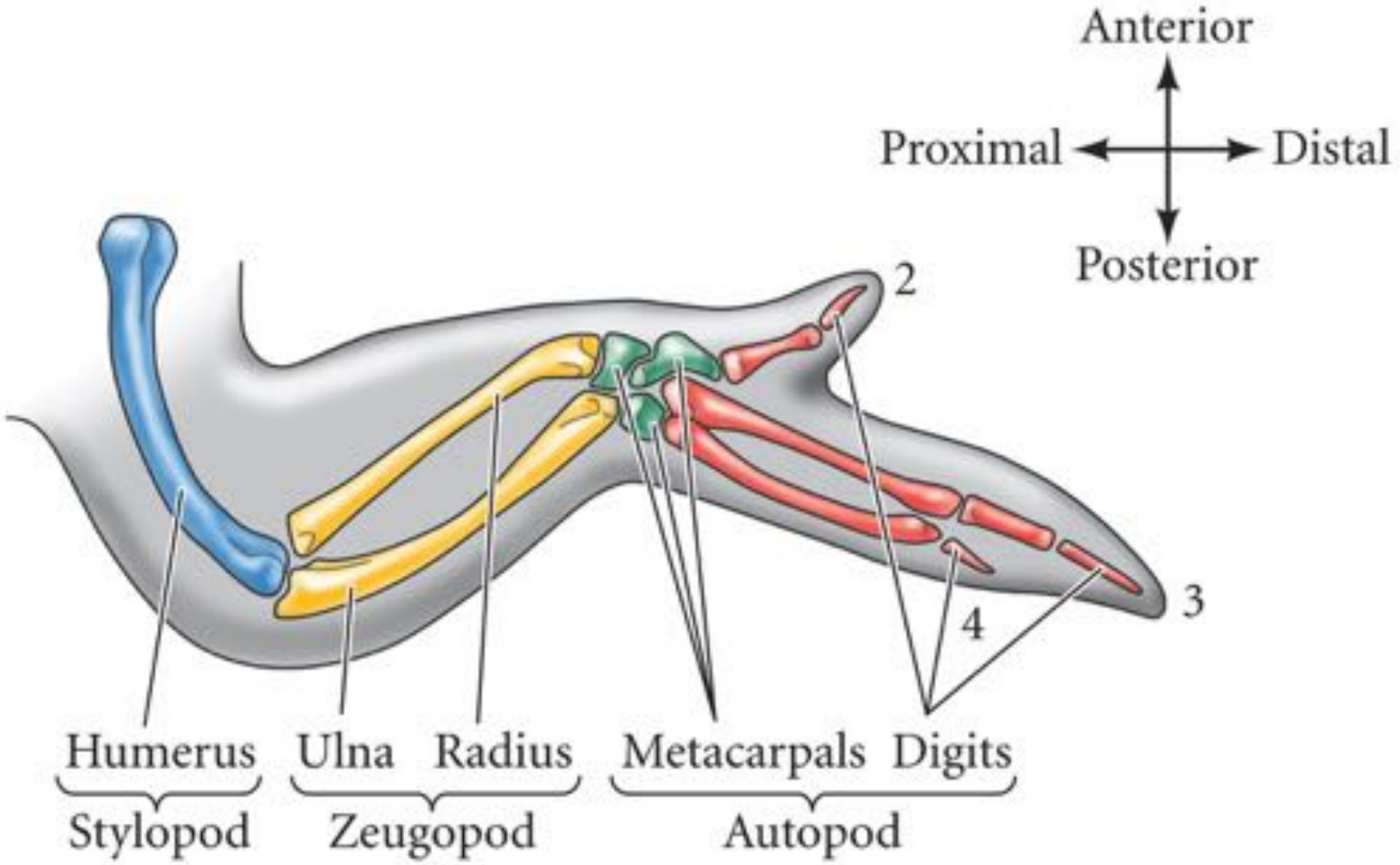
ORGANOGENESE:



ORGANOGENESE:



Padrão do membro anterior da galinha (eixos do membro)



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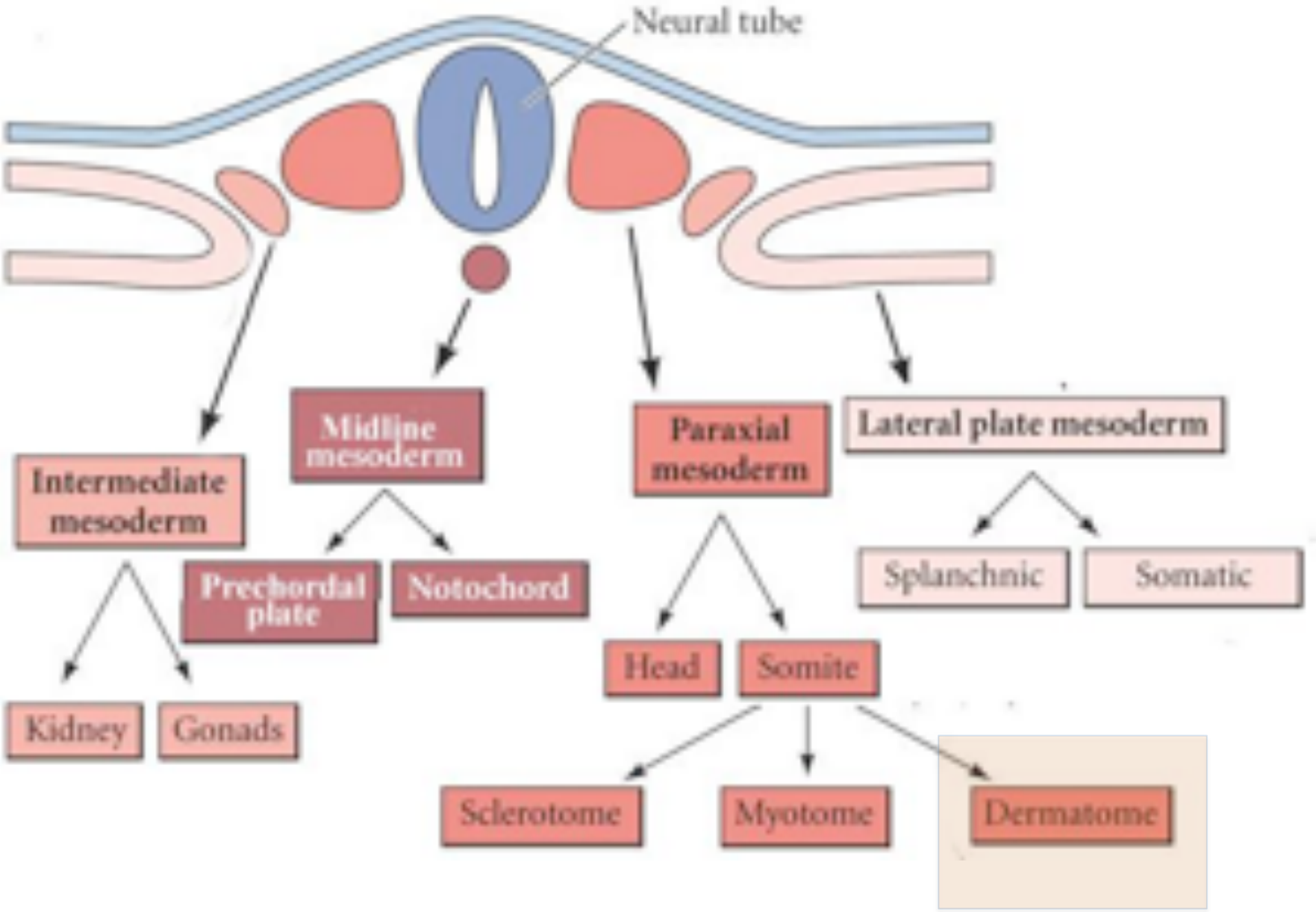
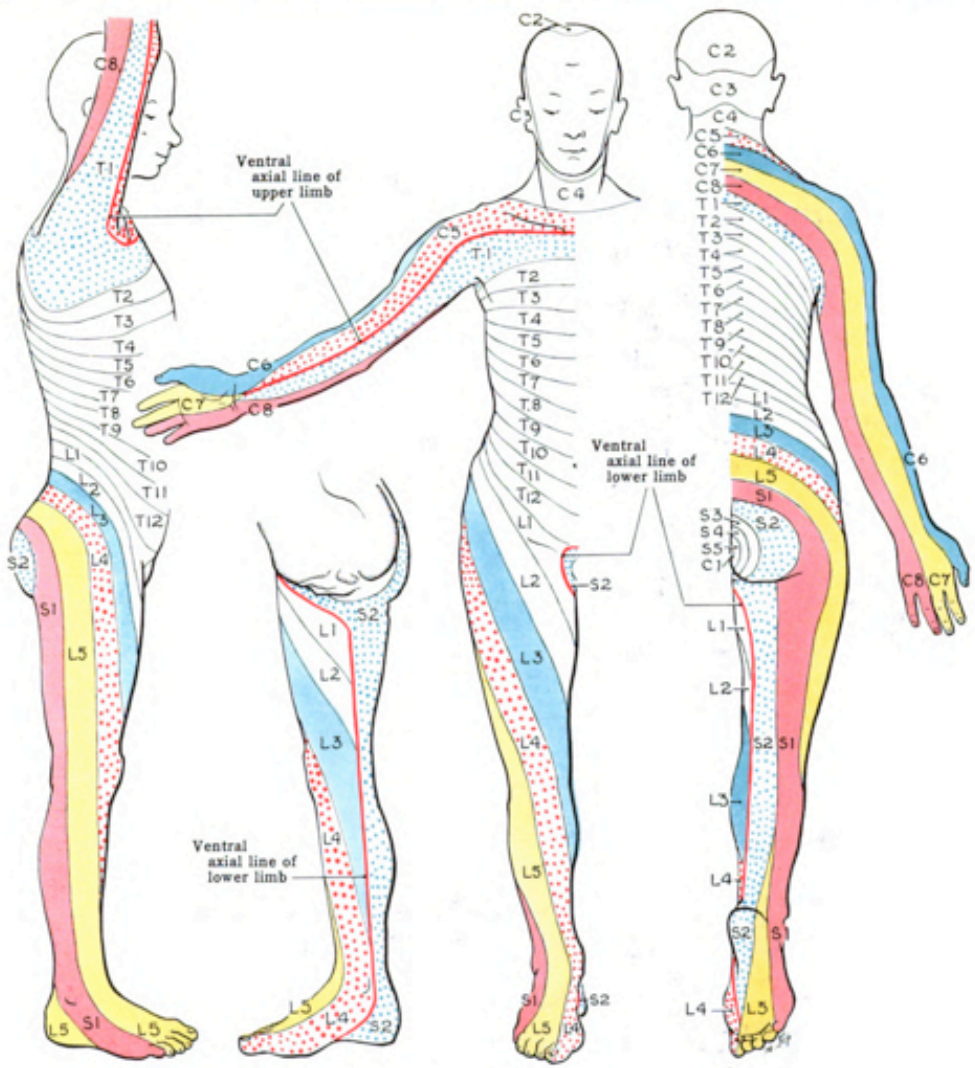
Derivativos do mesodermo e precursores dos brotos de membro

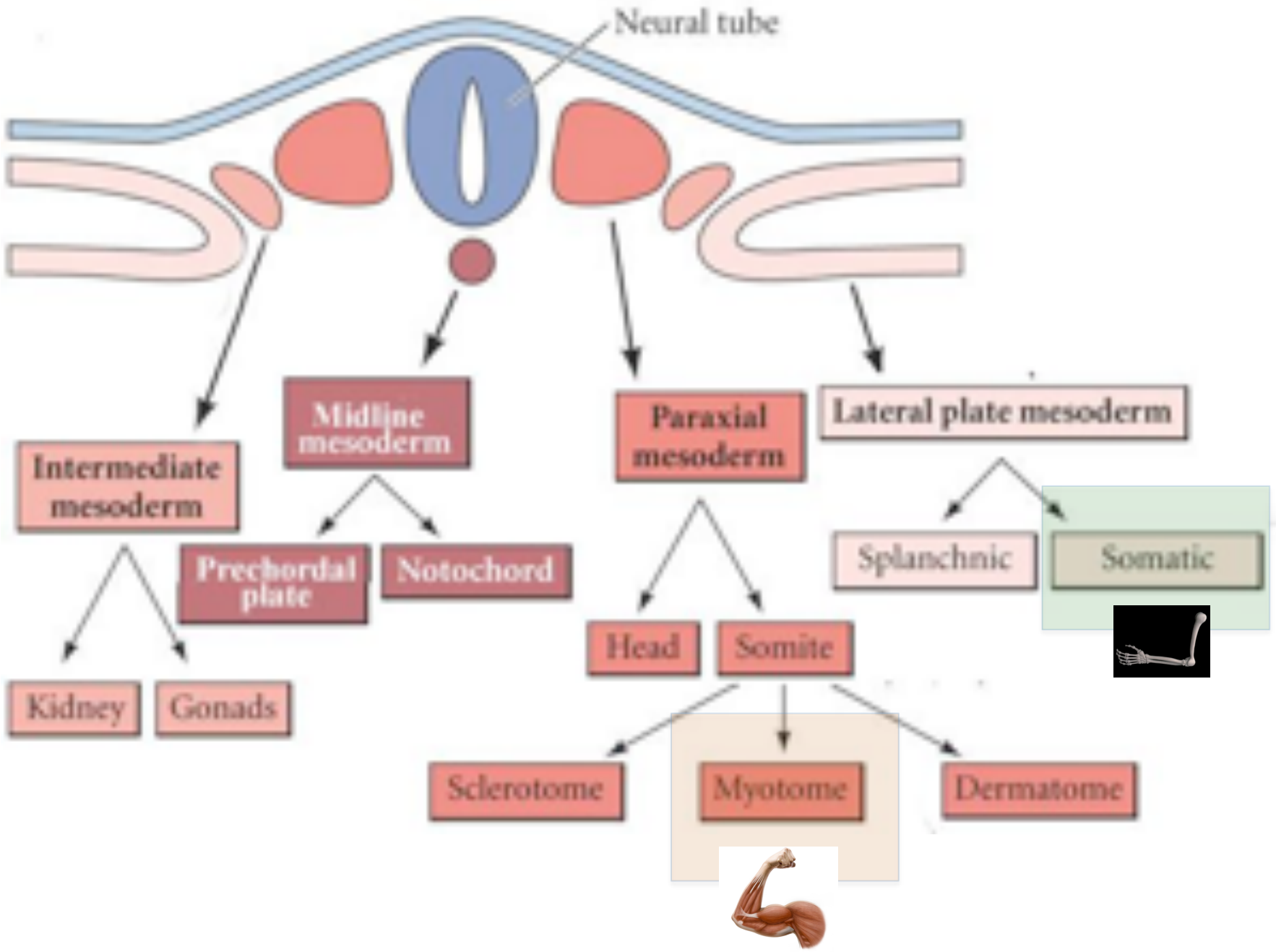


Dermatomas:

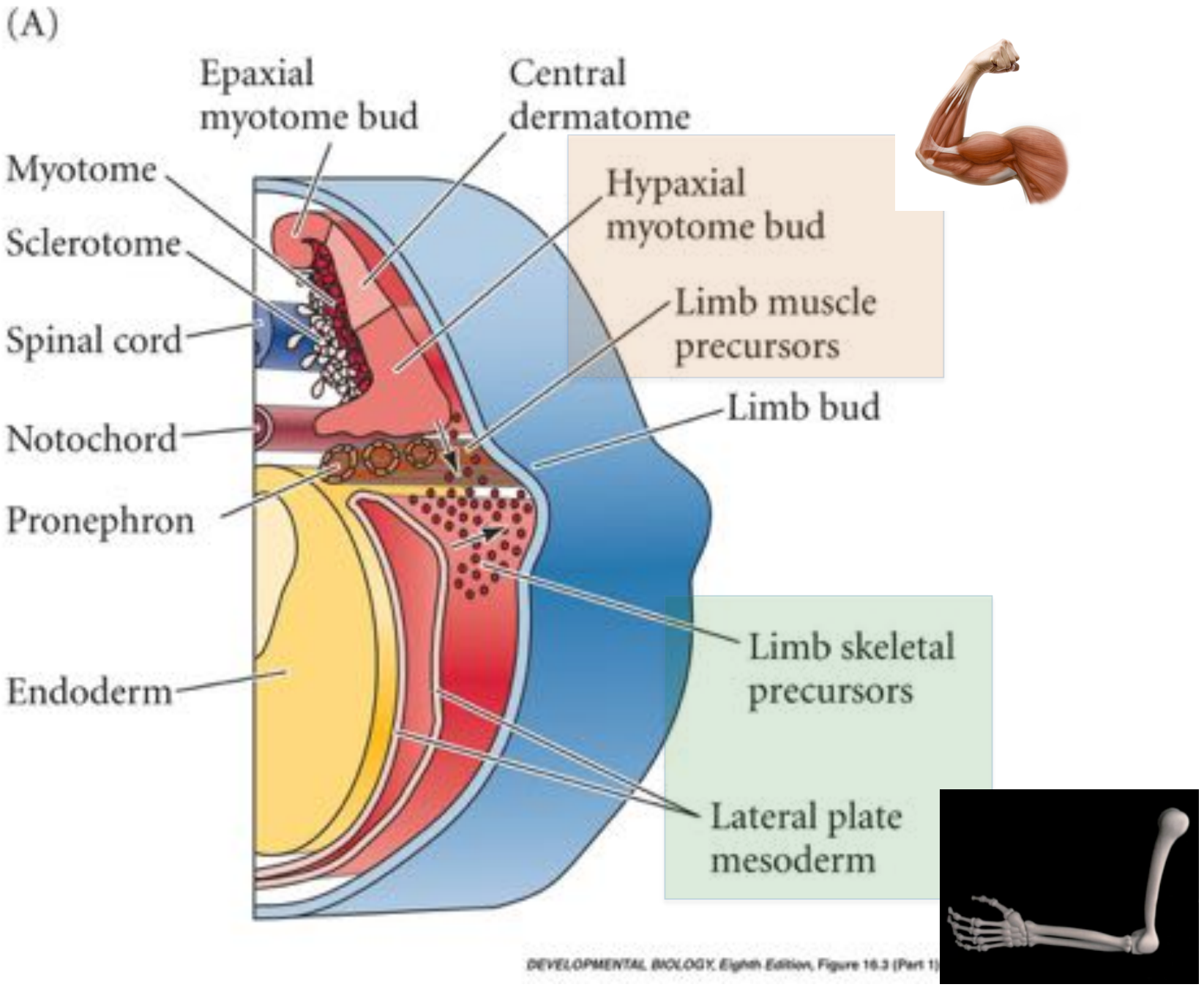


http://www.youtube.com/watch?v=VpbdqGJ9LWk

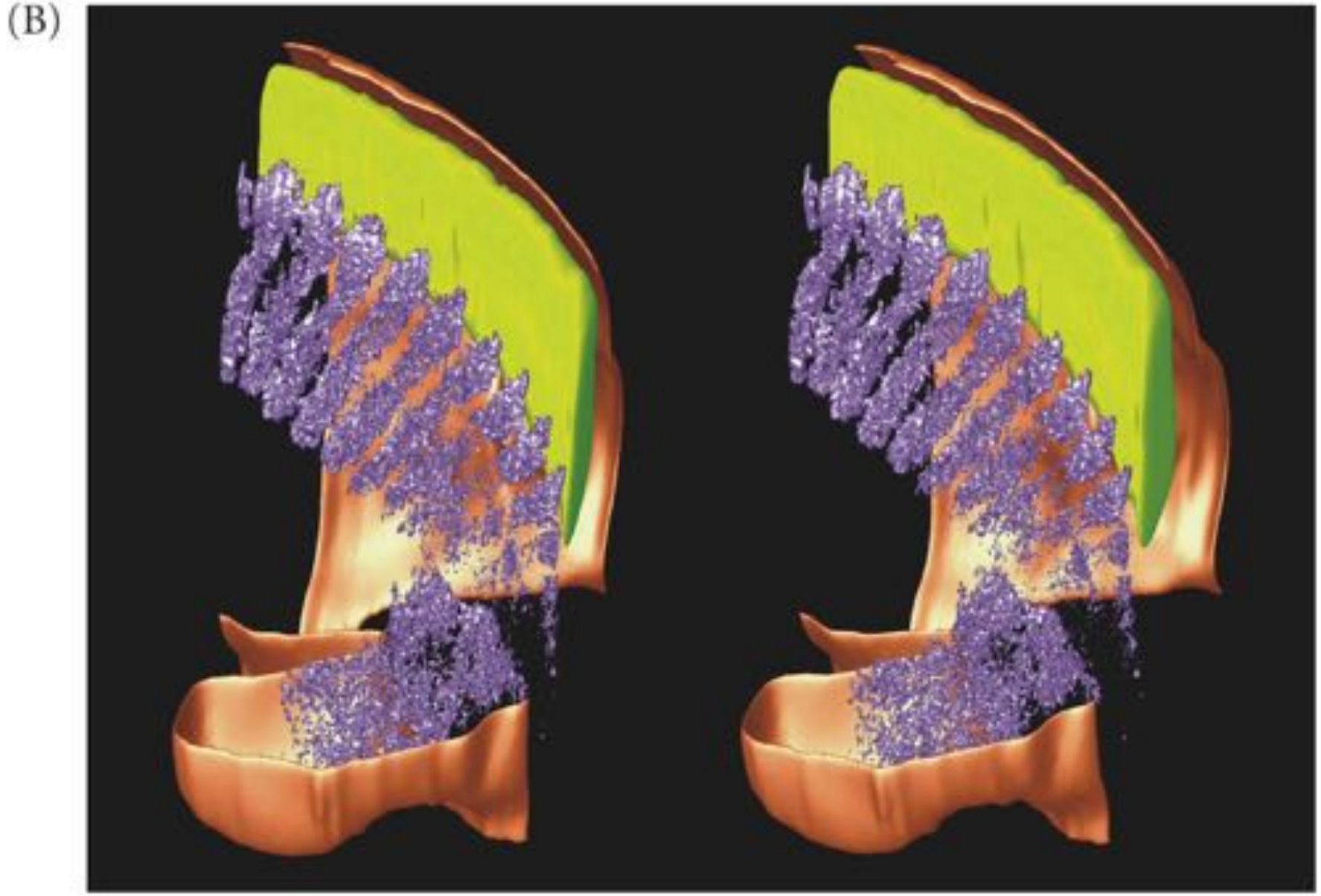
Derivativos do mesodermo e precursores dos brotos de membro



Proliferação de c. mesenquimais da região somática da mesoderme da placa lateral (esqueleto) e do miotoma hipaxial (músculo) geram uma protuberância para fora no broto de membro de anfíbios



Proliferation of mesenchymal cells from the somatic region of the lateral plate mesoderm (skeleton) and the hypaxial myotome (muscle) causes the limb bud in the amphibian embryo to bulge outward



myf5 (developing muscle) cells in purple

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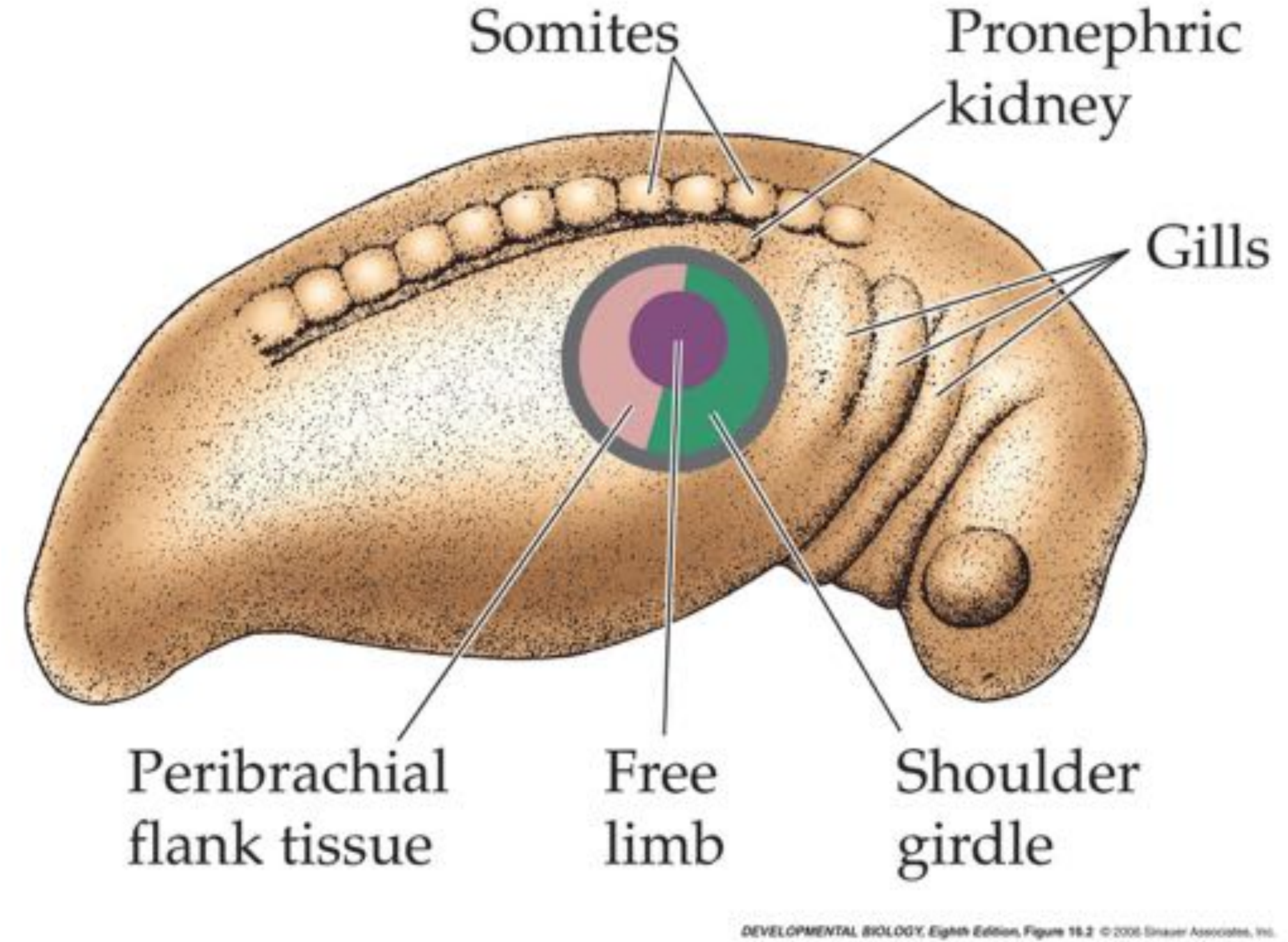
Região prospectiva do campo do membro anterior na salamandra *Ambystoma maculatum*



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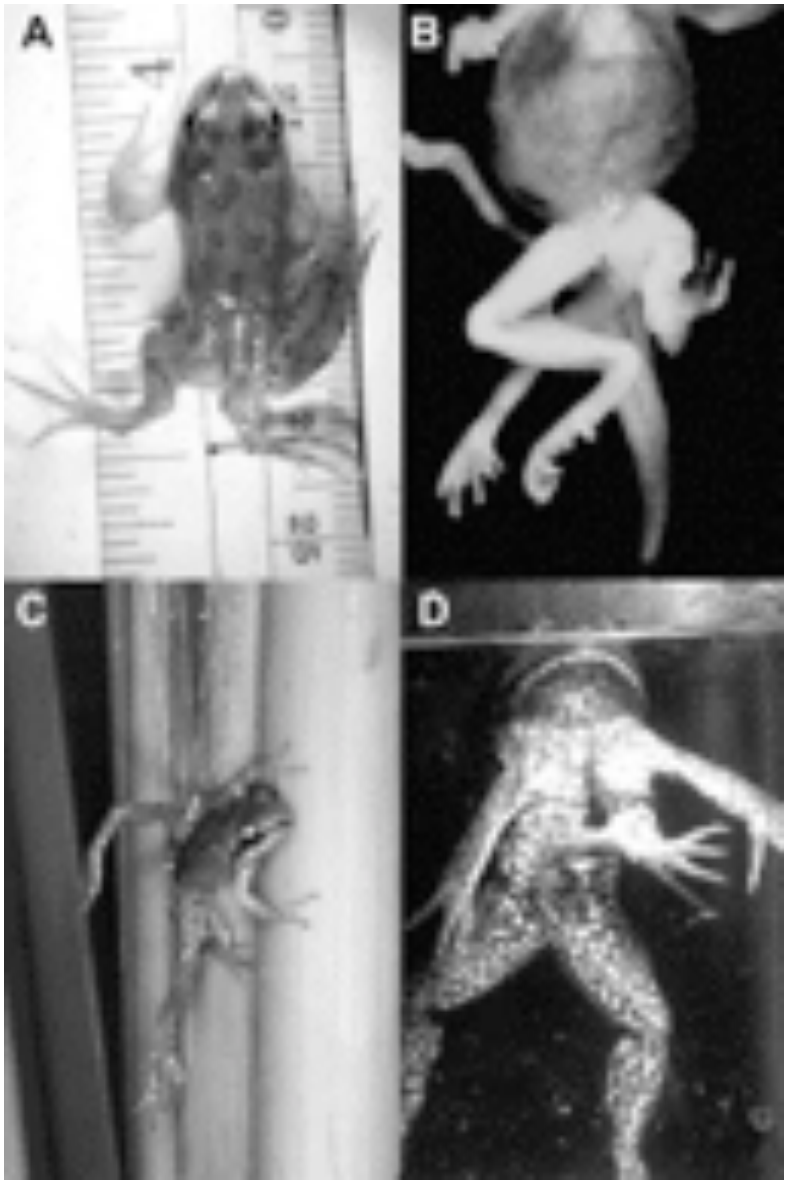
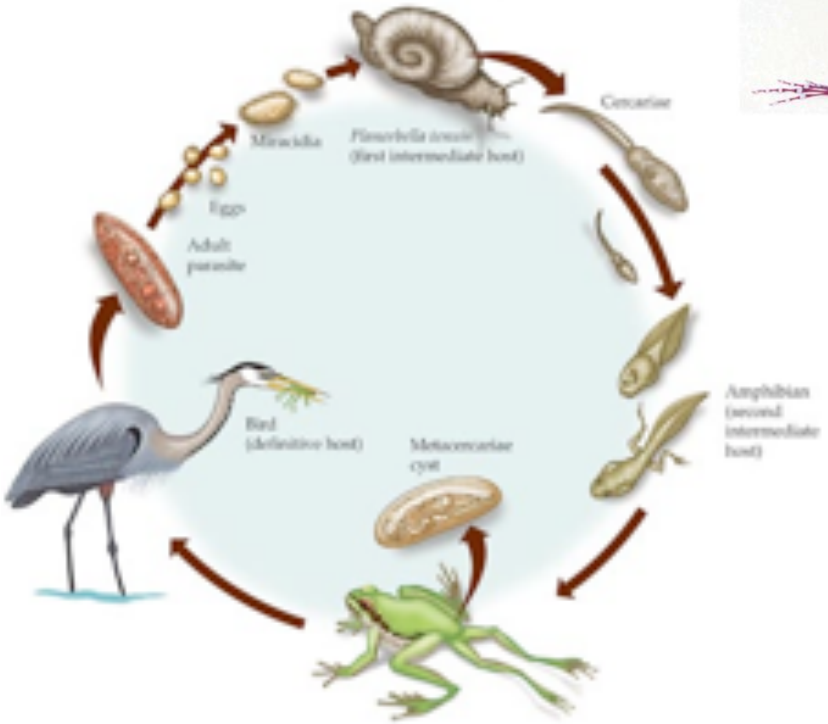
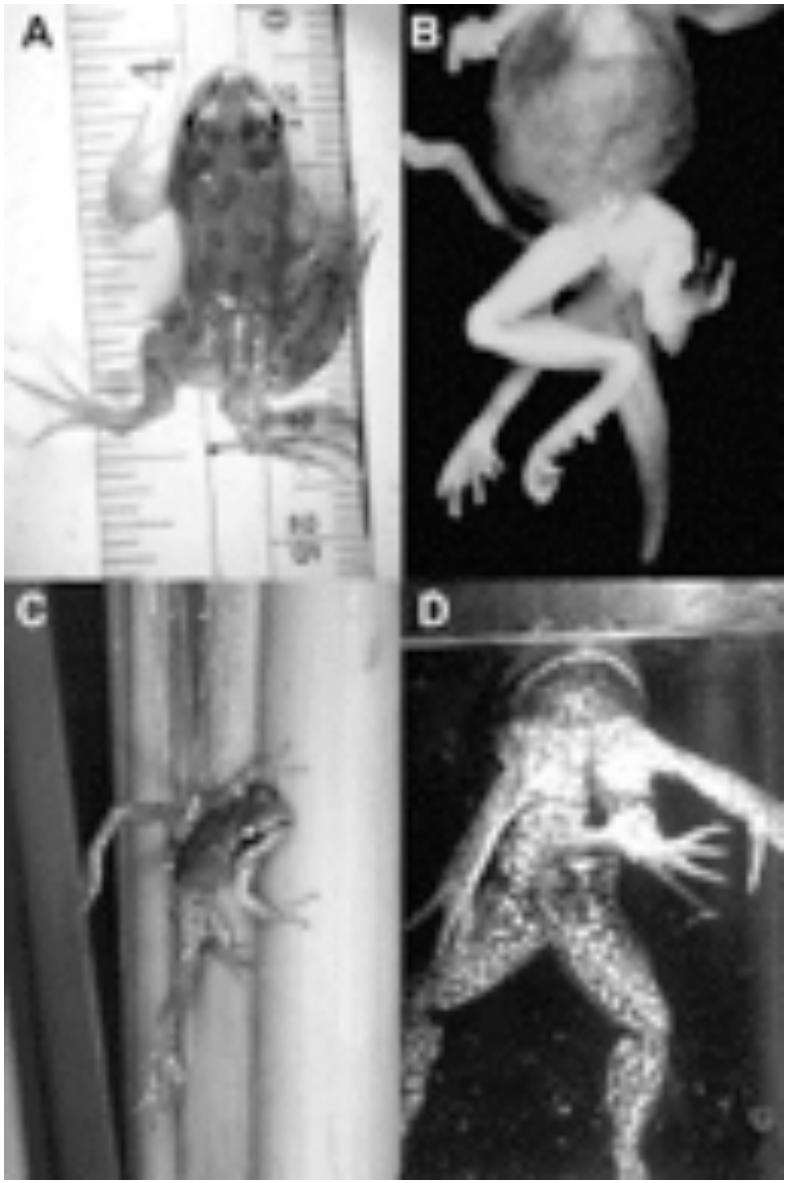
A natureza regulativa do campo do membro:
Uma *Hyla regilla* e outros sapos com multiplos membros sâo resultado de ????

?



RESPOSTA: Multiplos membros em sapos são resultado de uma infestação de cistos de tremátodos durante o desenvolvimento dos broto de membro nos girinos





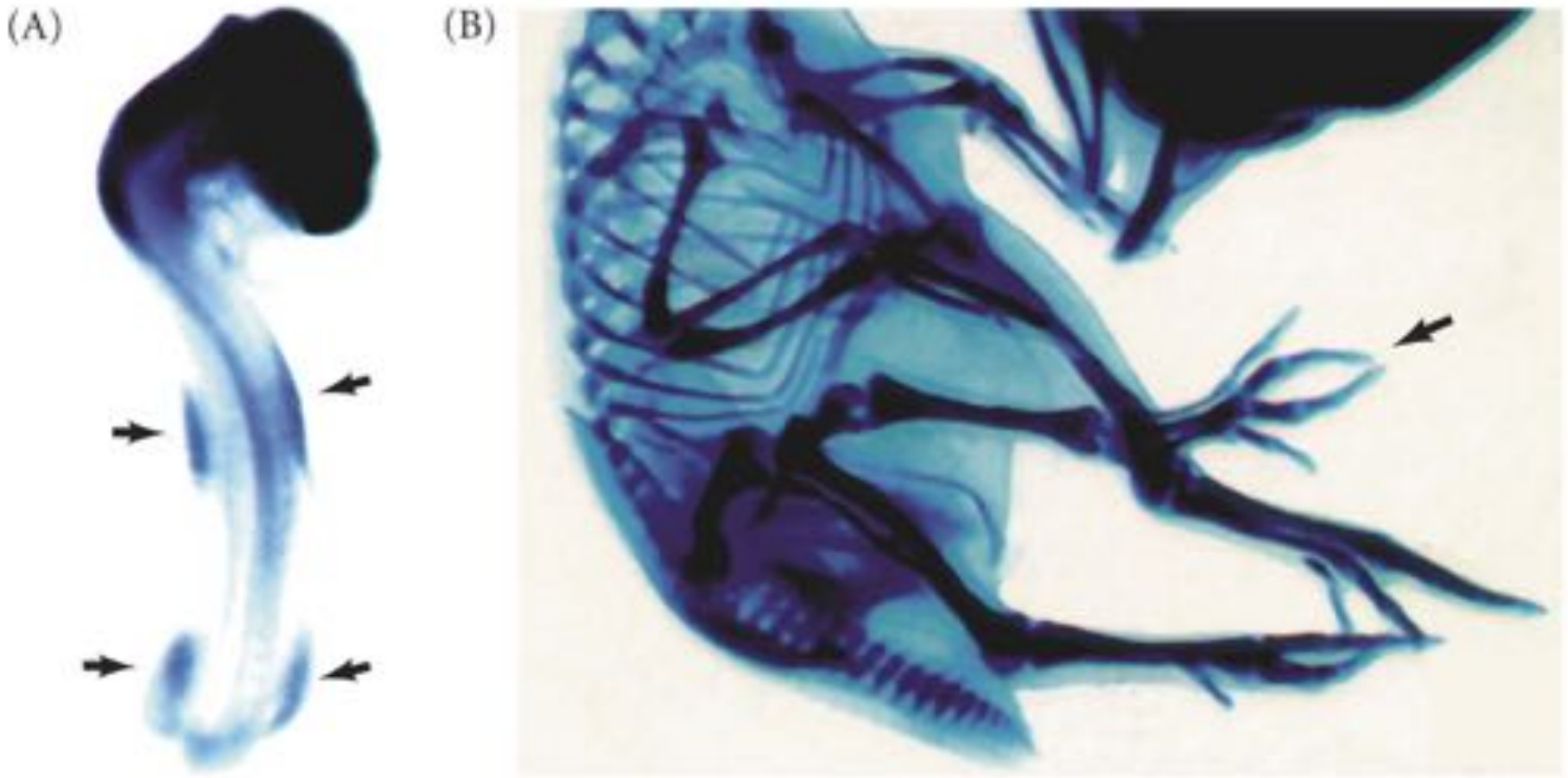
John Saunders

Highlight work by John Saunders (Vade Mecum 3)

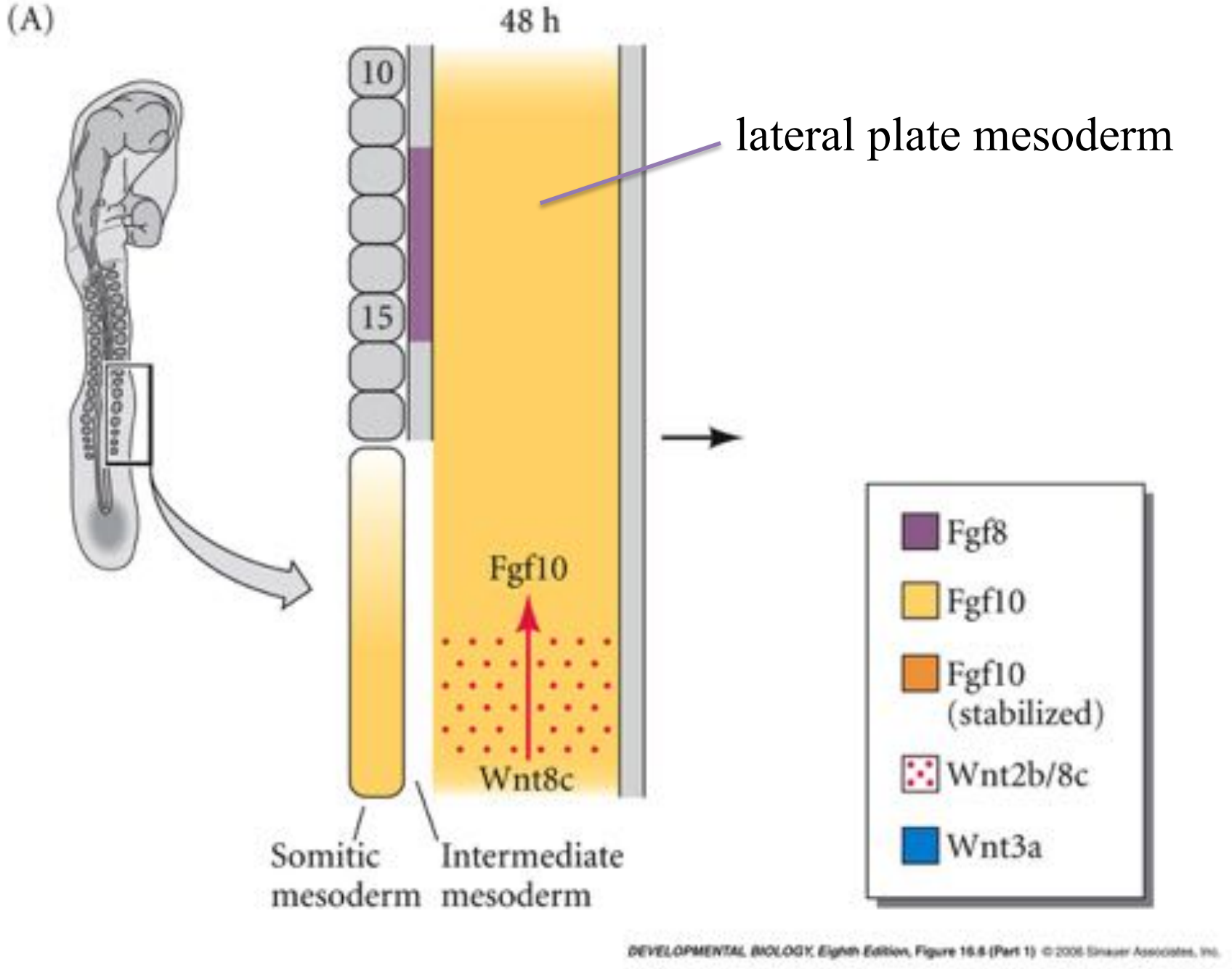
Dr. Saunders' Physiology Lab at Marquette in the early 1950'a. Dr. Saunders is in the middle with the pipe.

Dr. John saunders at Marquette University in the 1960's.

Expressão de Fgf10 e ação sobre os membros em desenvolvimento da galinha



Modelo molecular da iniciação do desenvolvimento do broto de membro na galinha de **48 horas** de incubação (Parte 1)



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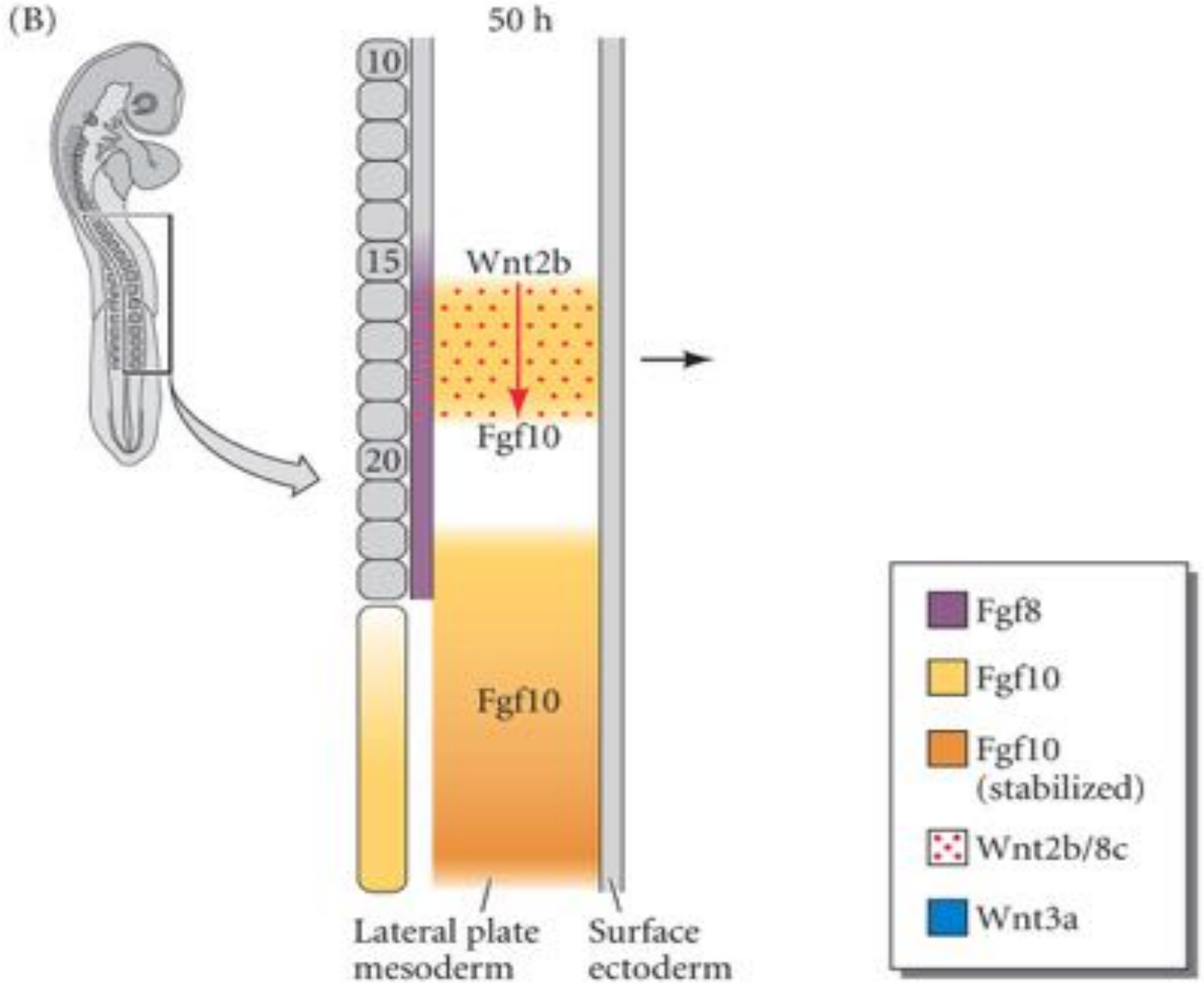
Modelo molecular da iniciação do desenvolvimento do broto de membro na galinha de **50 horas** de incubação (Parte 2)



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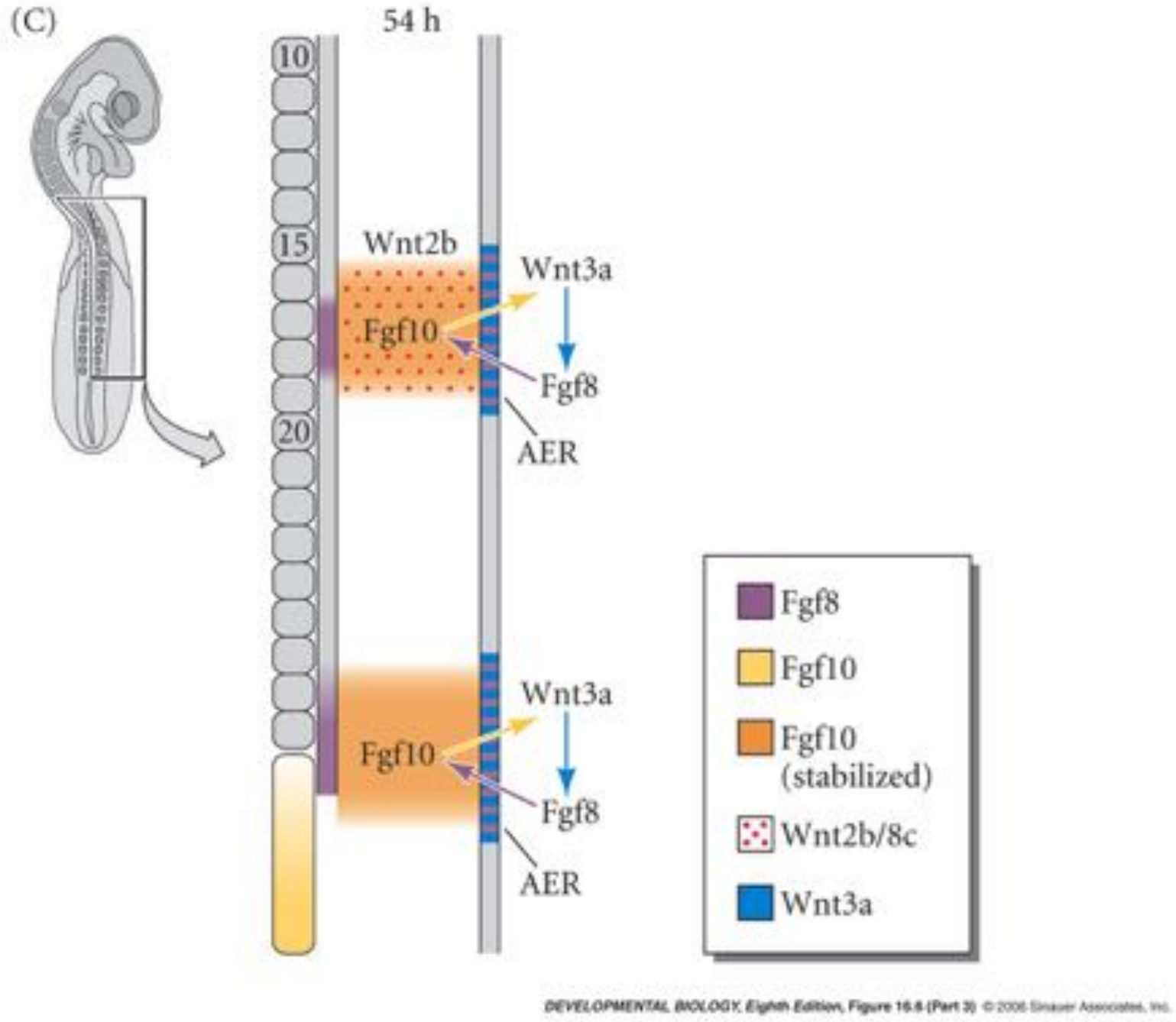
Modelo molecular da iniciação do desenvolvimento do broto de membro na galinha de **54 horas** de incubação (Parte 3)



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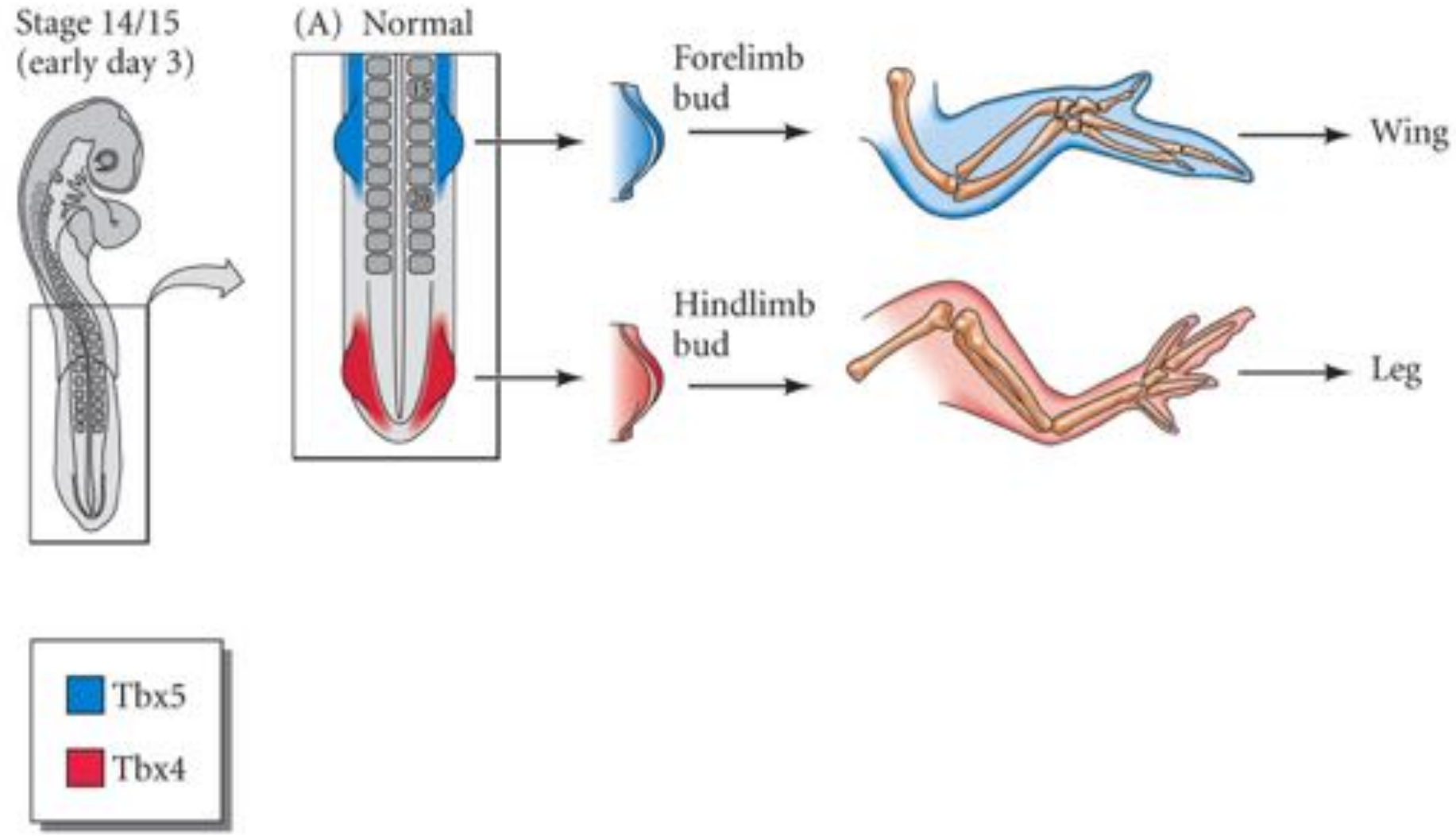
Identidade do membro anterior e posterior: Especificação por Tbx4 and Tbx5 (Parte 1)



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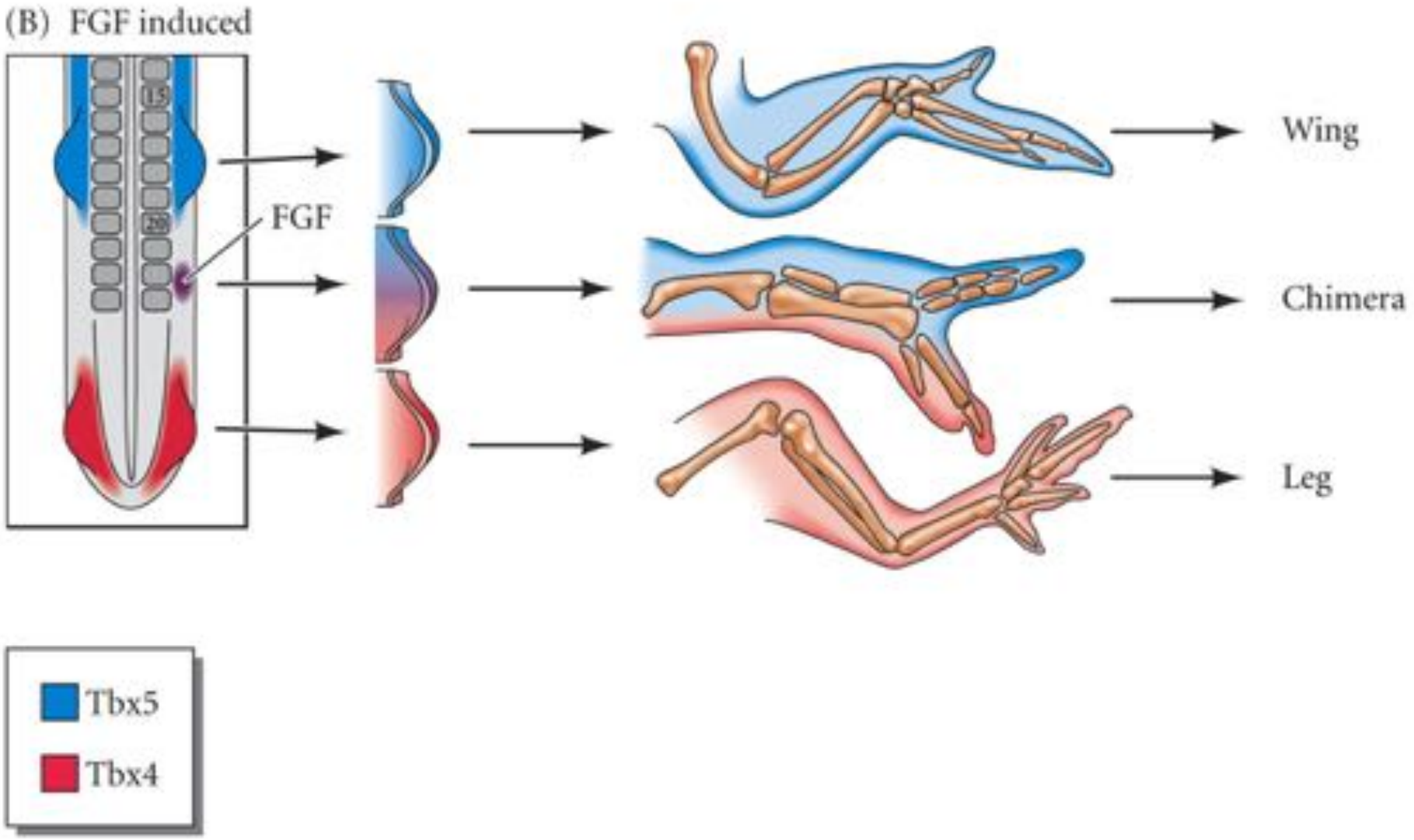
Identidade do membro anterior e posterior: Especificação por Tbx4 and Tbx5 (Parte 2)



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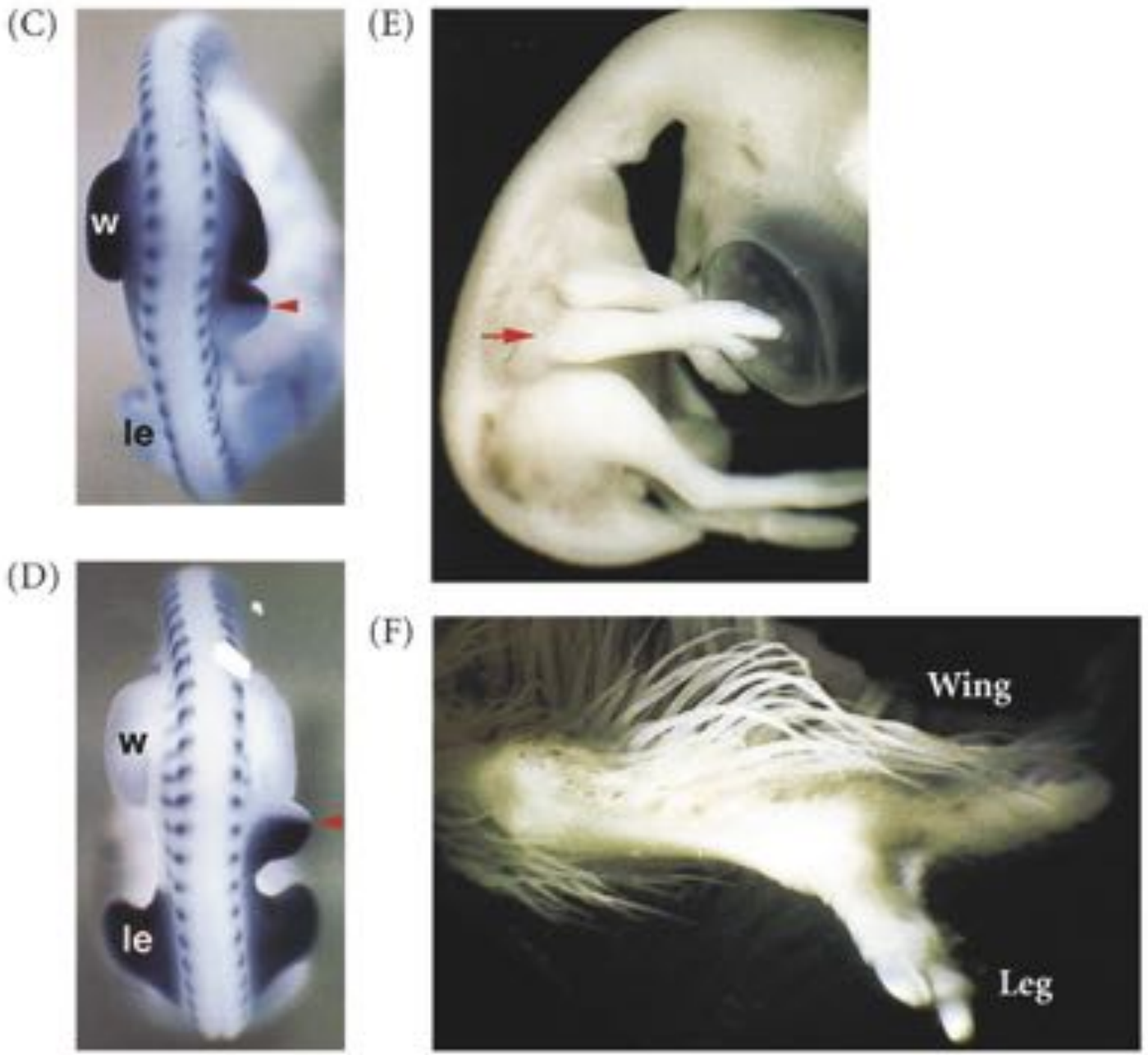
Identidade do membro anterior e posterior: Especificação por Tbx4 and Tbx5 (Parte 3)



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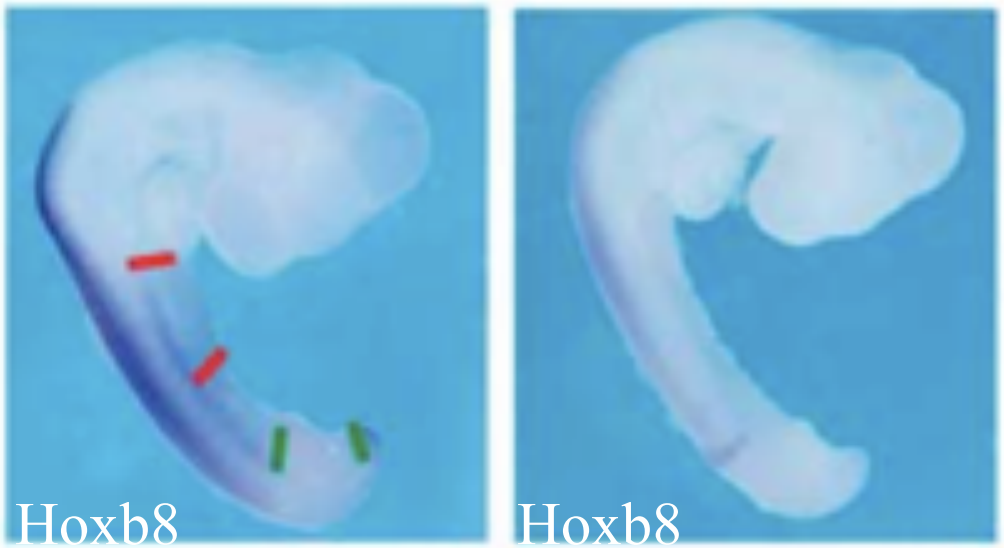
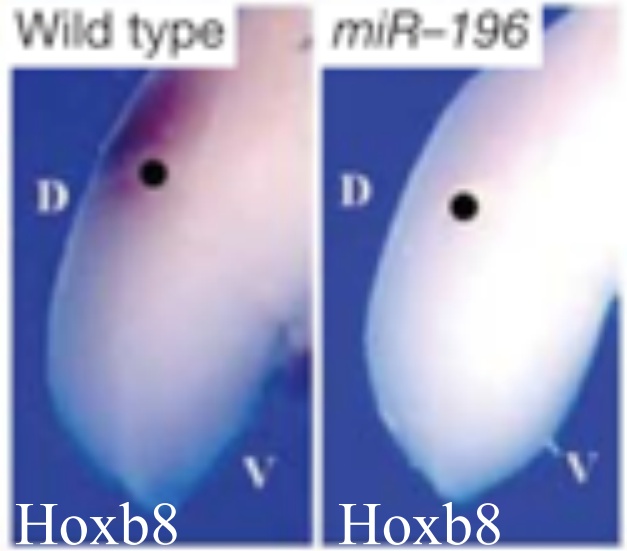
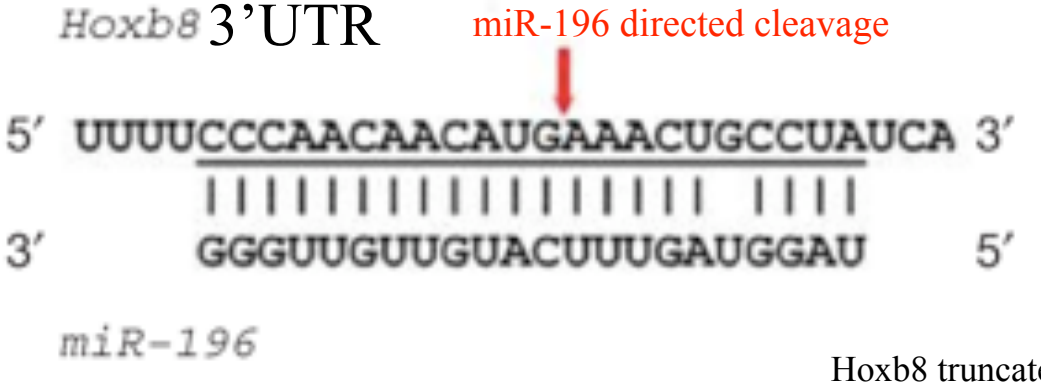
Identidade do membro anterior e posterior: *miR-196* regula Hoxb8 durante o desenvolvimento das extremidades

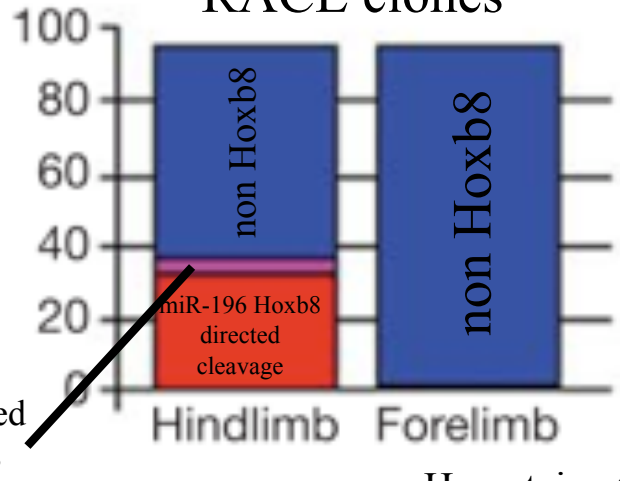


embrião de galinha (st. 16)



membro anterior da galinha (st. 22)

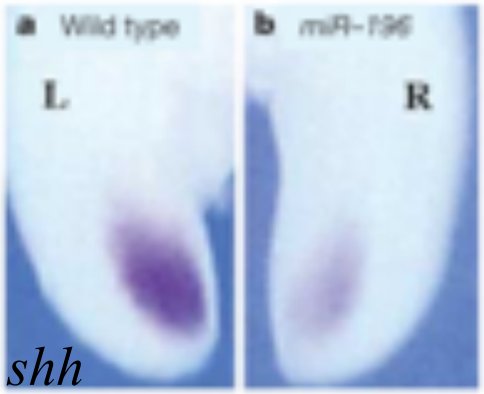


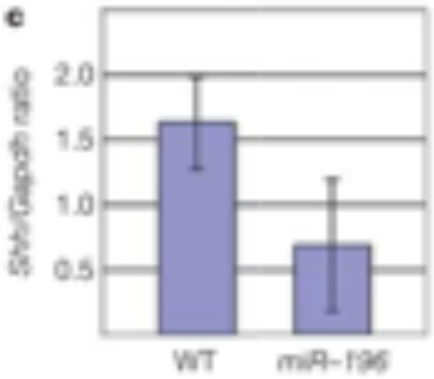


Hornstein et al. 2005

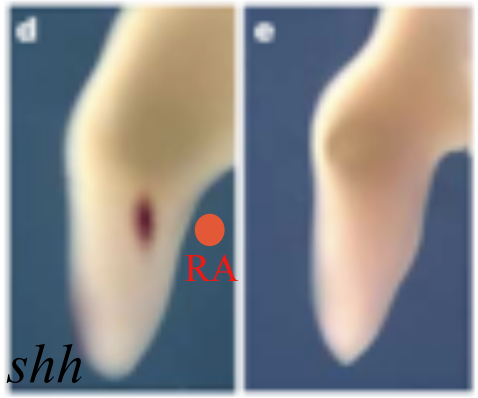
Identidade do membro anterior e posterior: *miR-196* regula Hoxb8 durante o desenvolvimento das extremidades

membro anterior

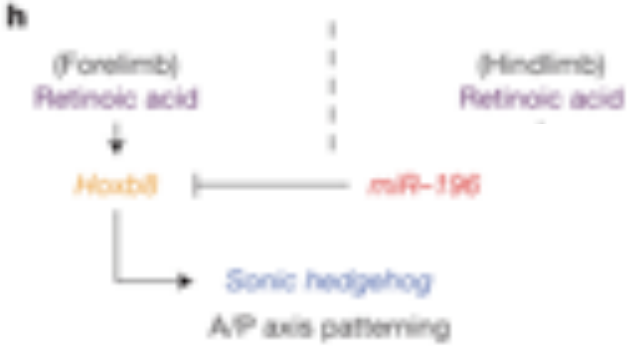




membro anterior



Modelo de regulación:

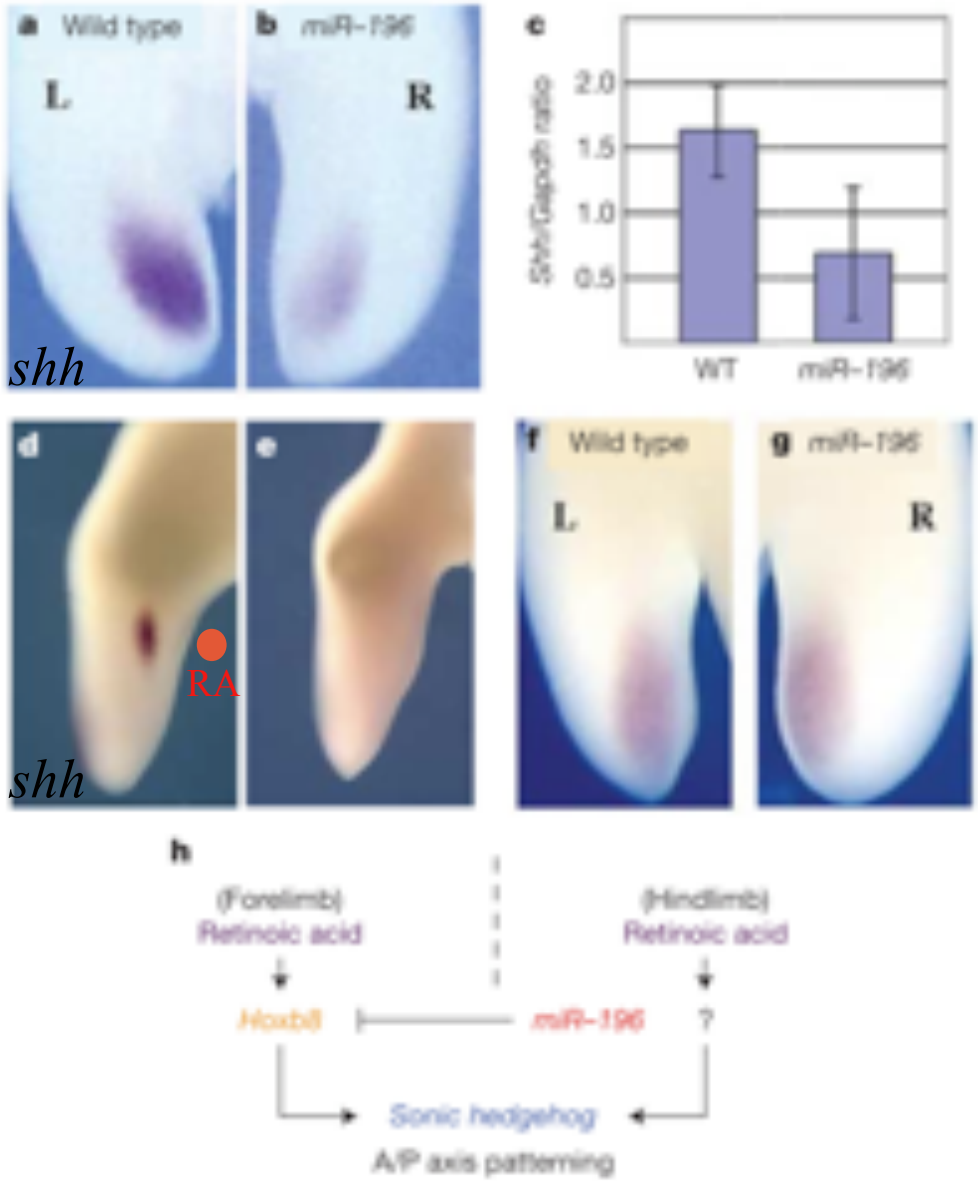


Hornstein et al. 2005

Identidade do membro anterior e posterior: *miR-196* regula Hoxb8 durante o desenvolvimento das extremidades

membro anterior

membro anterior

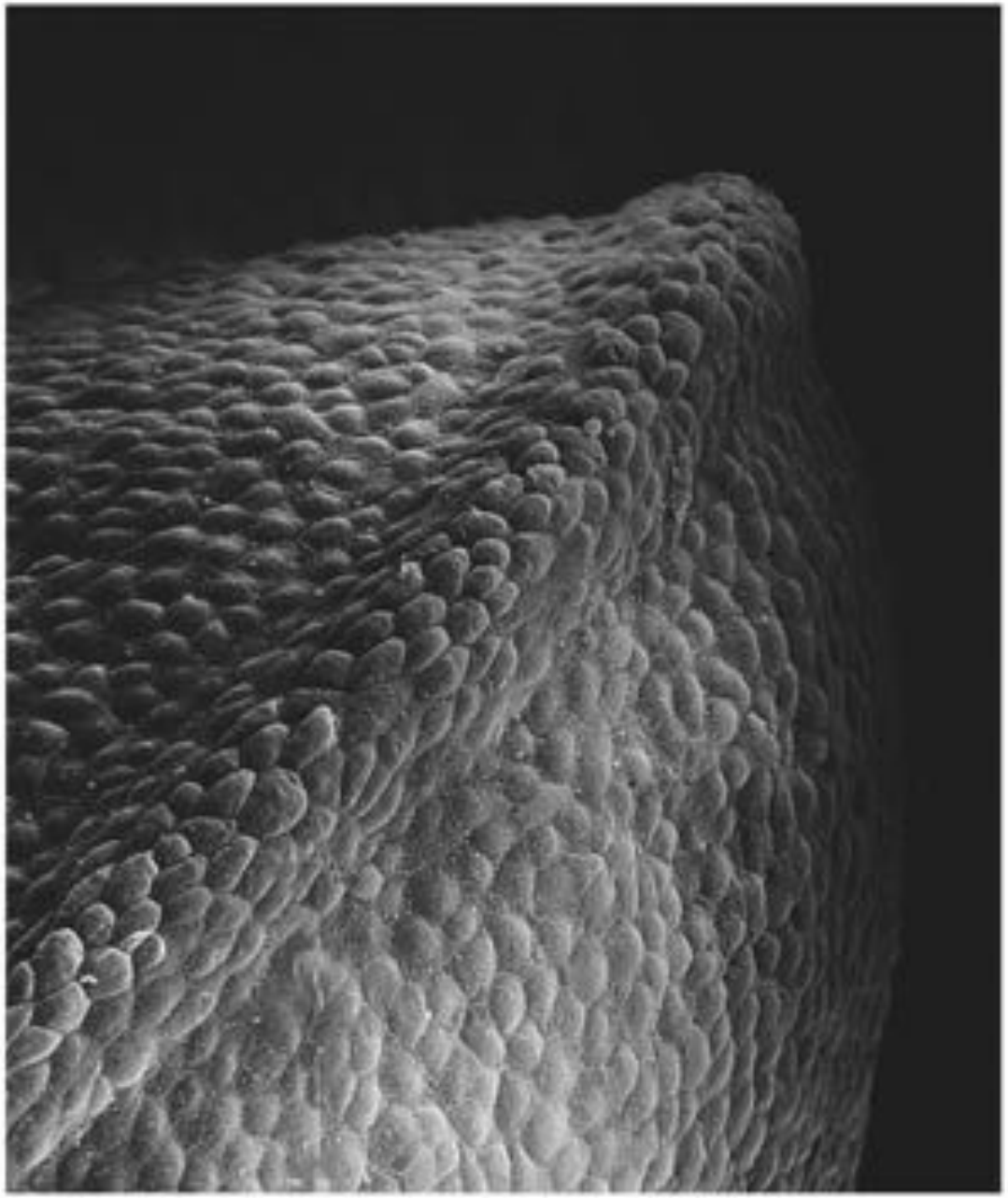


membro posterior

Modelo de regulación:

Hornstein et al. 2005

Broto cedo do membro anterior da galinha com o cume ectodérmico apical ou AER (em inglés)



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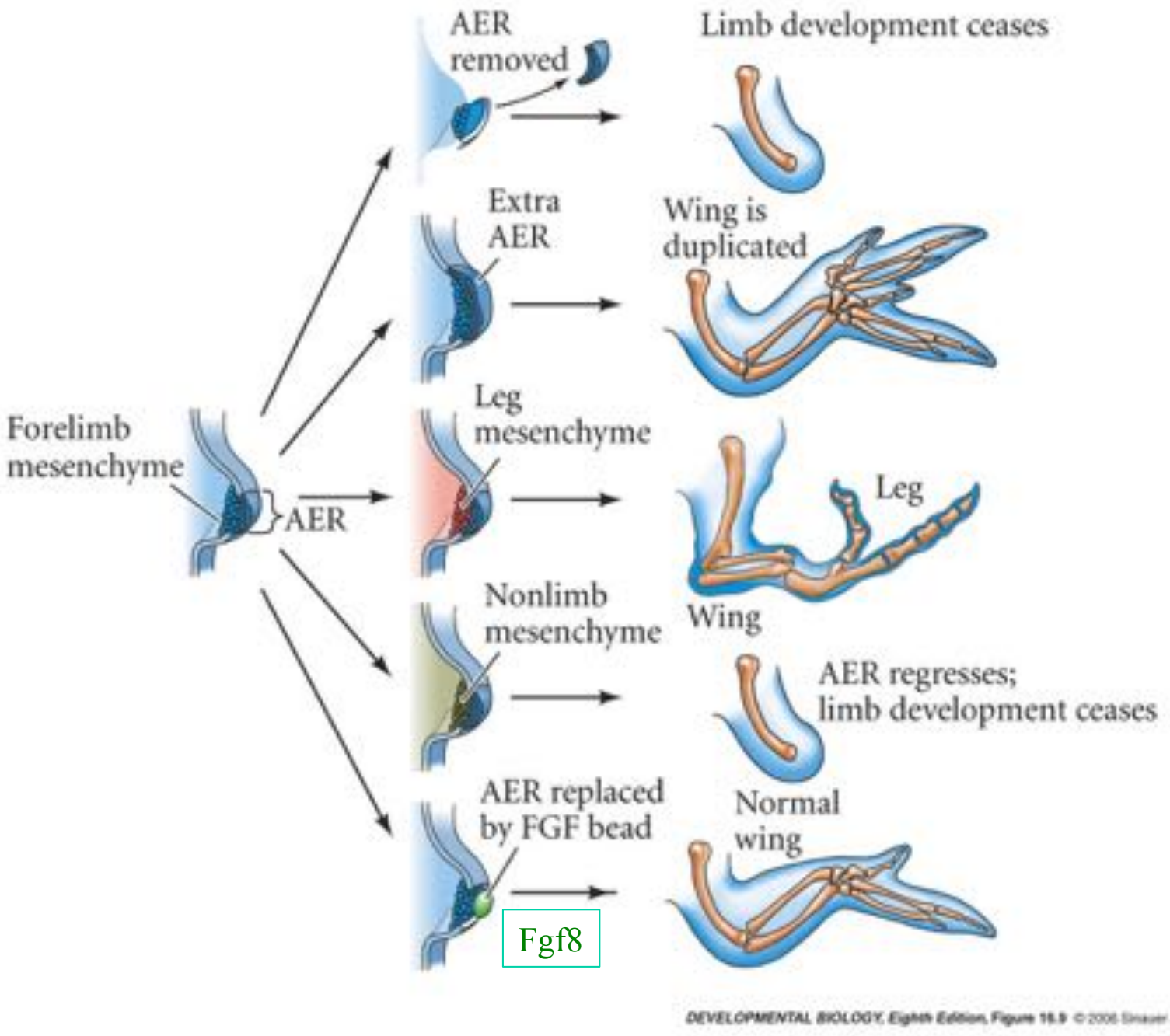
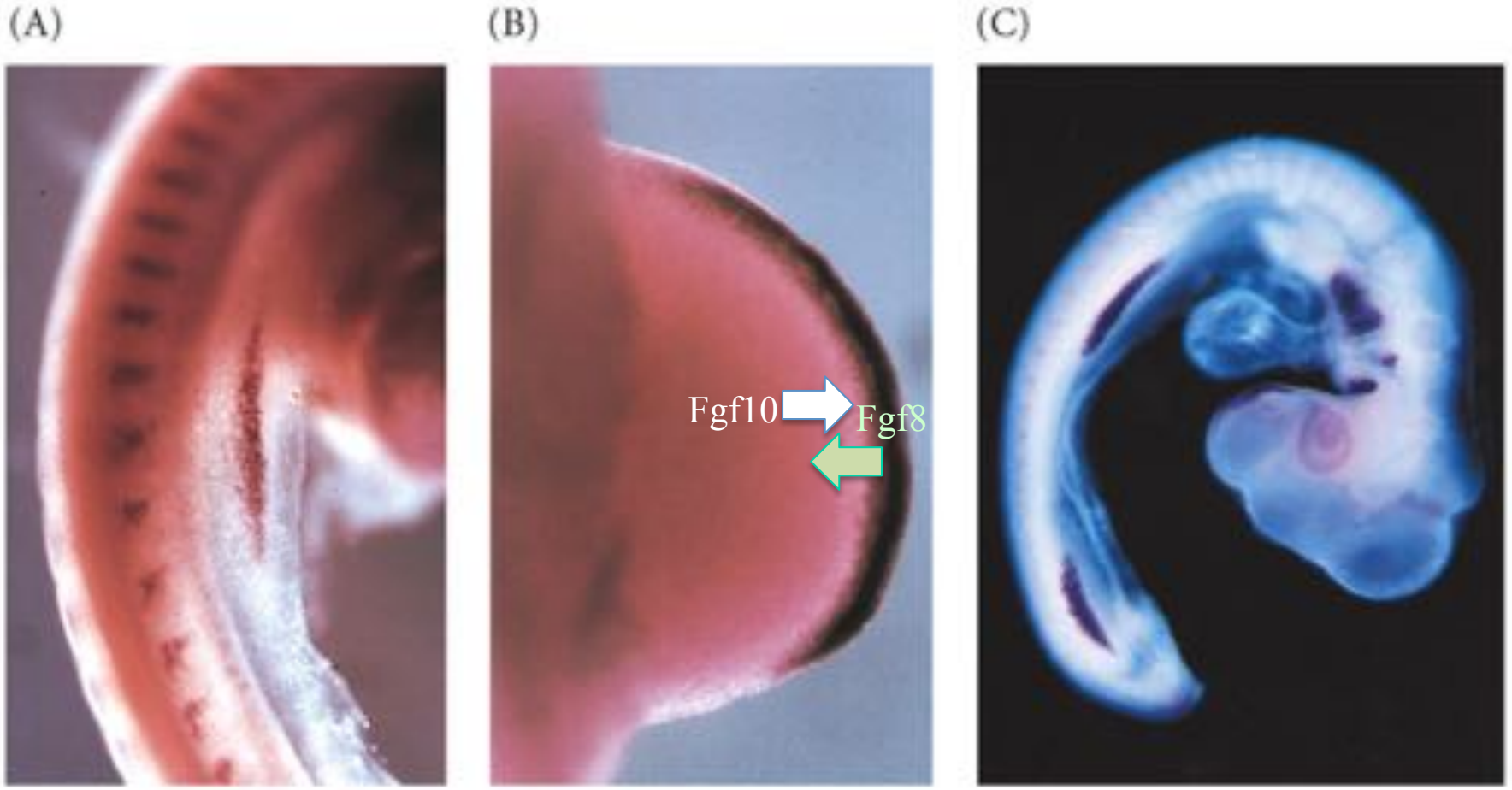
Resumo: experimentos demostrando as interações entre o AER e o mesênquima subjacente



Fgf8 in the apical ectodermal ridge



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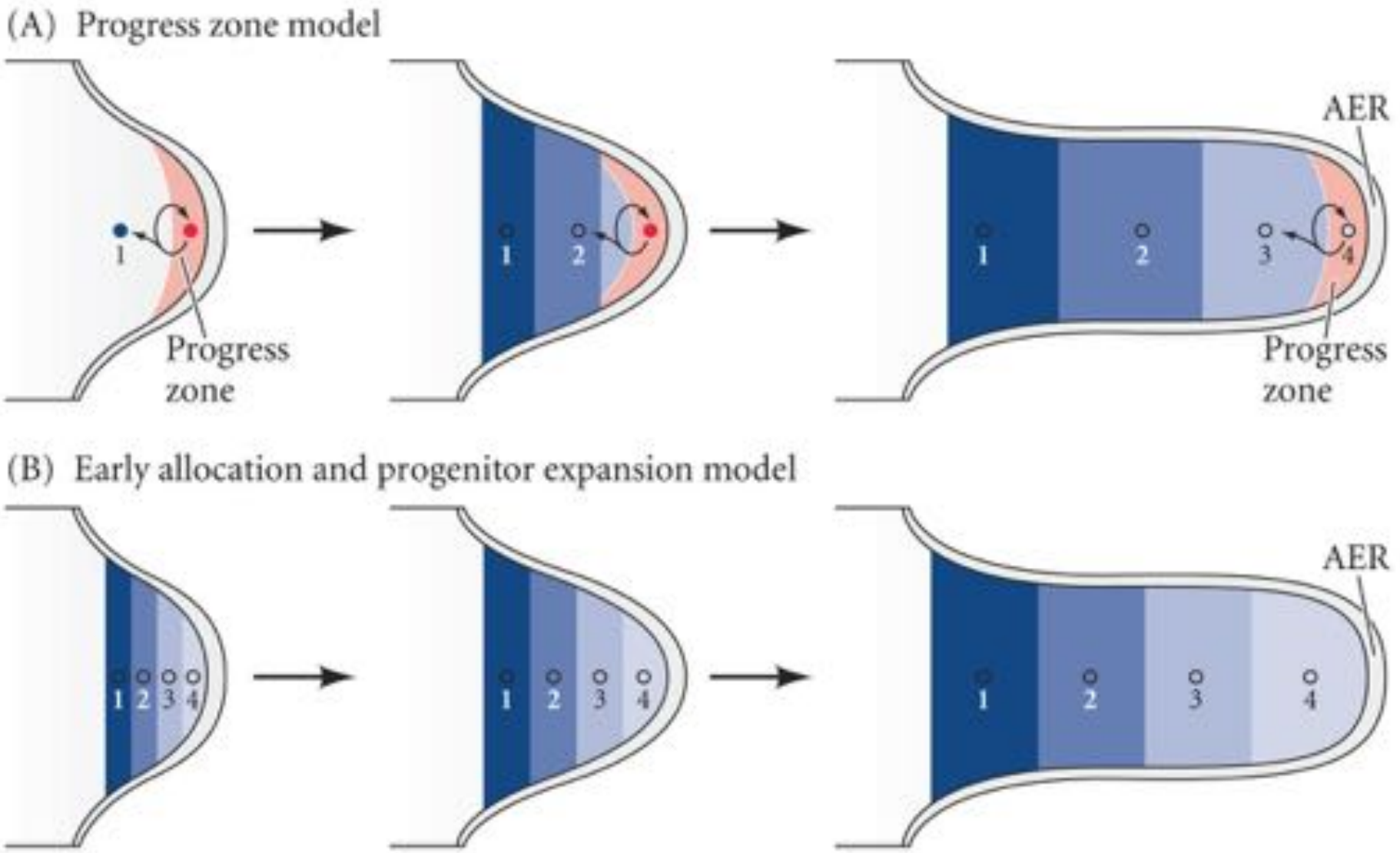
Two models for the mesodermal specification of the proximal-distal axis of the limb



What experiments would you do to test these two models?

The AER is necessary for wing development

AER Vade mecum

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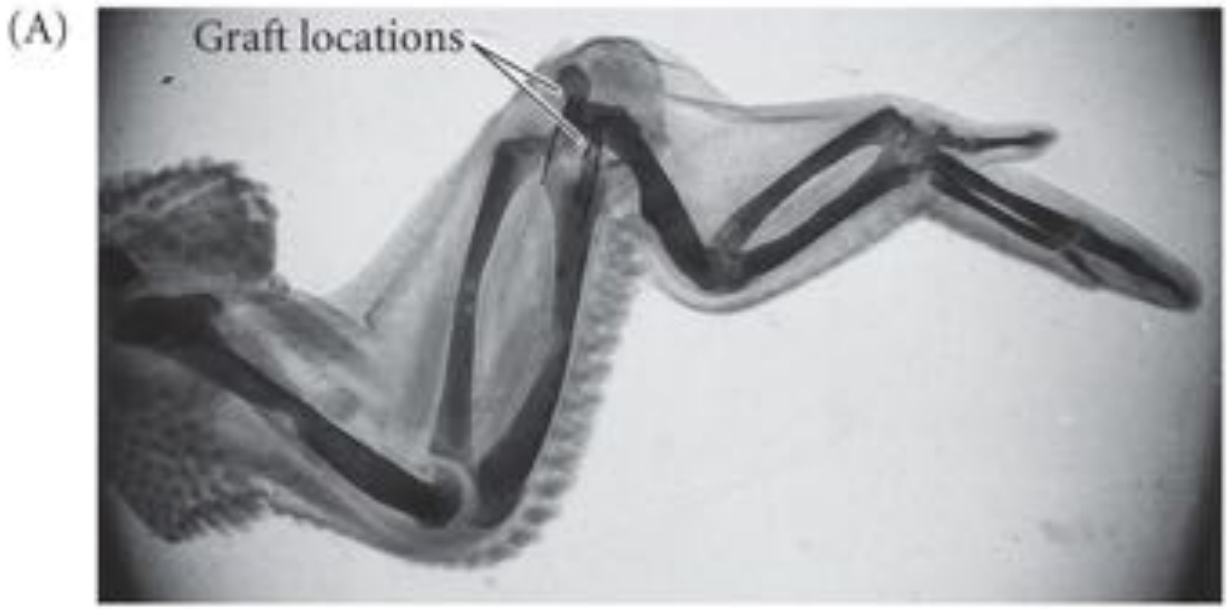
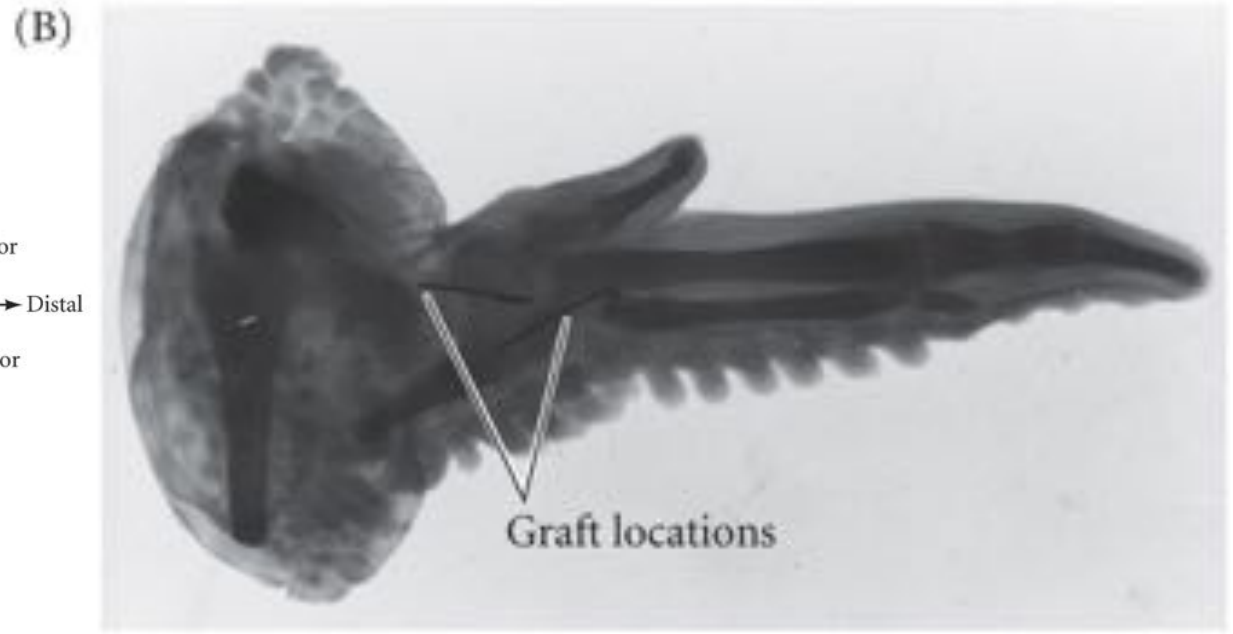
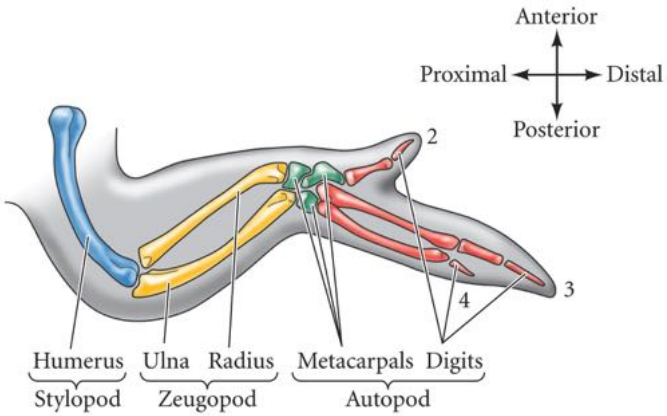
Control of proximal-distal specification by the progress zone mesenchyme







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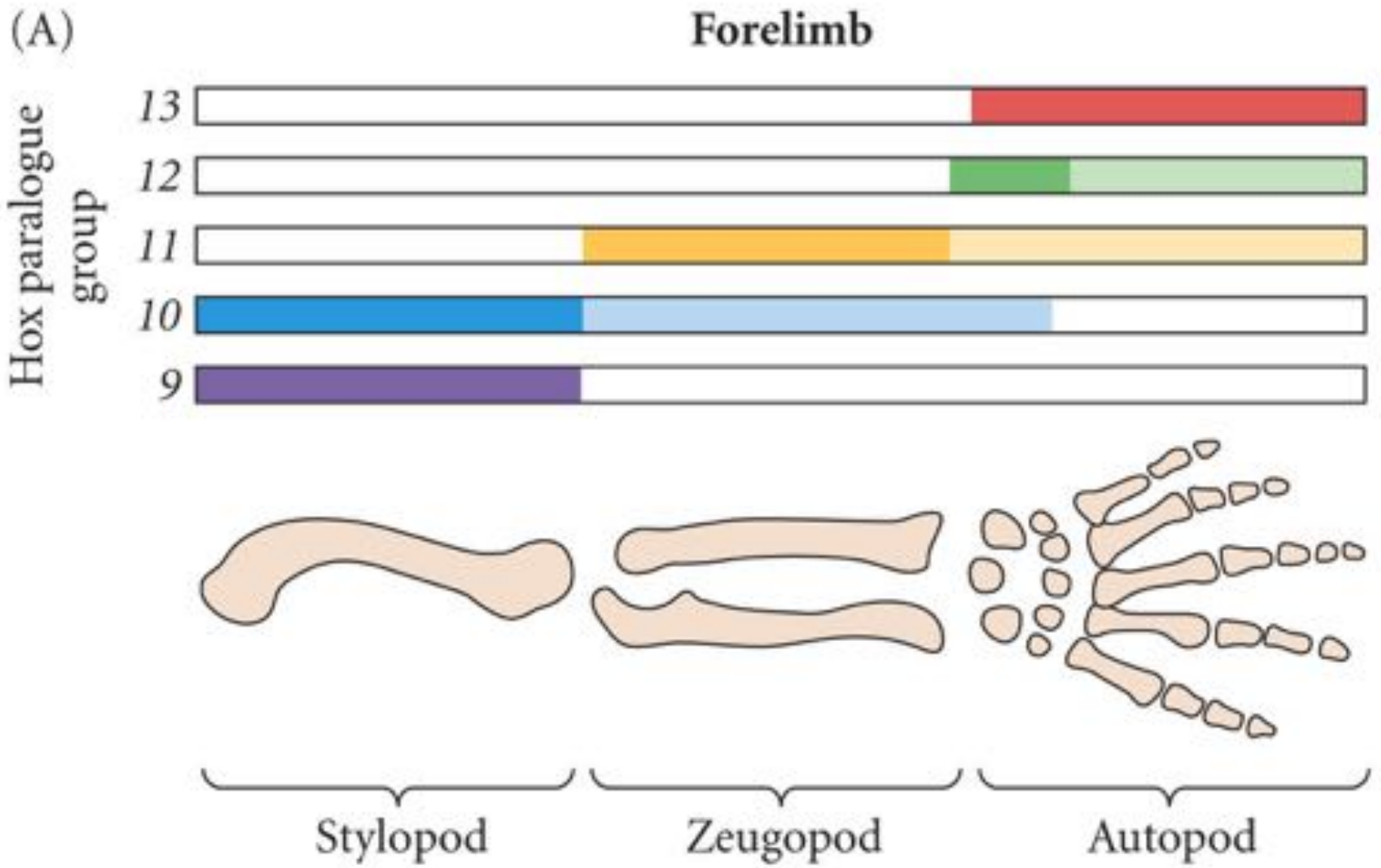
PD patterning: Deletion of limb bone elements by the deletion of paralogous Hox genes (Part 1)



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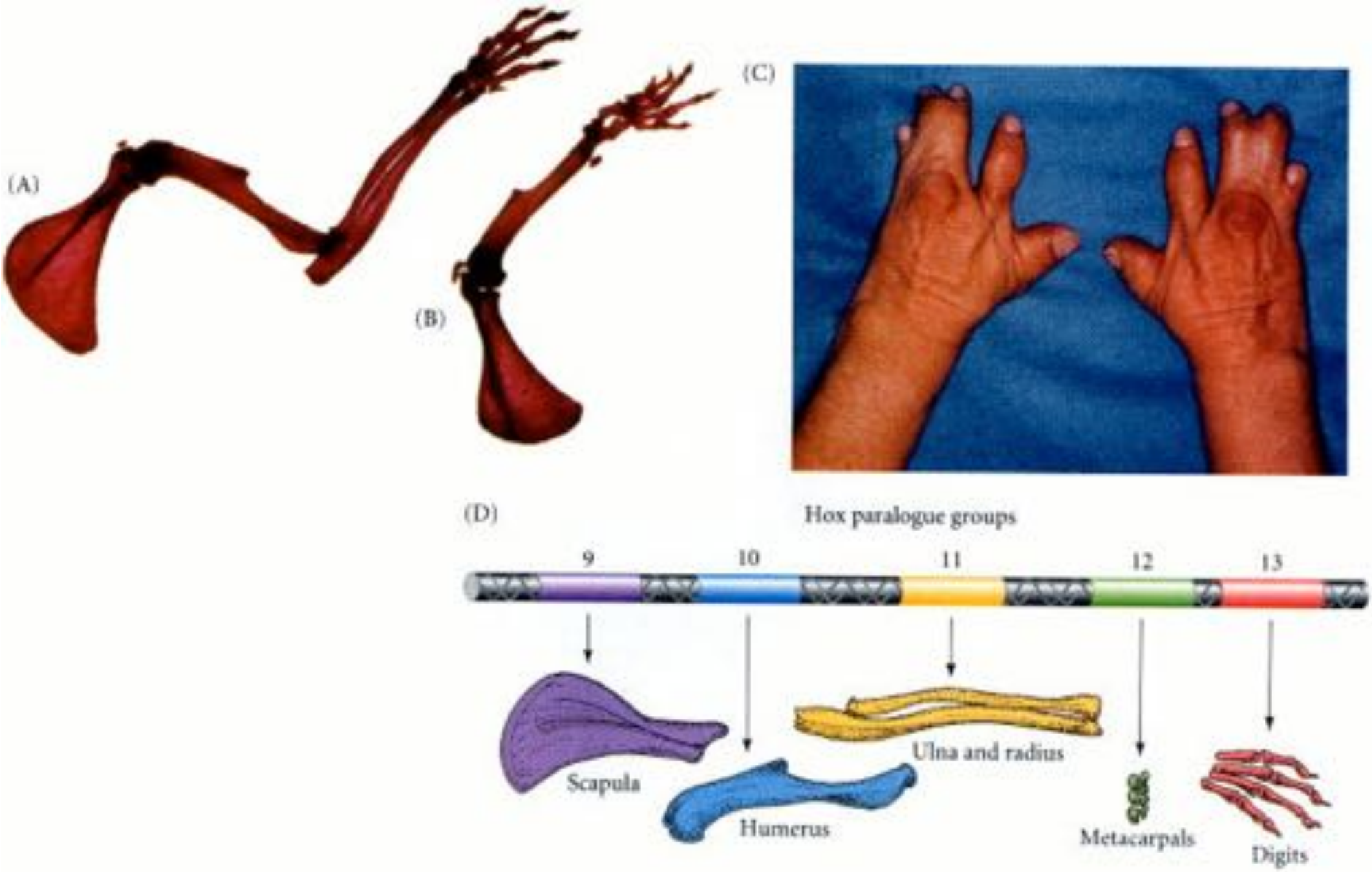
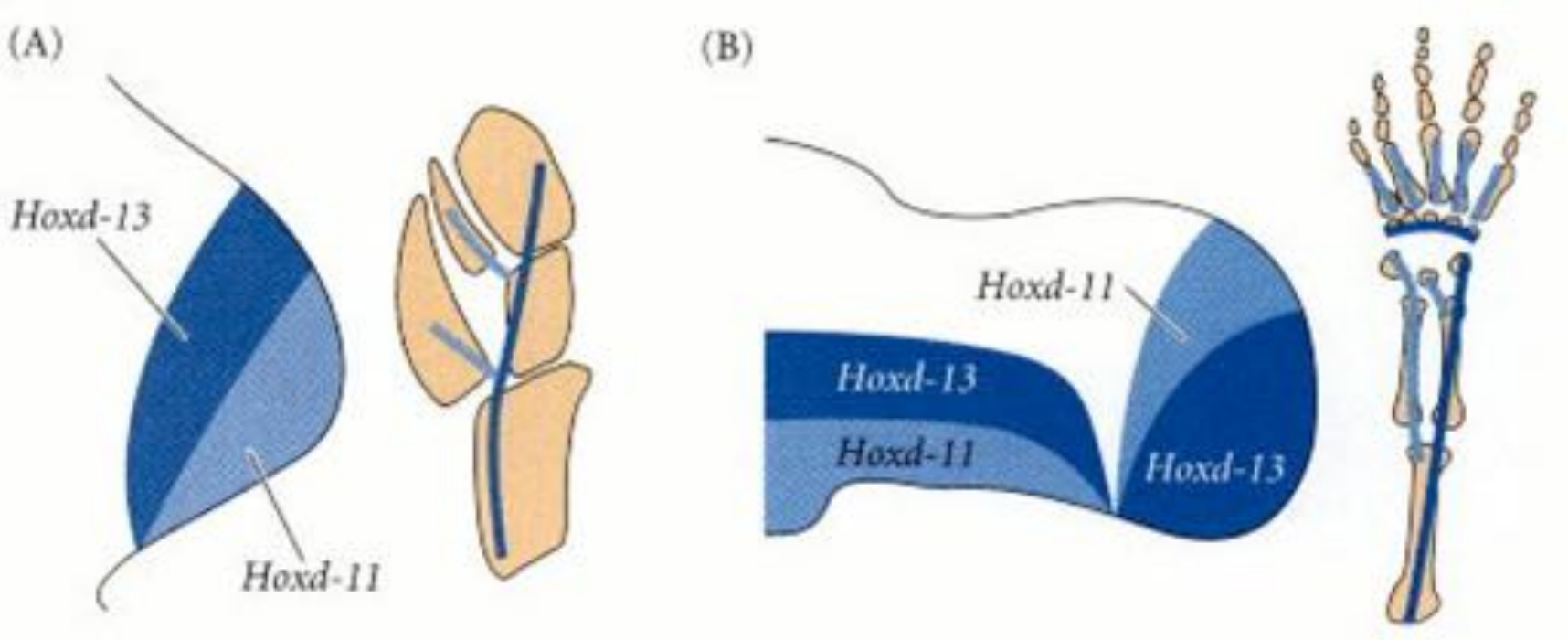
PD patterning: Deletion of limb bone elements by the deletion of paralogous Hox genes (Part 1)



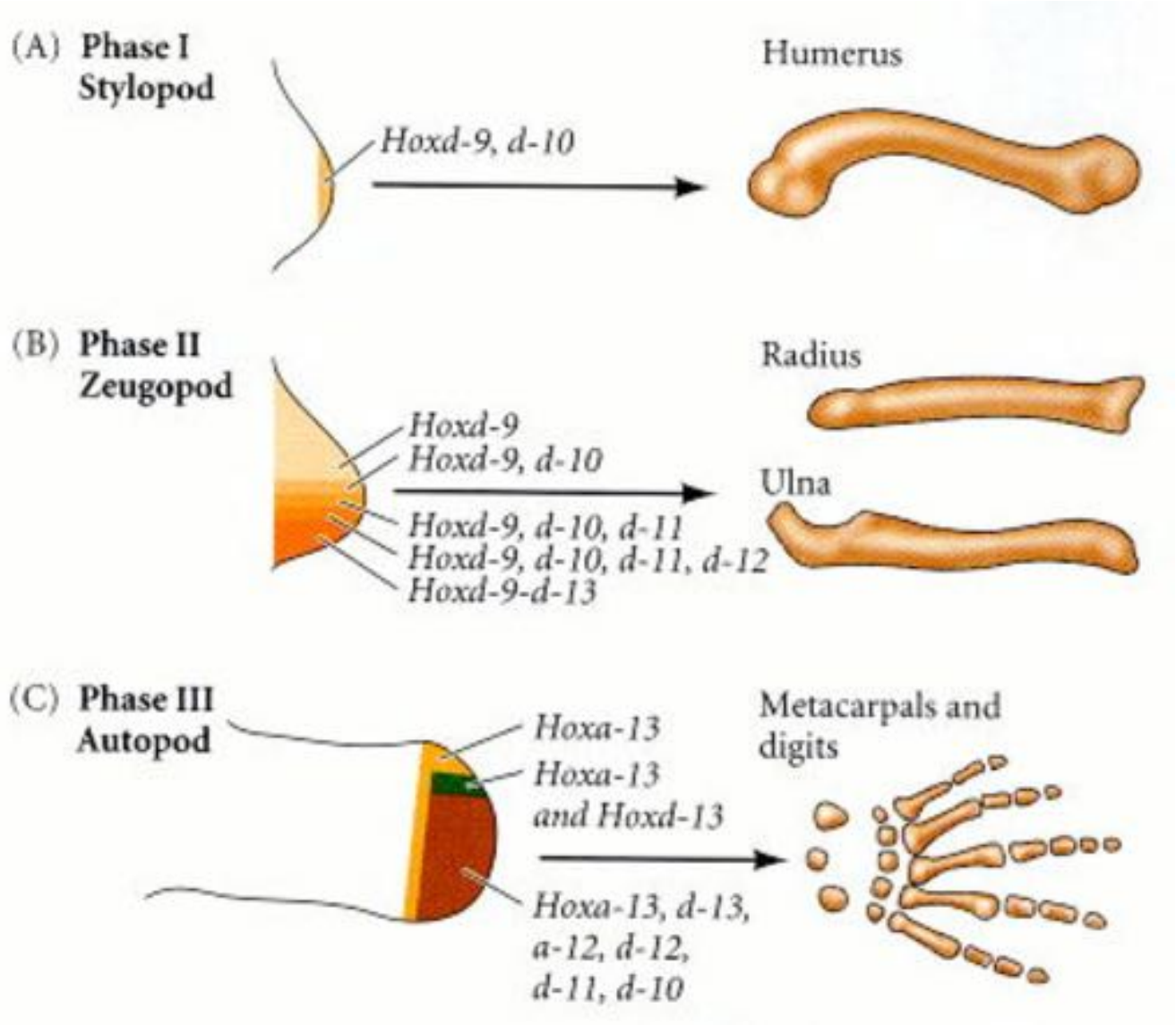
Evolução dos membros em vertebrados e a modularidade da regulação de Hox

Peixe:

Tetrapodo:

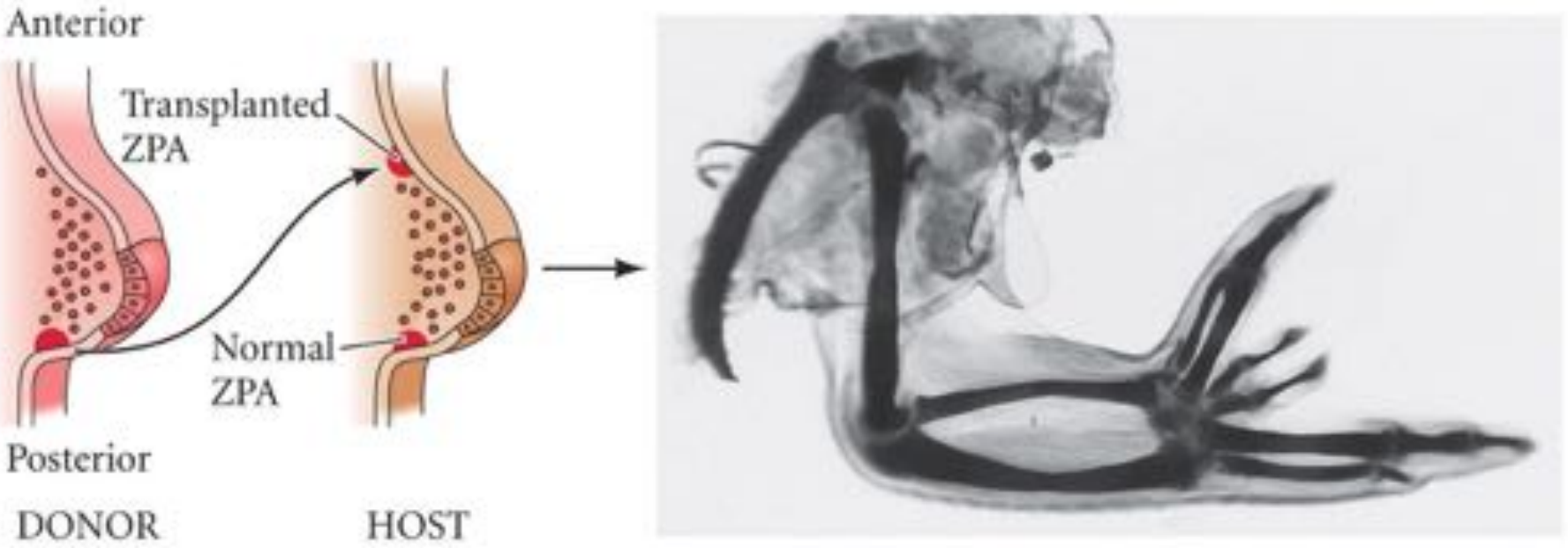


AP patterning: Hox e desenvolvimento dos membros



AP patterning: When a ZPA is grafted to anterior limb bud mesoderm, duplicated digits emerge as a mirror image of the normal digits

Discovering the ZPA: Vade mecum



ZPA= zone of polarizing activity

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AP patterning: Sonic hedgehog protein is expressed in the ZPA (Part 1)

Is it sufficient?

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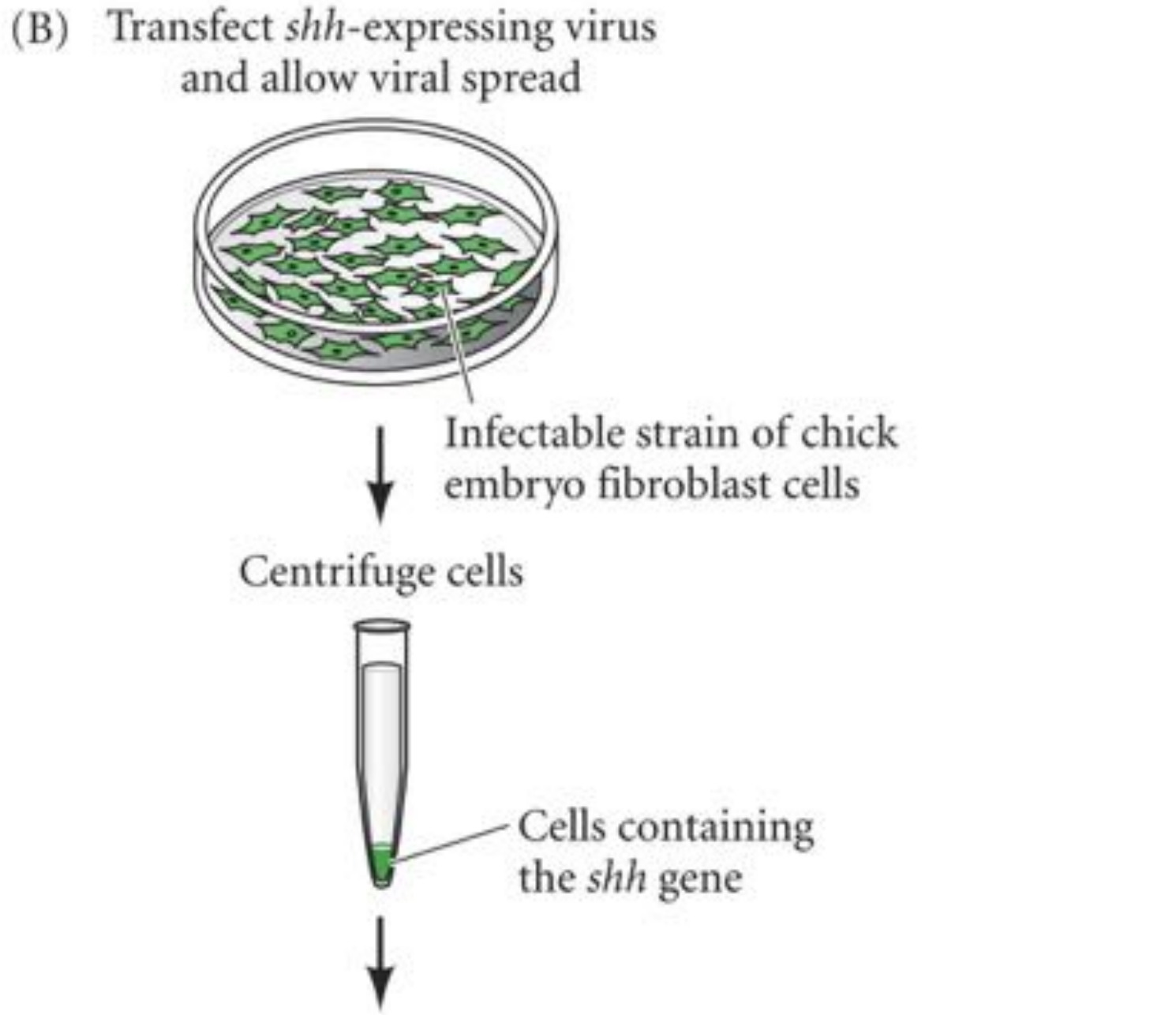
AP patterning: Sonic hedgehog protein is expressed in the ZPA (Part 2)



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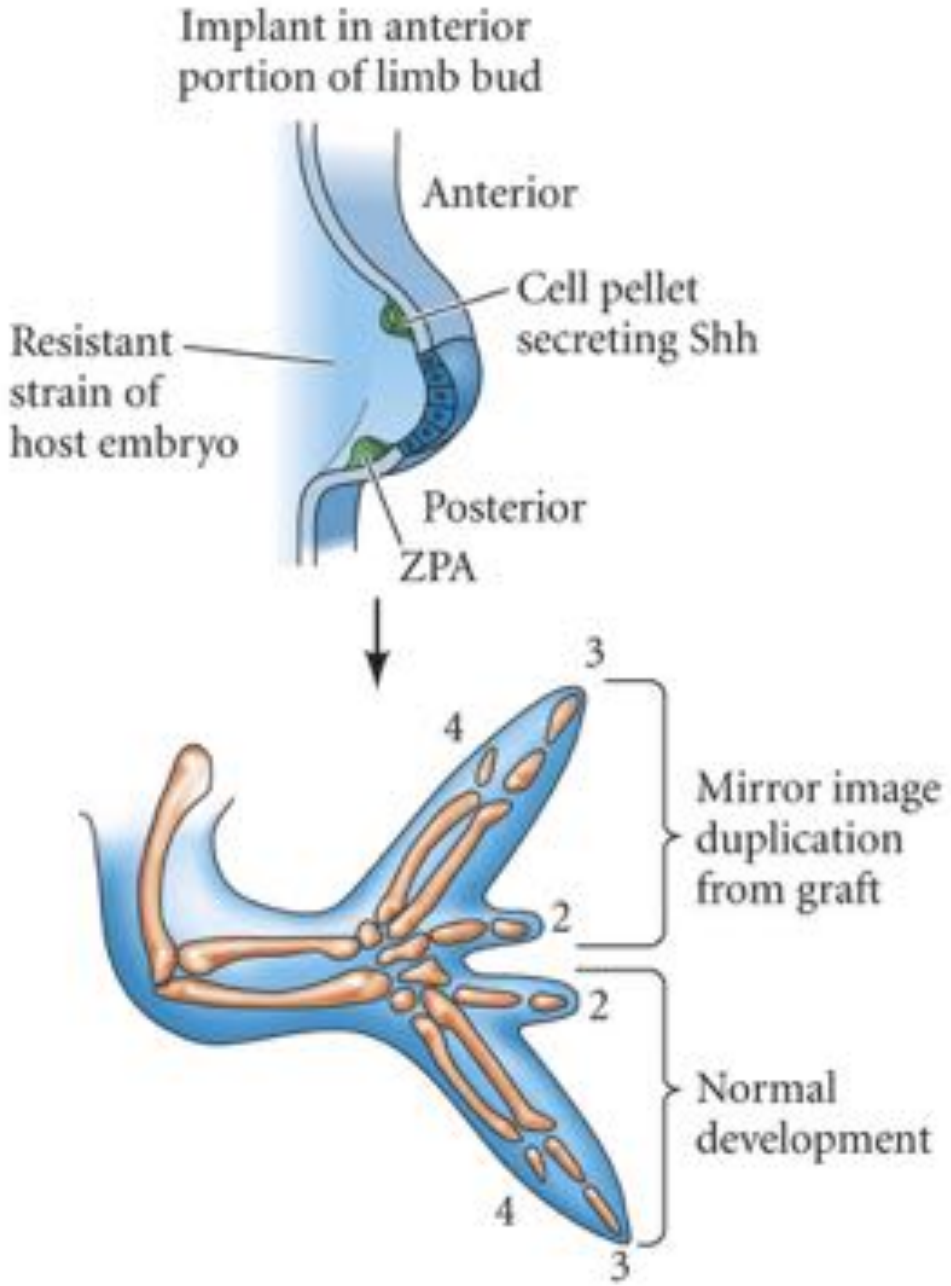
AP patterning: Sonic hedgehog protein is expressed in the ZPA (Part 3)



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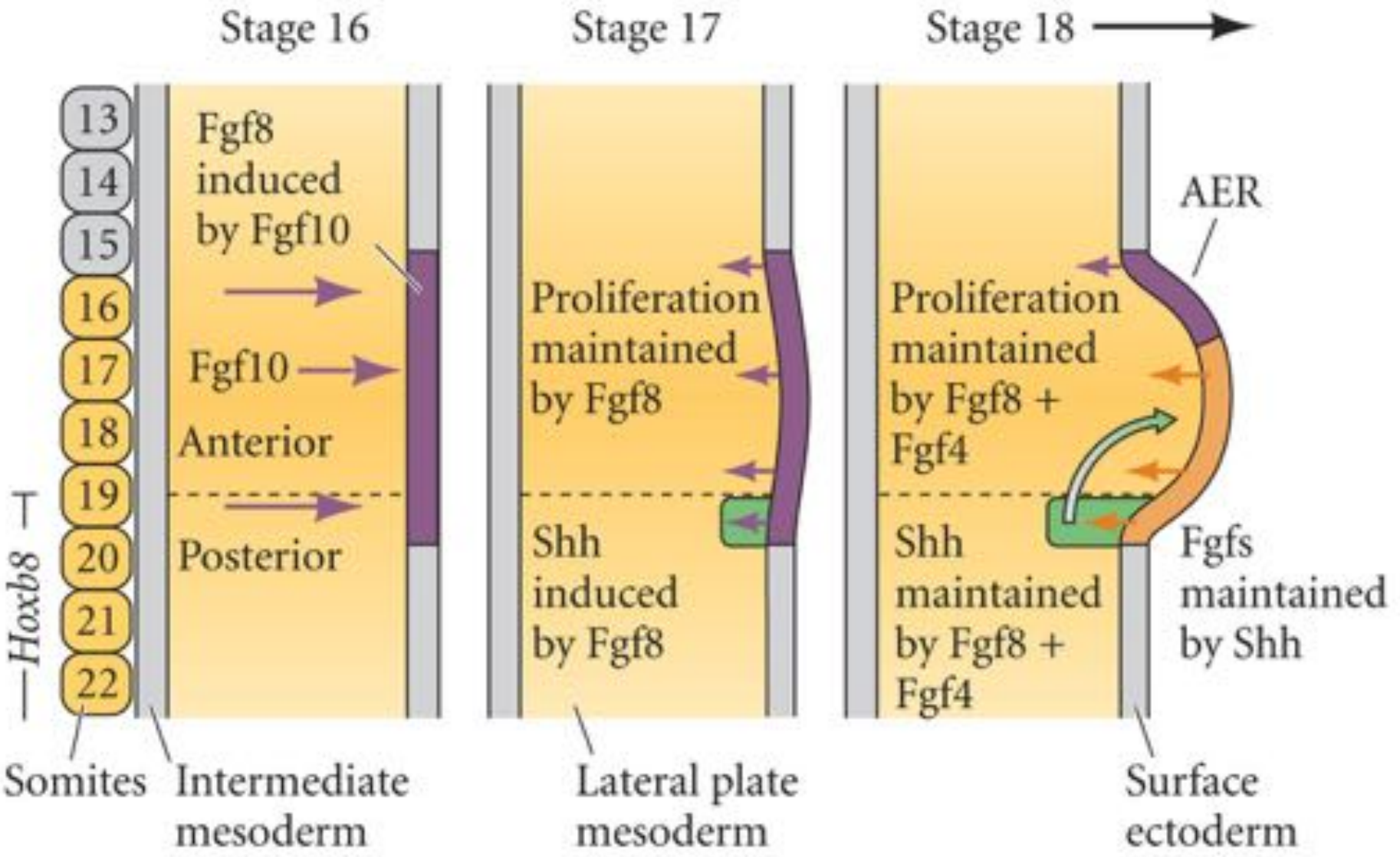
Patterning and growth of the bud: Feedback between the AER and the ZPA in the forelimb bud



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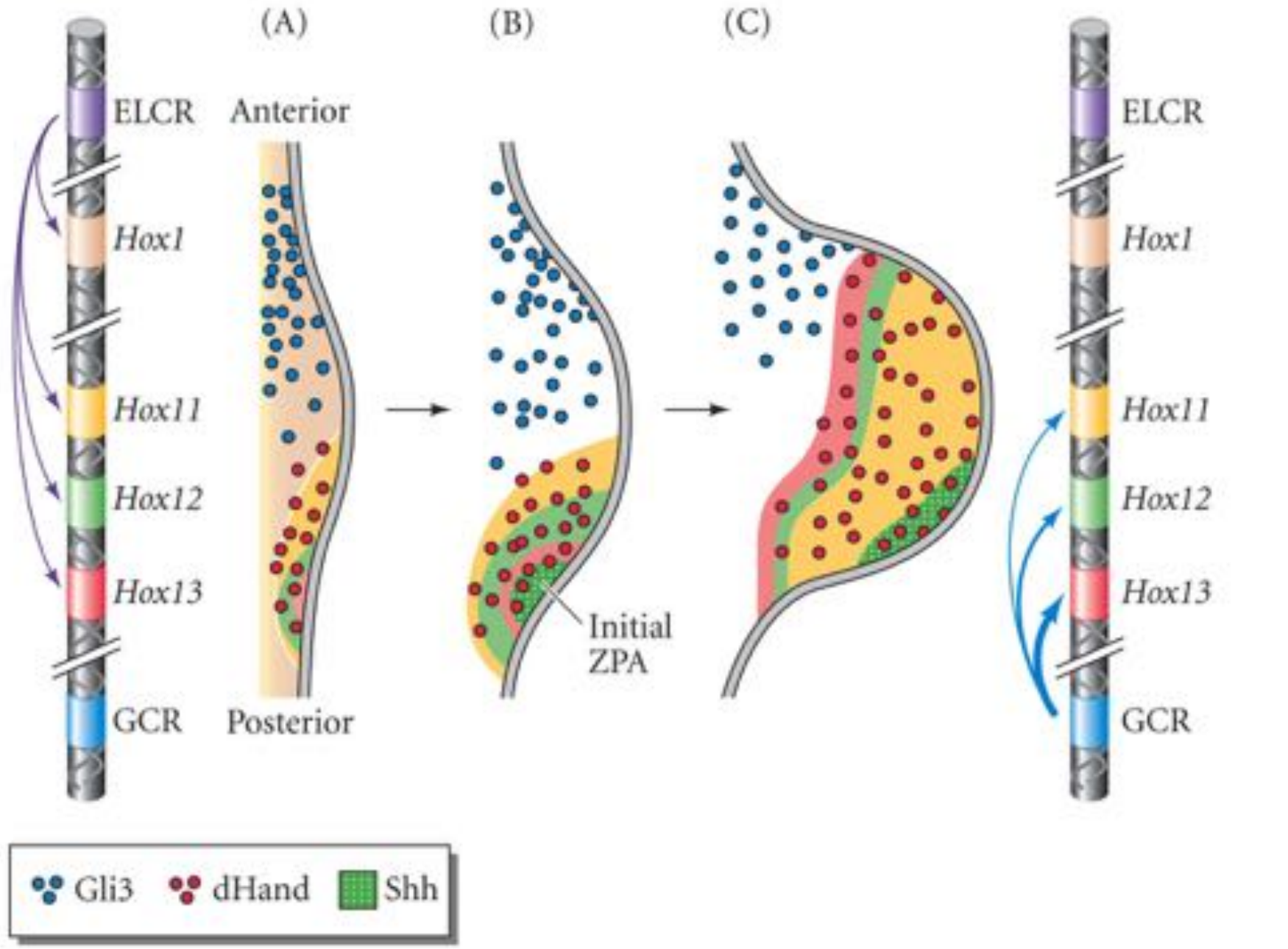
AP patterning: Hox gene expression changes during the formation of the tetrapod limb



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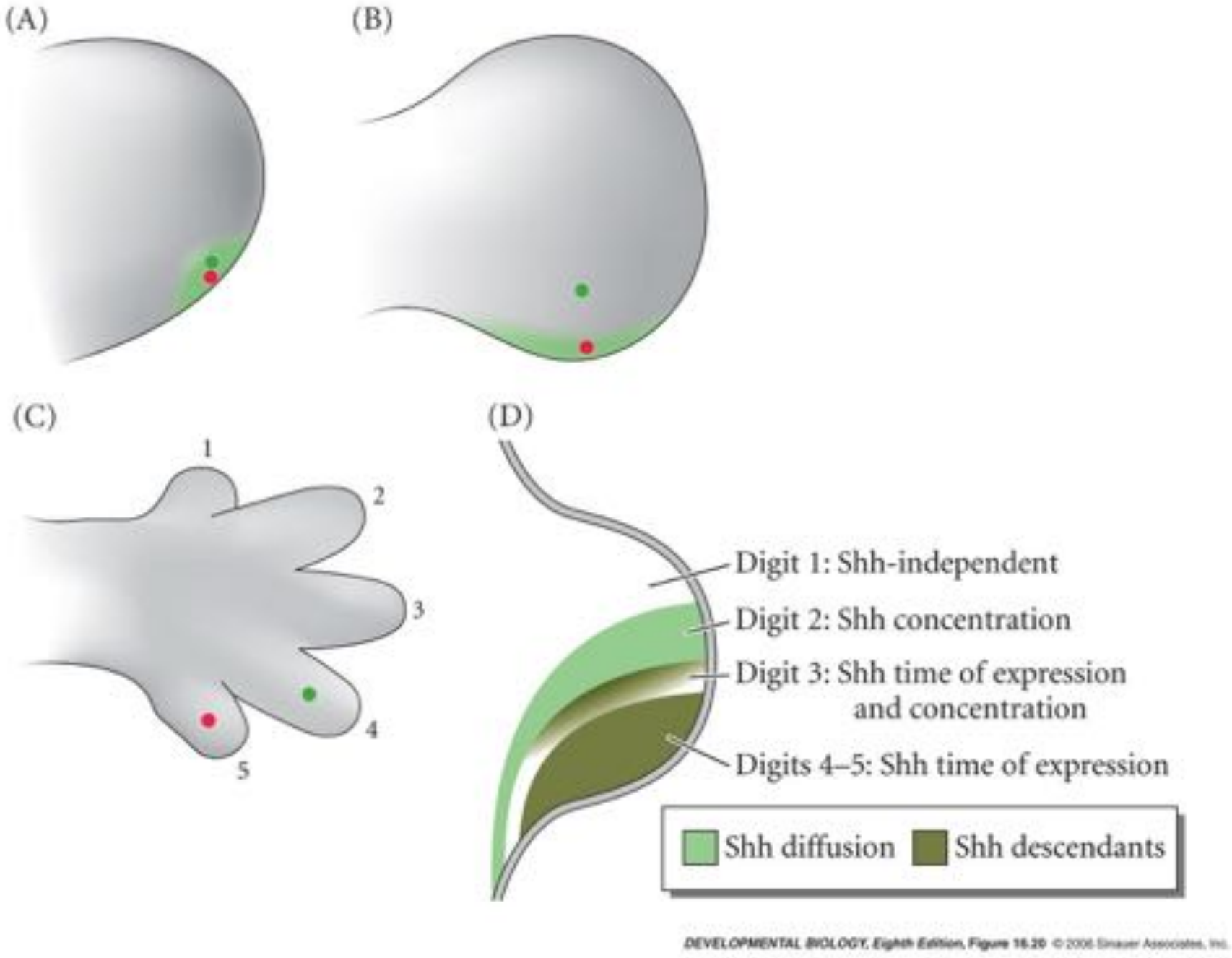
AP patterning and digit identity: The Shh-secreting cells form digits 4 and 5, and contribute to the specification of digits 2 and 3 in the mouse limb



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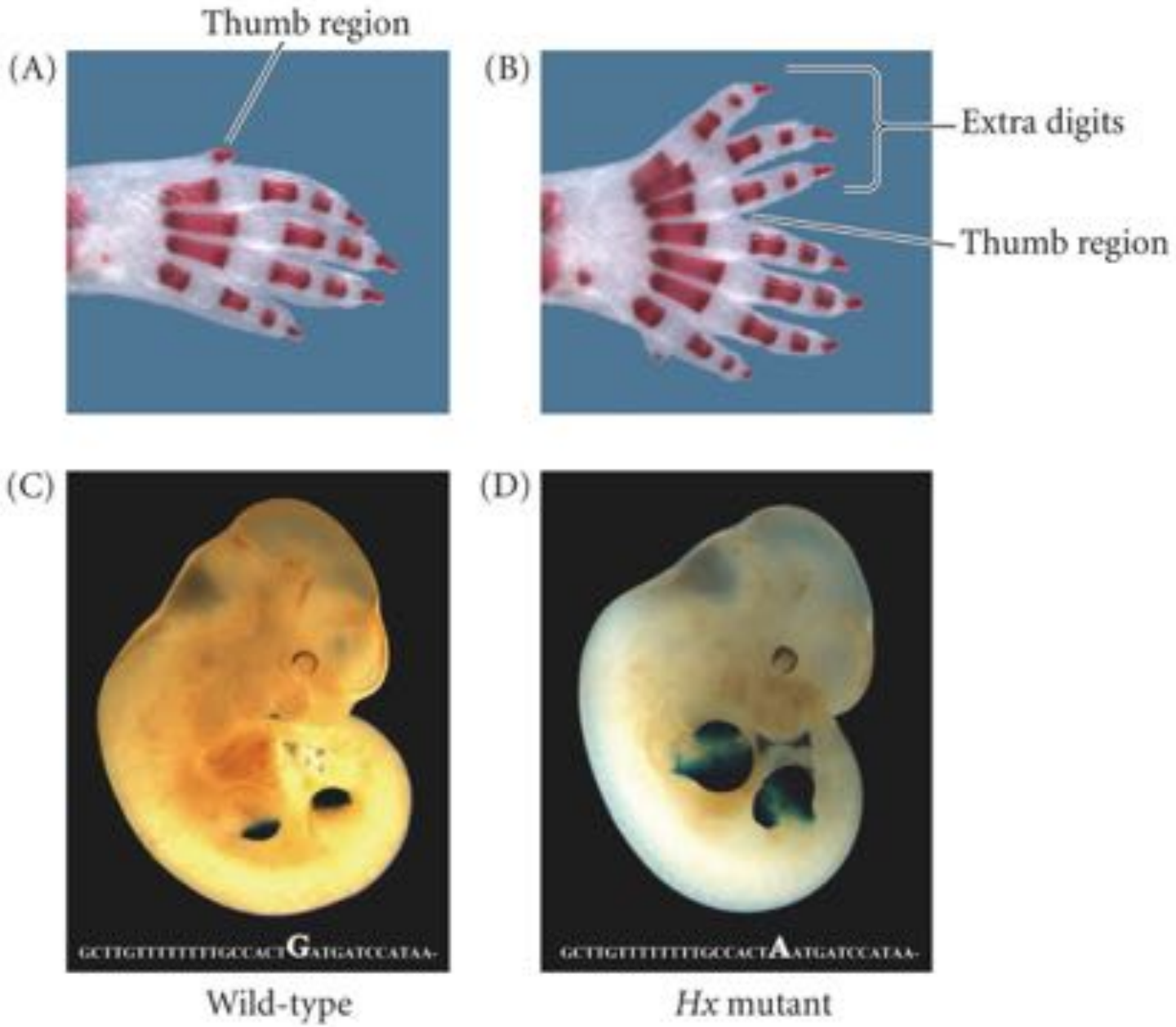
AP patterning: Ectopic expression of mouse *sonic hedgehog* by a mutation in *Hx* in the anterior limb causes extra digit formation



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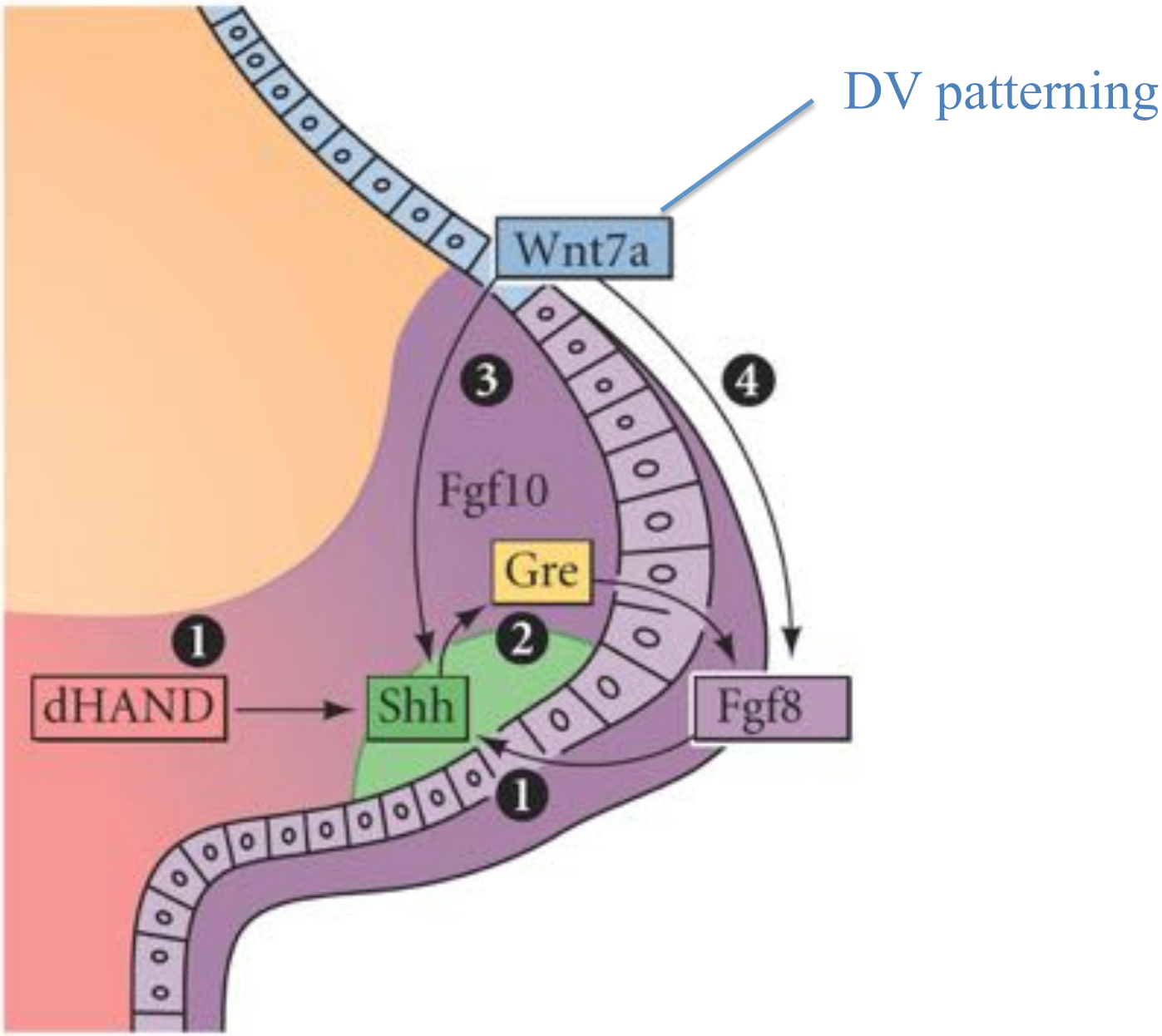
Patterning and growth of the bud: Some of the molecular interactions by which limb bud formation and growth are initiated and maintained



DV Patterning: Vade mecum

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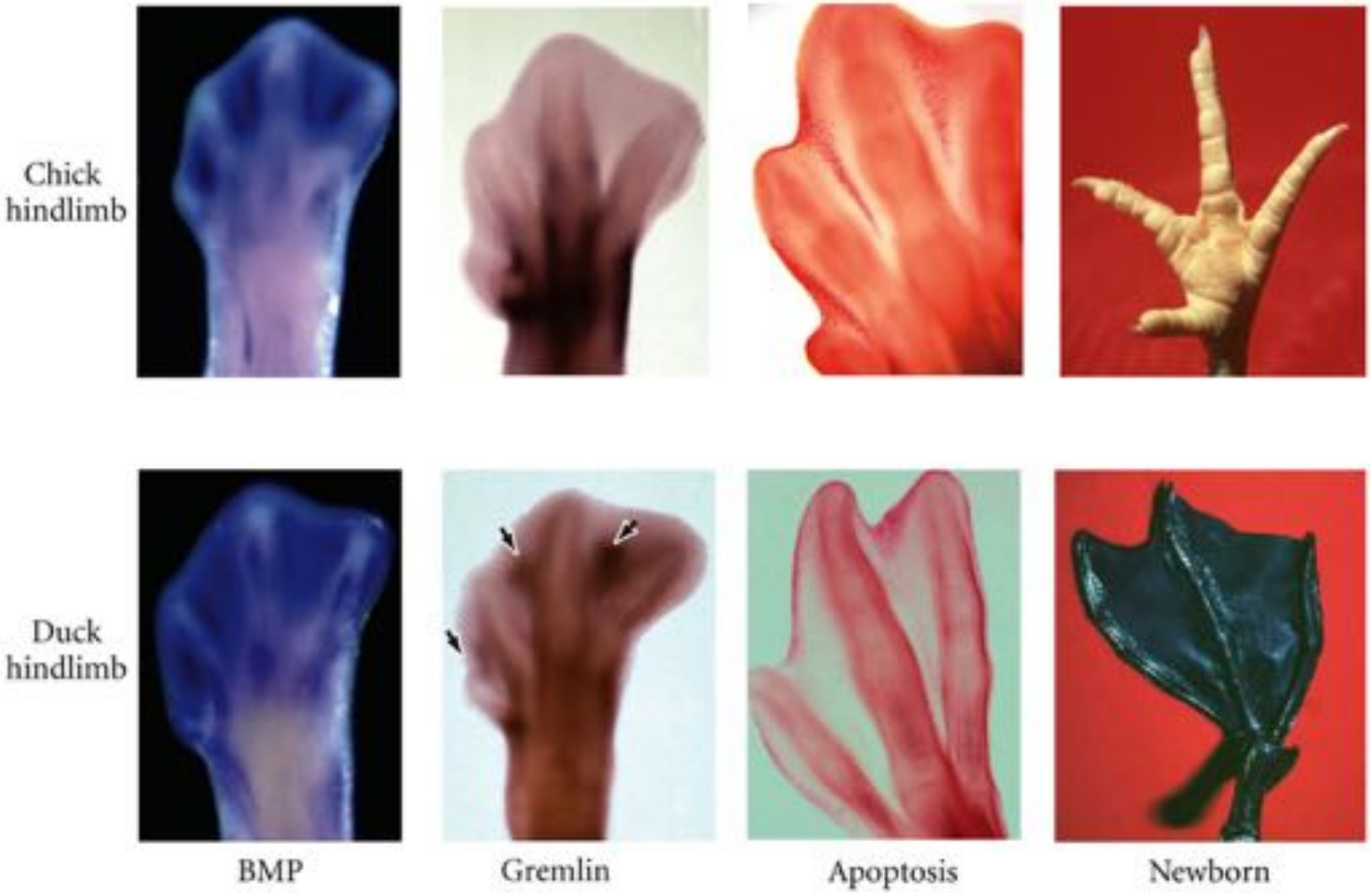
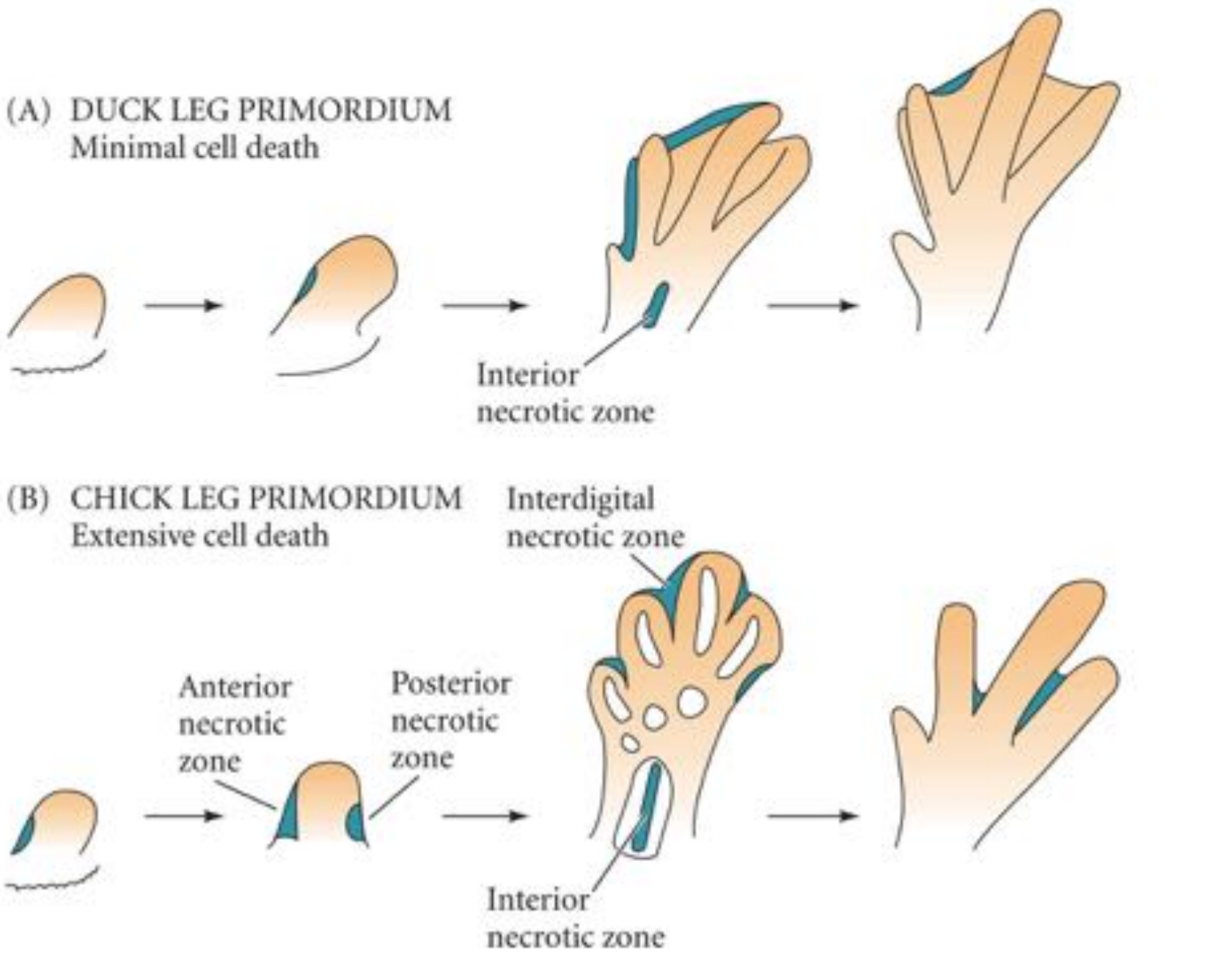
Apoptosis in late digit formation: Inhibition of cell death by inhibiting BMPs by Gremlin in ducks

Patterning through cell death: Vade mecum



Late digit formation: Patterns of cell death in leg primordia of (A) duck and (B) chick embryos



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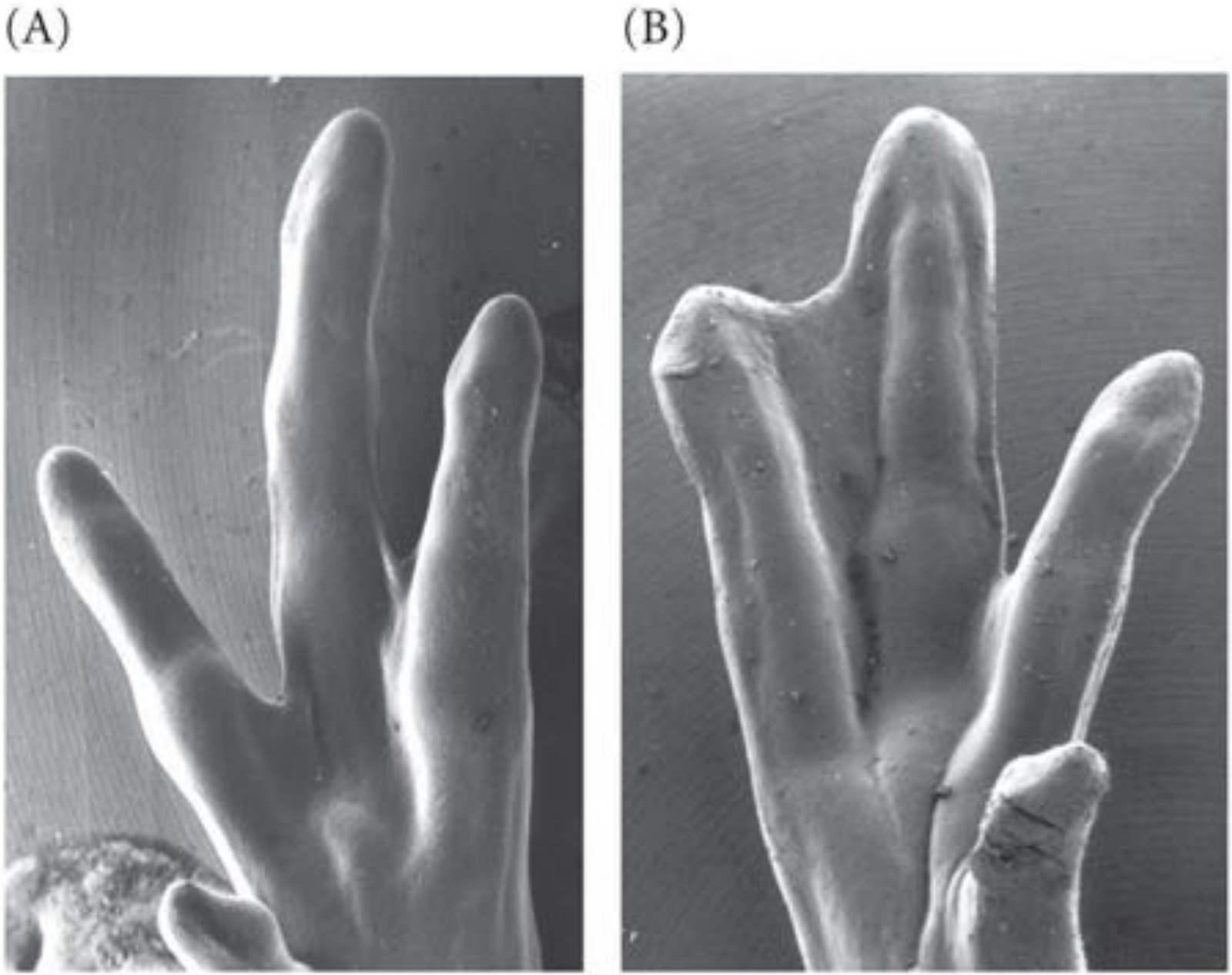
Apoptosis in late digit formation: Inhibition of cell death by inhibiting BMPs in chick leg



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Jõao Botelho (Brazilian researcher) et al. at the Vargas Lab (Universidad de Chile)

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