

Pele e anexos

Anatomia comparada dos
vertebrados

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18/10/2017

Aula de hoje



Aula de hoje



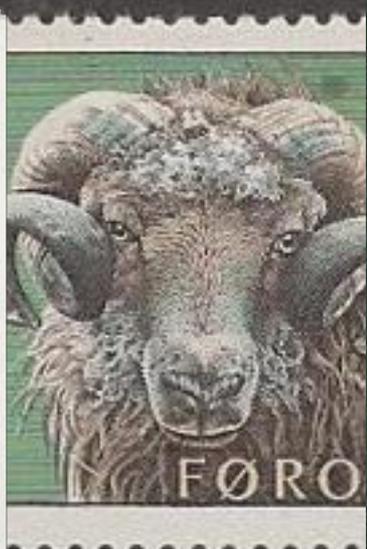
Aula de hoje

Características do tegumentos dos vertebrados

Pele & Anexo

Funções

Estrutura geral



Quais são as
principais
funções da
pele?

Proteção

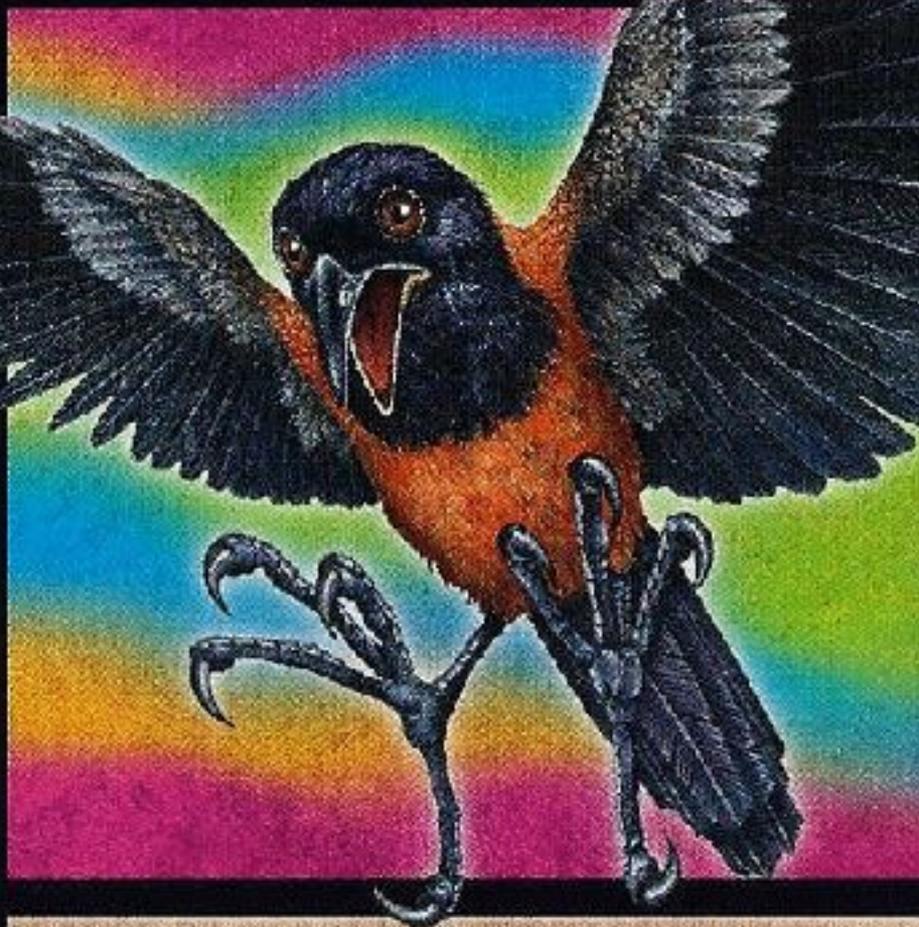


Proteção





HOODED PITOHUI



This bird's bright colors serve as a warning to predators. It ingests chemicals from the beetles and plants it eats, and its body converts them into toxins that can make attackers violently ill, even kill them.

LIFE: 120

Say What?
Two other pitohui species are poisonous.

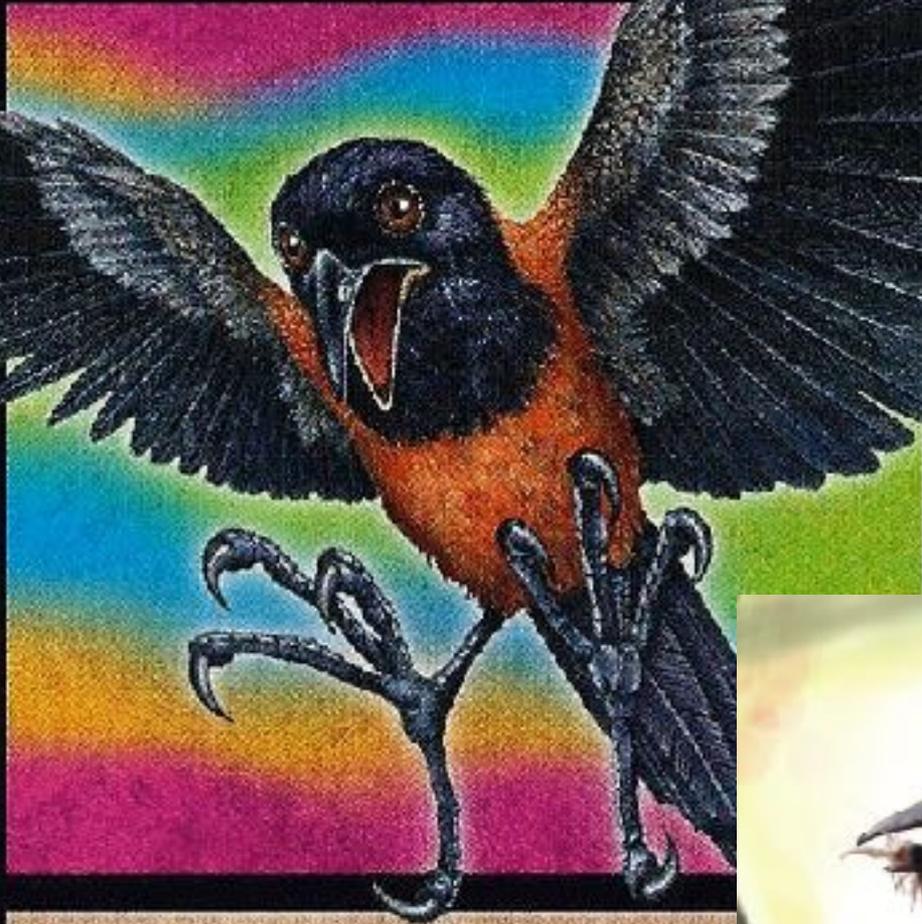
TOXIC TERRORS

ATTACK: 3 DEFENSE: 6





HOODED PITOHEN



This bird's bright colors serve as a warning to predators. It ingests chemicals from the beetles and plants it eats, and its body converts them into toxins that can make attackers violently ill, even kill them.

LIFE: 120



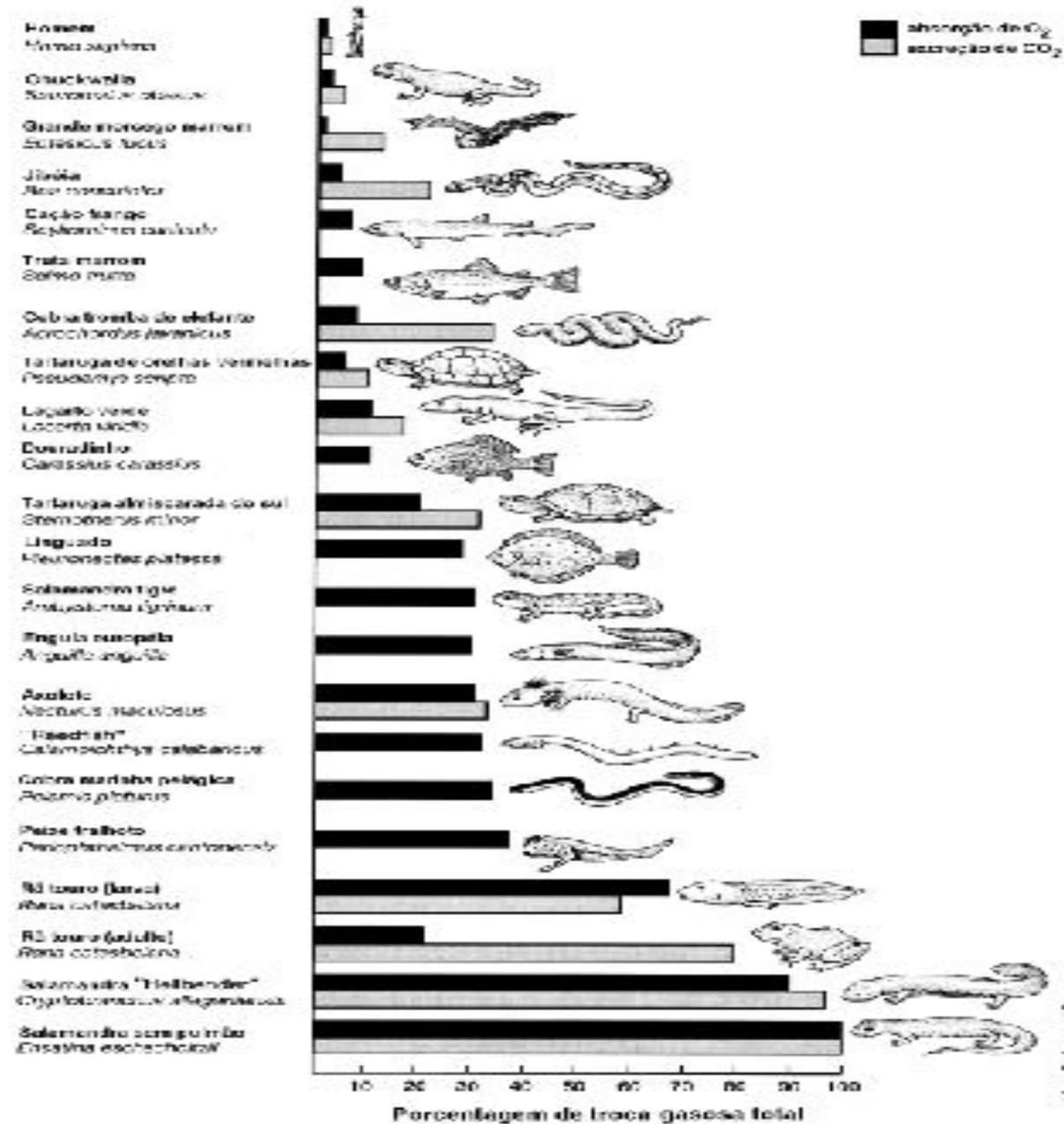
TOXIC TERRORS

ATTACK: 3 DEFENSE: 6

Sensorial



Trocas gasosas



Fonte: Fodor and Burggren.

Trocas gasosas

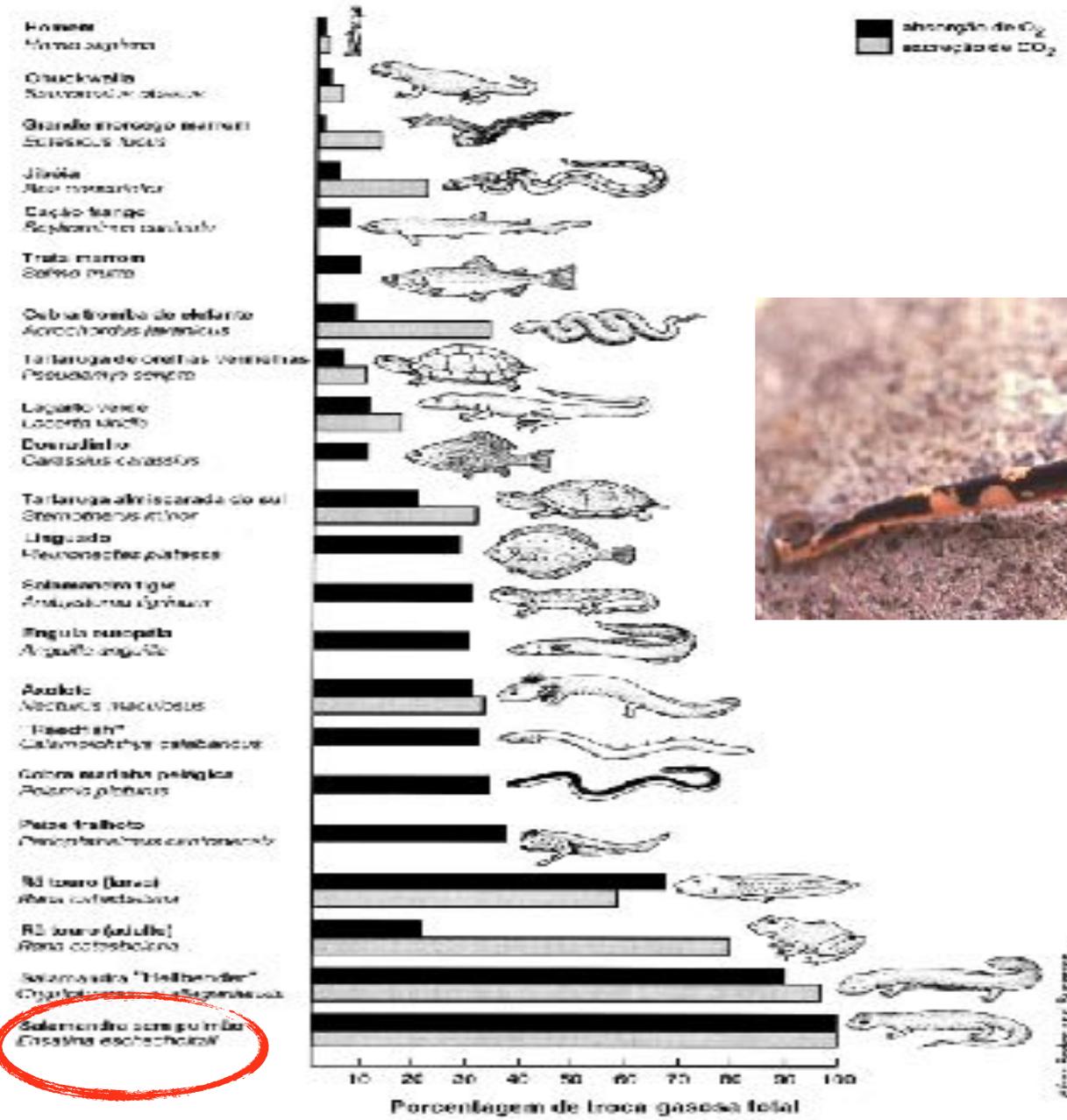


Foto: Fodor and Burgner.

Comunicação



Comunicação



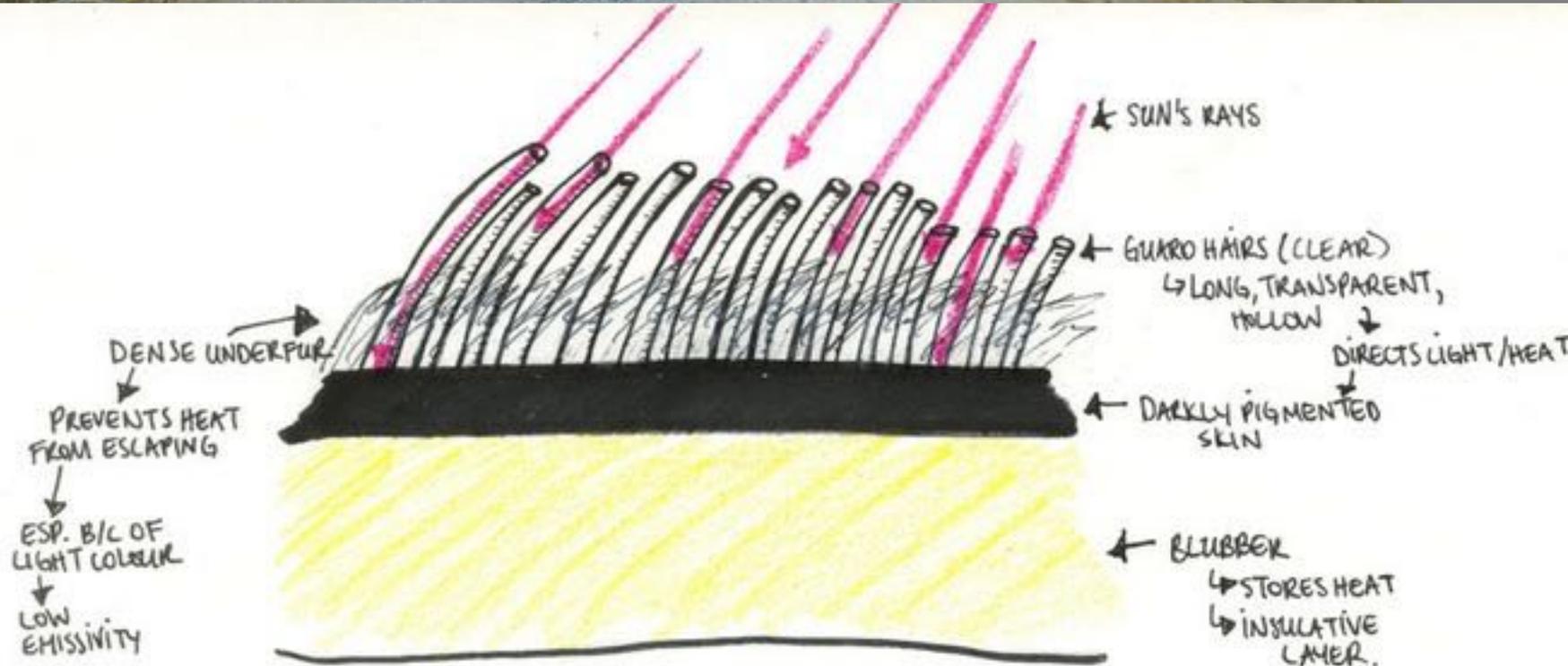
Comunicação

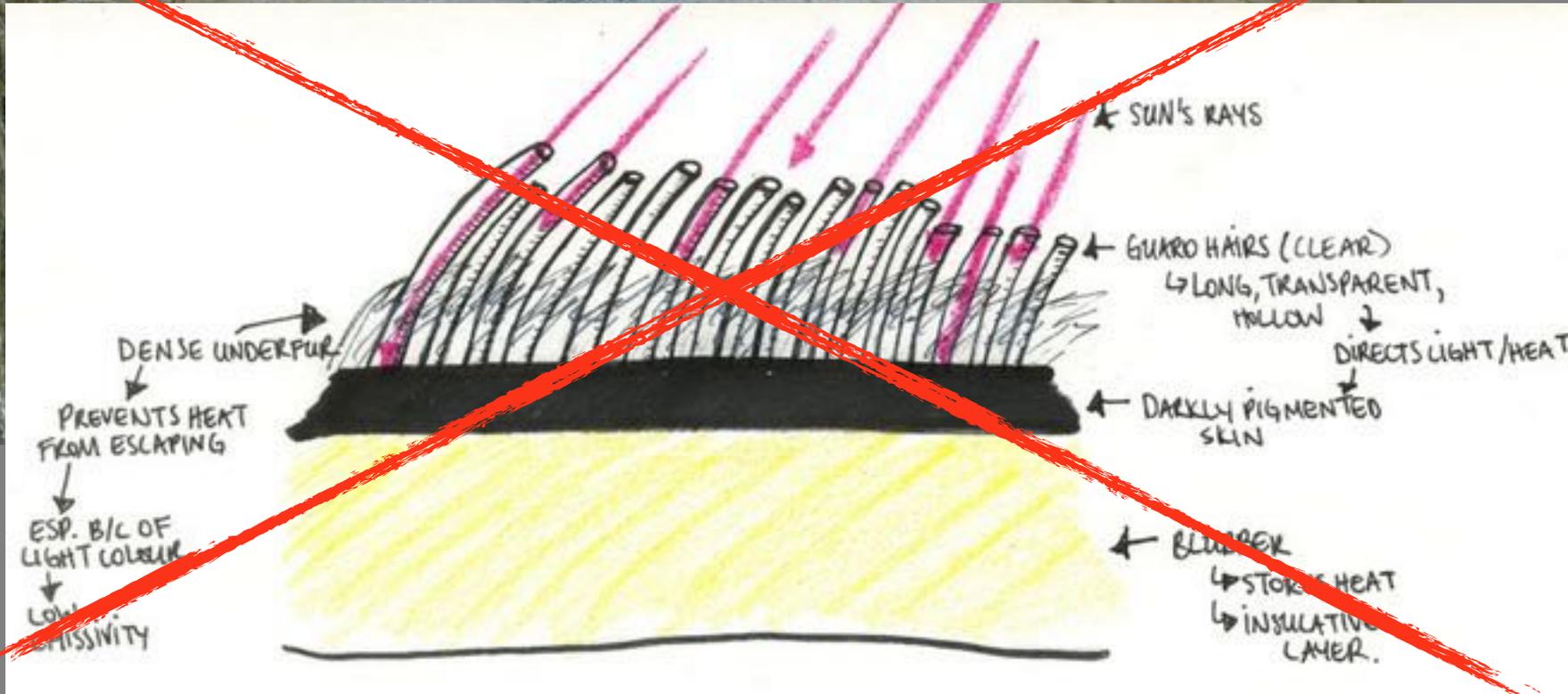


Termoregulação









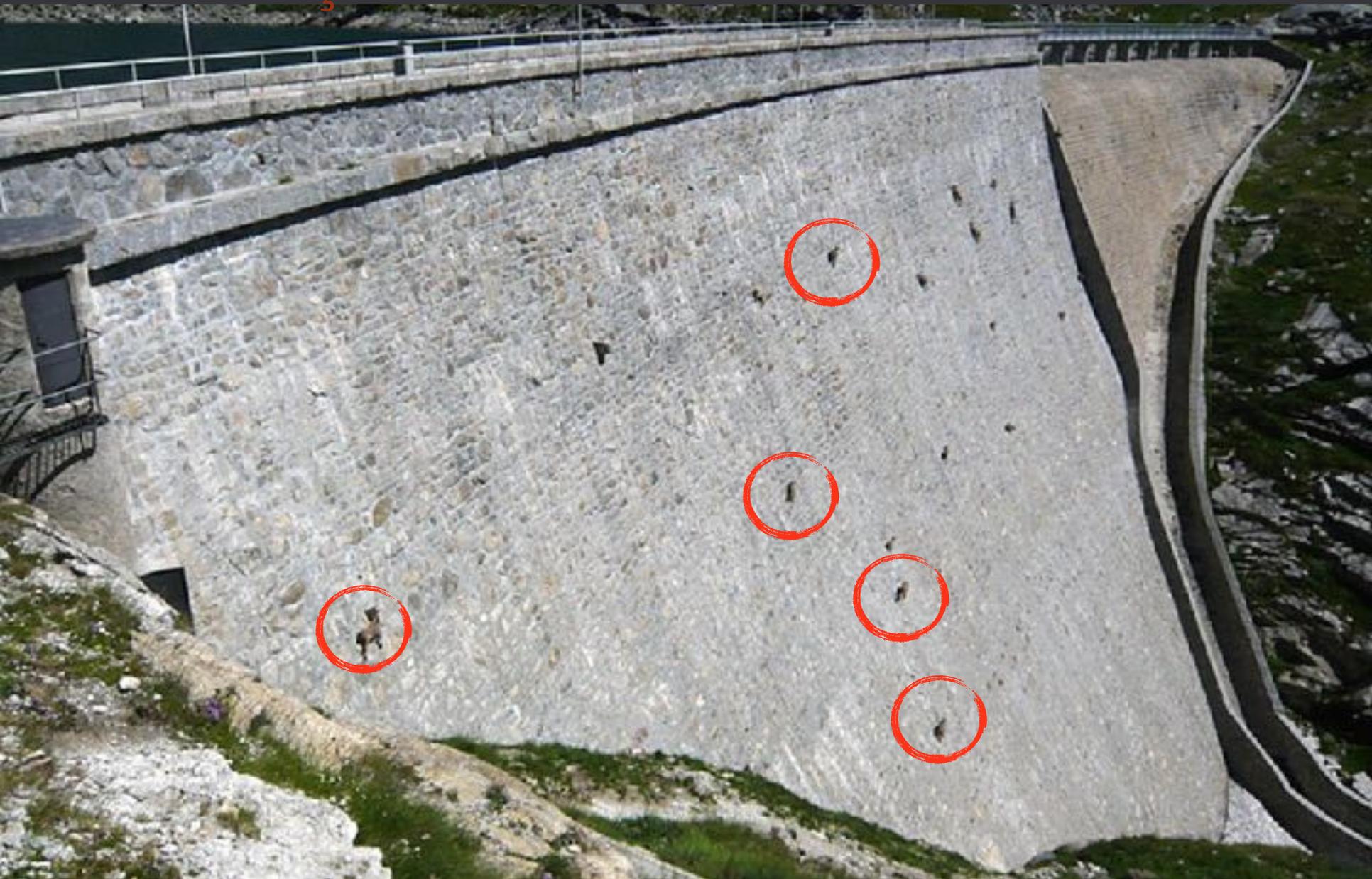
Locomoção



Locomoção

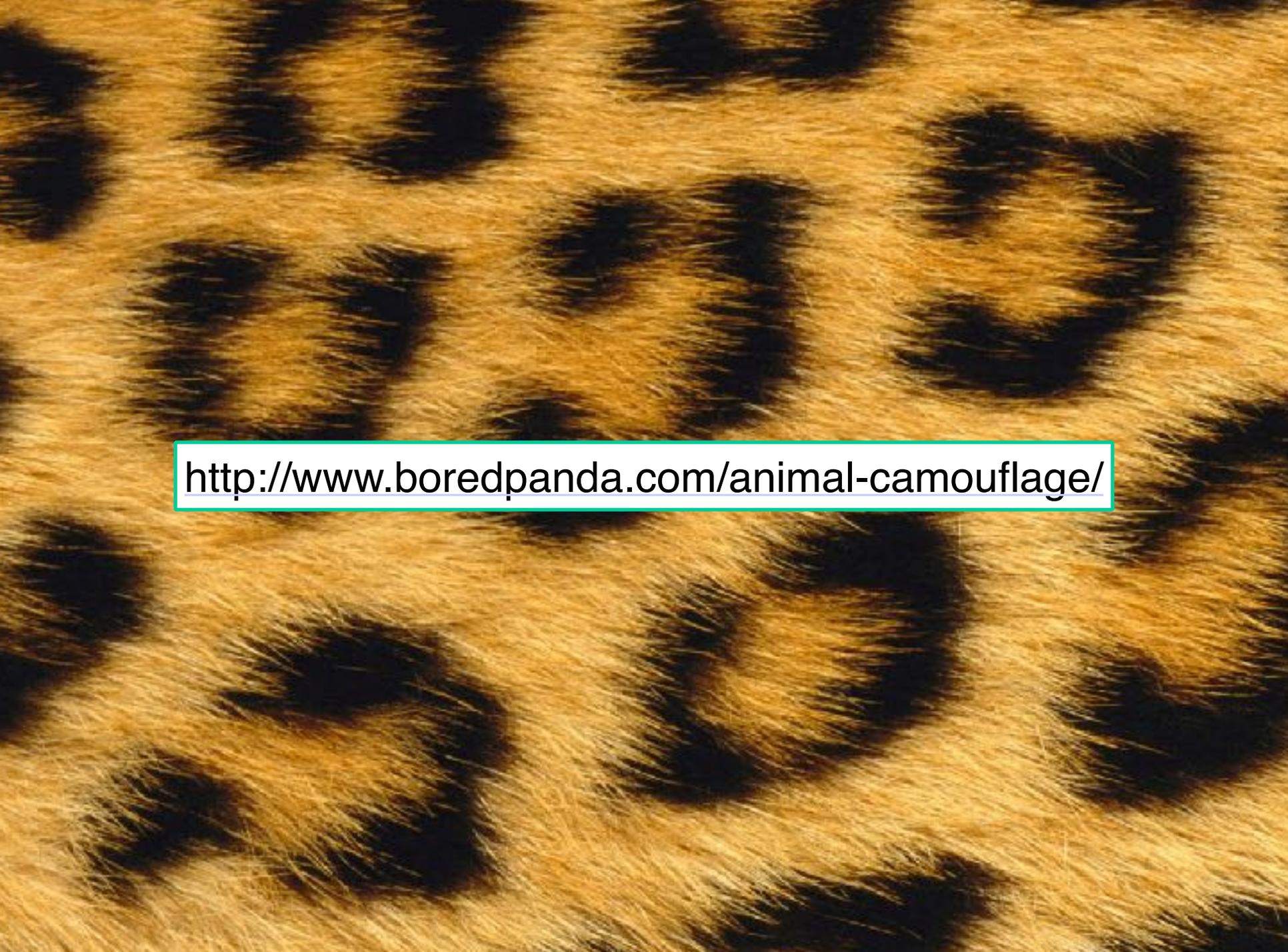


Locomoção



Locomoção



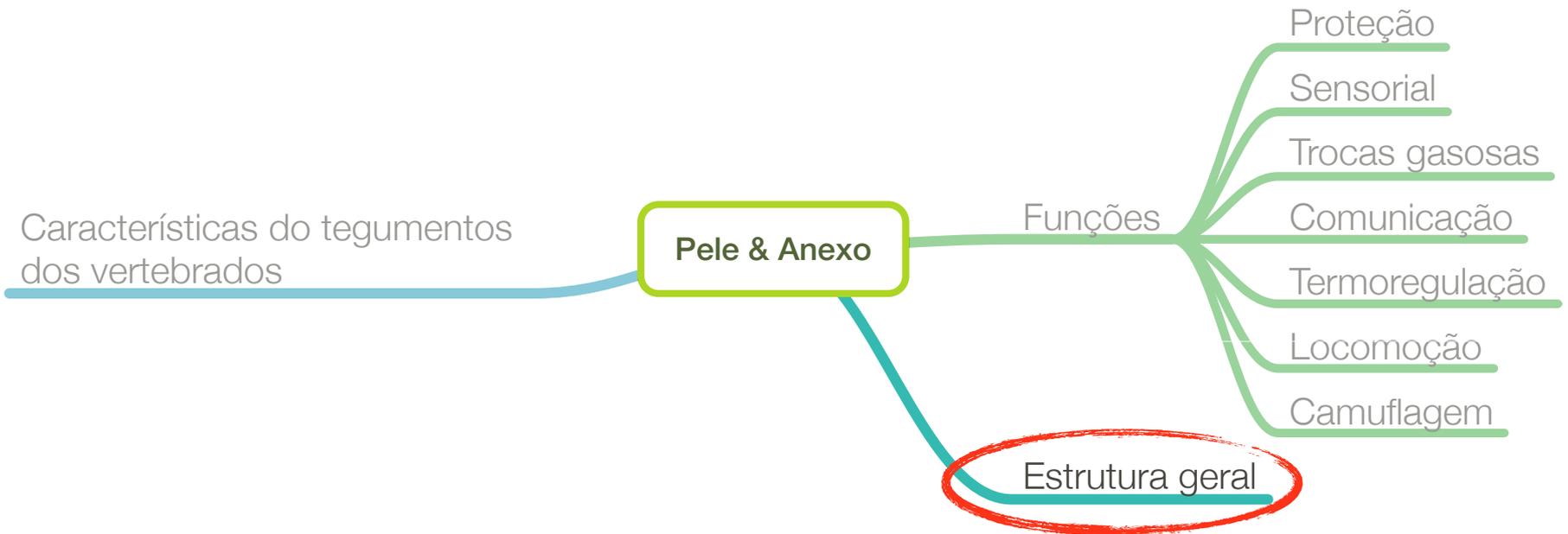
A close-up photograph of a tiger's fur, showing the characteristic orange and black stripes. The fur is dense and has a slightly wavy texture. A white rectangular box with a thin black border is centered horizontally across the middle of the image, containing a URL.

<http://www.boredpanda.com/animal-camouflage/>

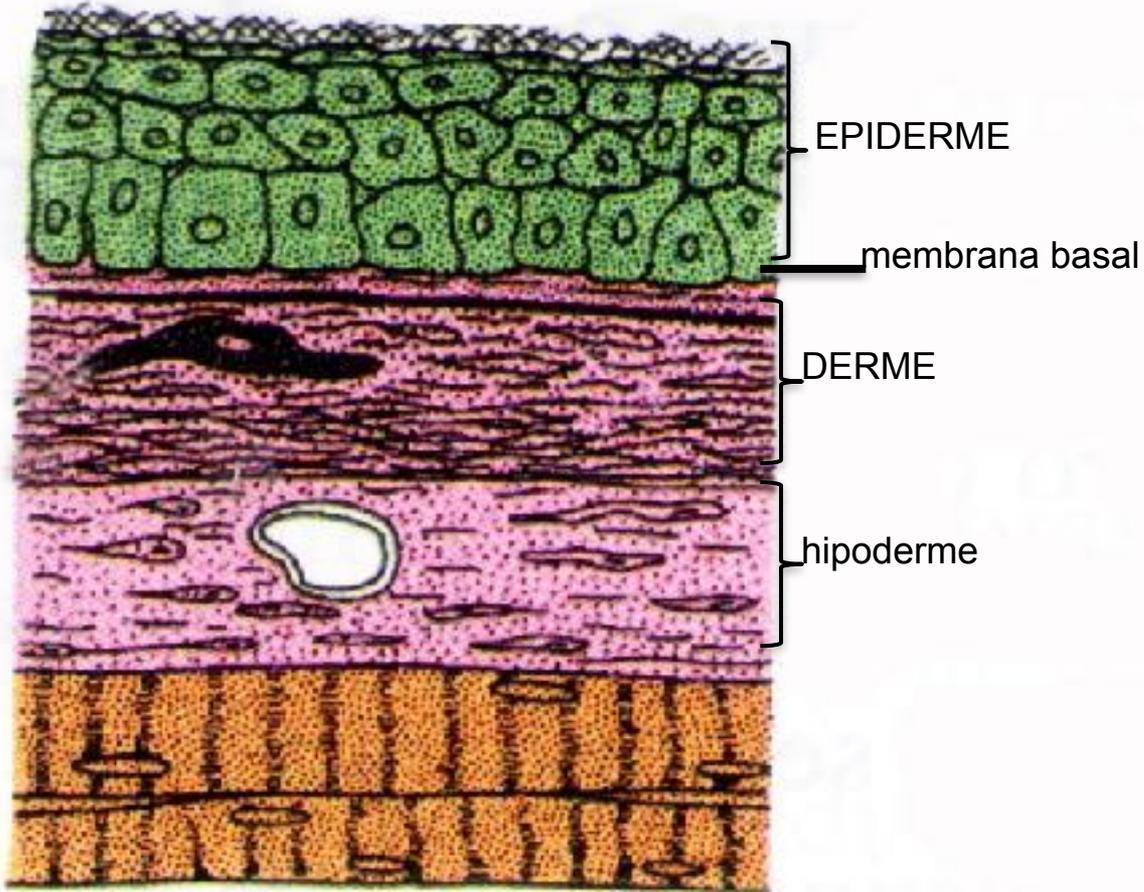
Aula de hoje



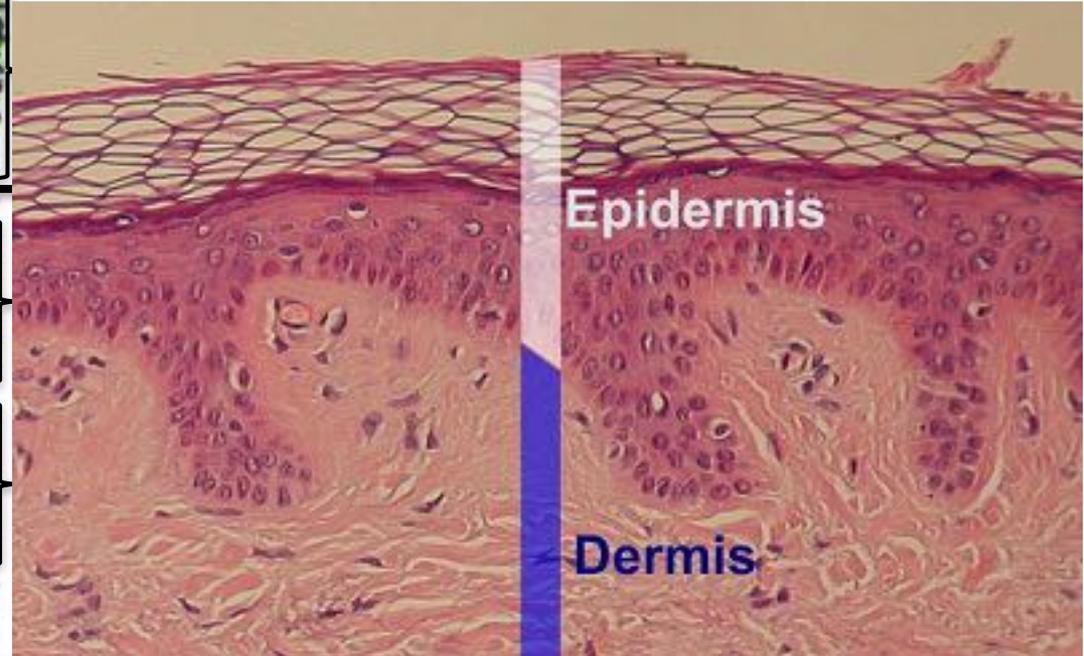
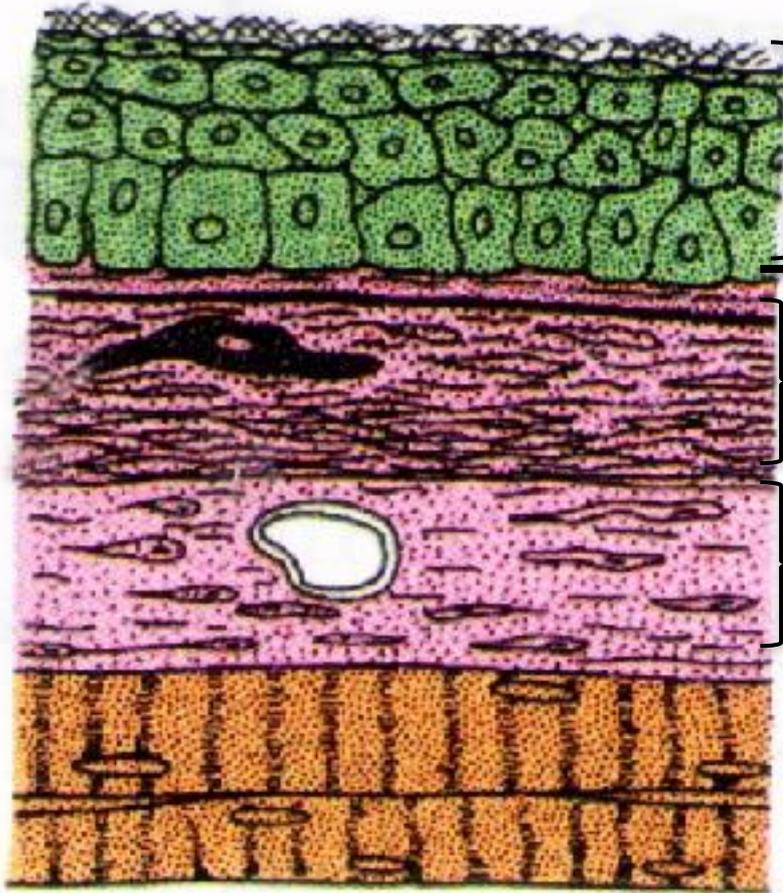
Aula de hoje



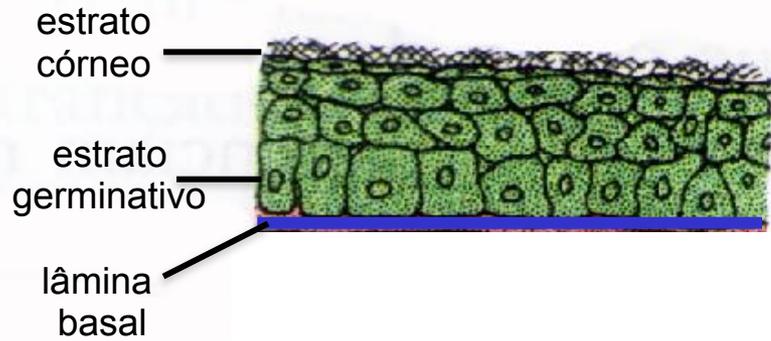
Estrutura geral



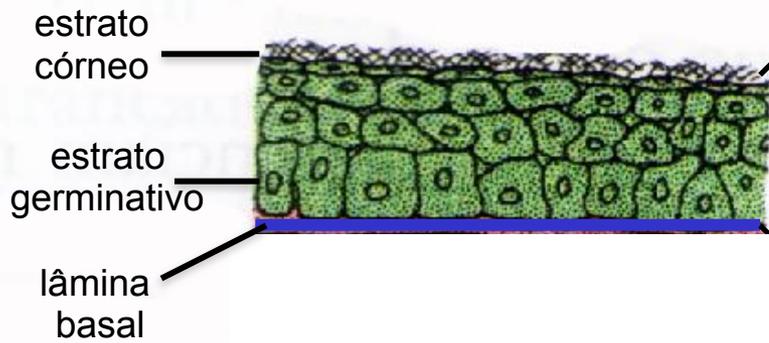
Estrutura geral



Epiderme



Epiderme



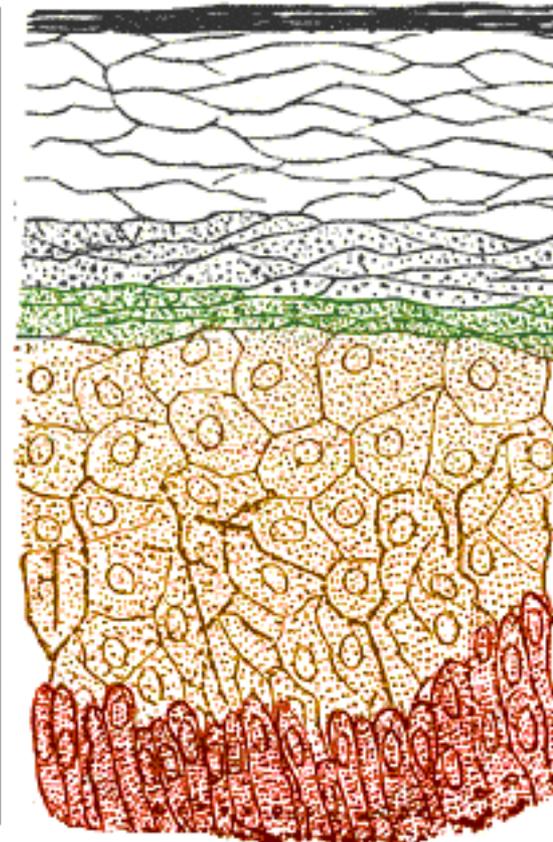
Stratum corneum

Stratum lucidum

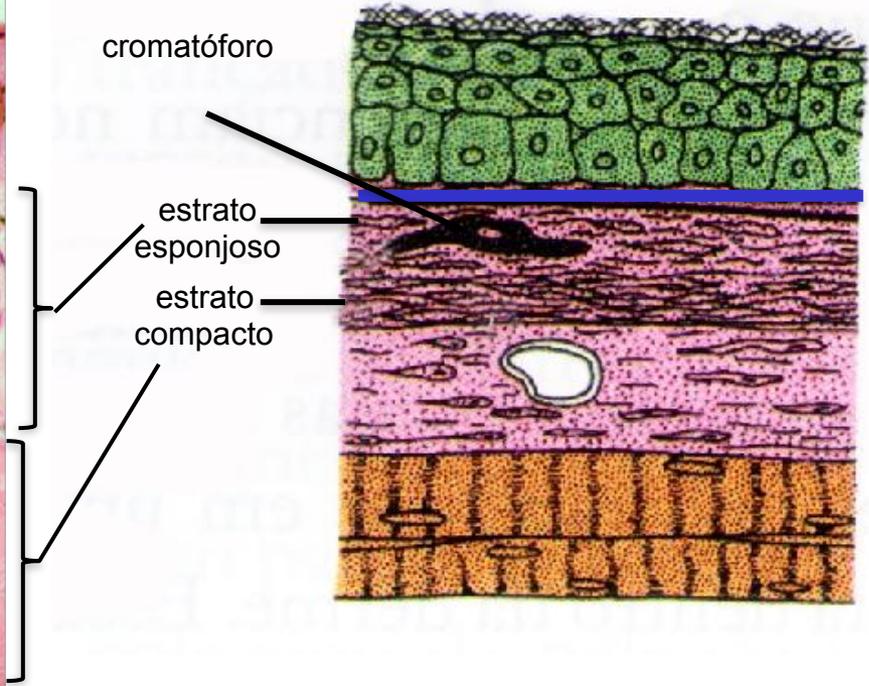
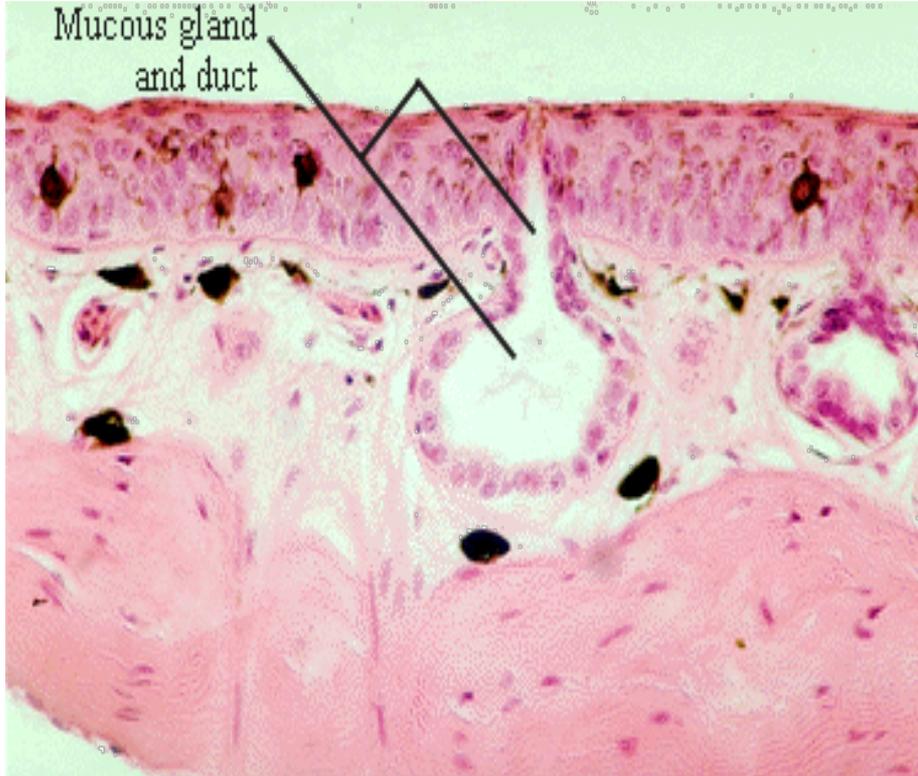
Stratum granulosum

Stratum spinosum

Stratum basale



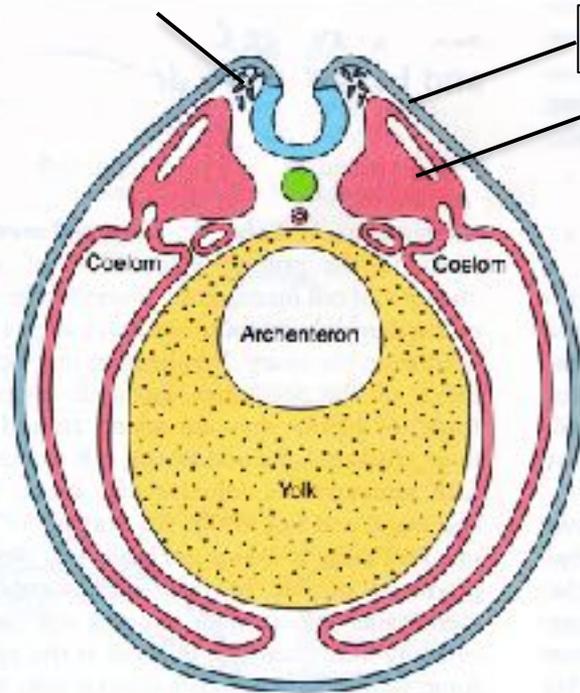
Derme



Aula de hoje



crista neural → CROMATÓFOROS



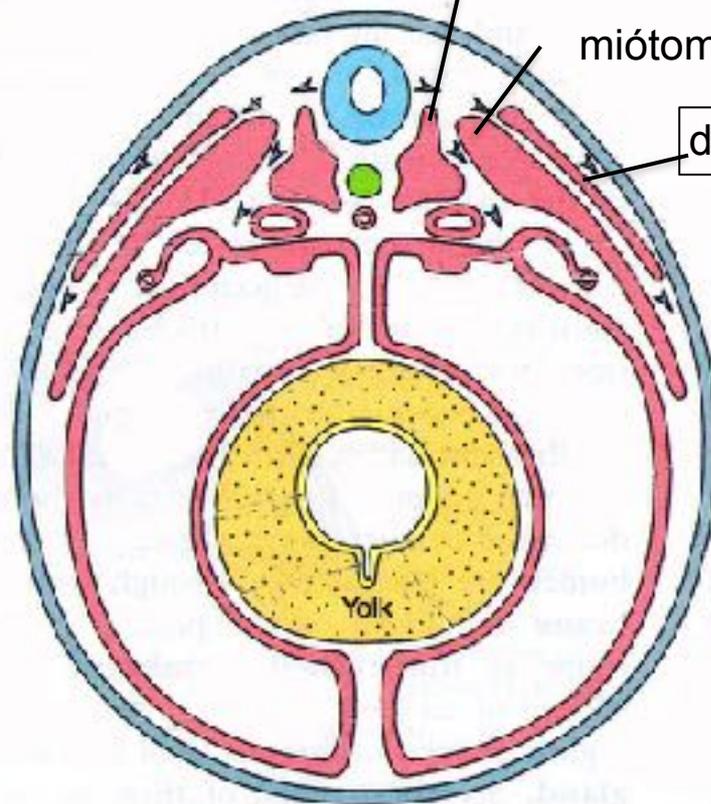
ectoderme

→ EPIDERME

mesoderme
(epímero)



esclerótomo



miótomo

dermátomo



DERME

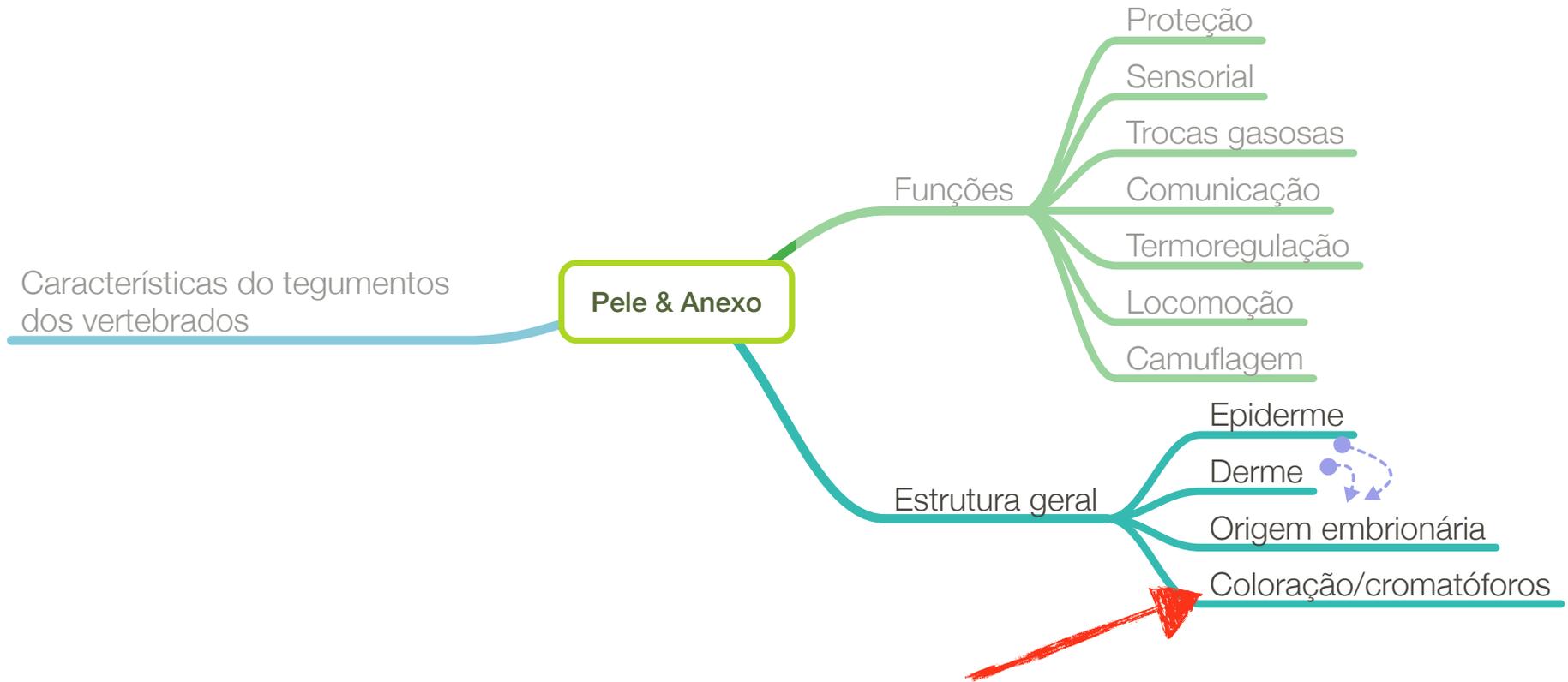
Origem embriológica:

Epiderme: ectoderme

Derme: mesoderme (dermátomo)

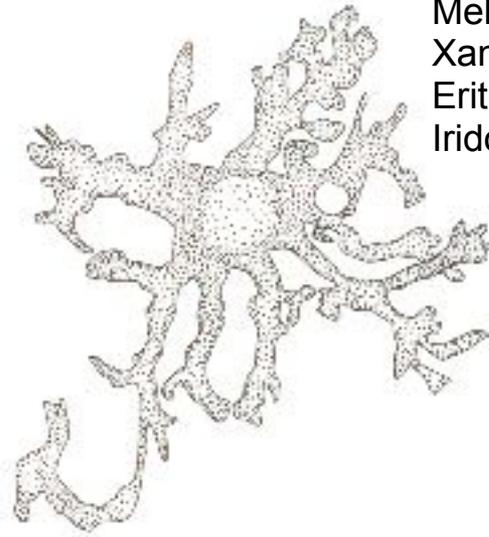
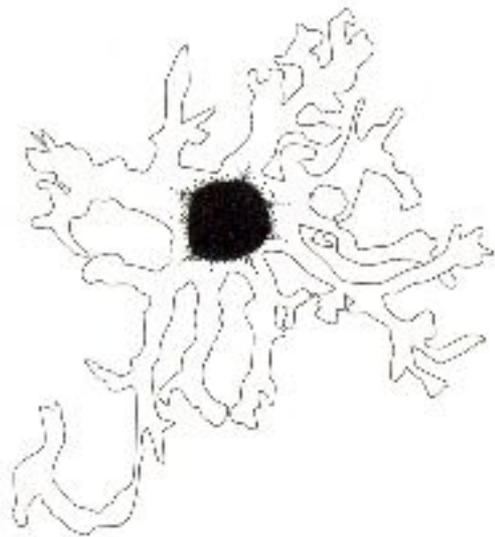
Cromatóforos – crista neural

Aula de hoje

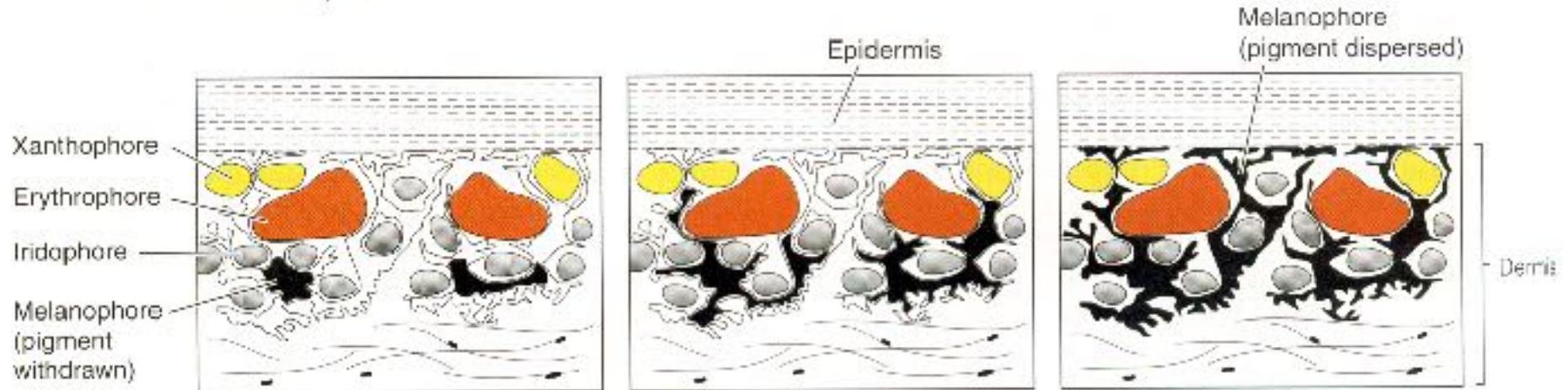


Cromatóforos

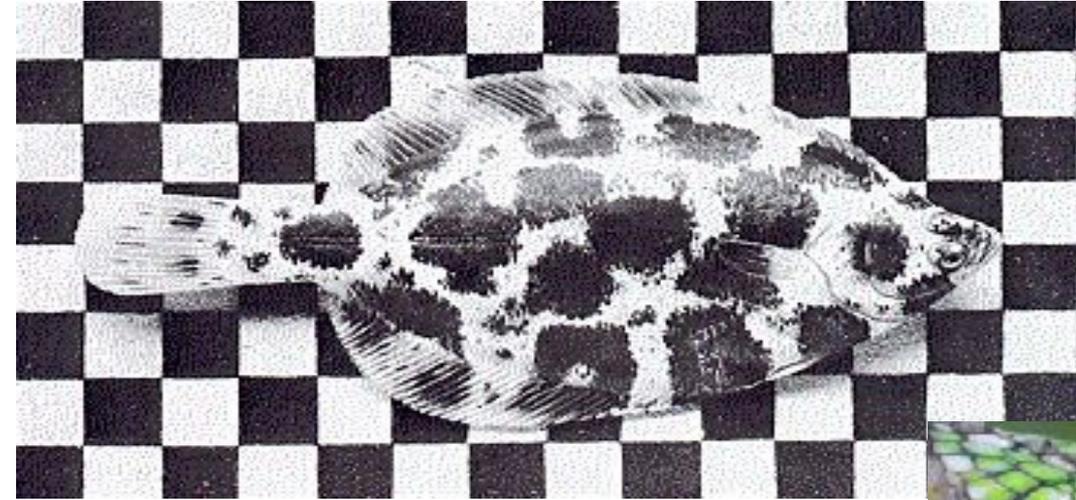
Melanóforos – preto, marrom
Xantóforos – amarelo
Eritróforos – vermelho
Iridóforos – cristais de guanina-
reflexão da luz (prateado)



A. Surface view of a melanophore



Na derme (peixes, anfíbios, répteis)



Na epiderme (aves, mamíferos)



Na epiderme (aves, mamíferos)

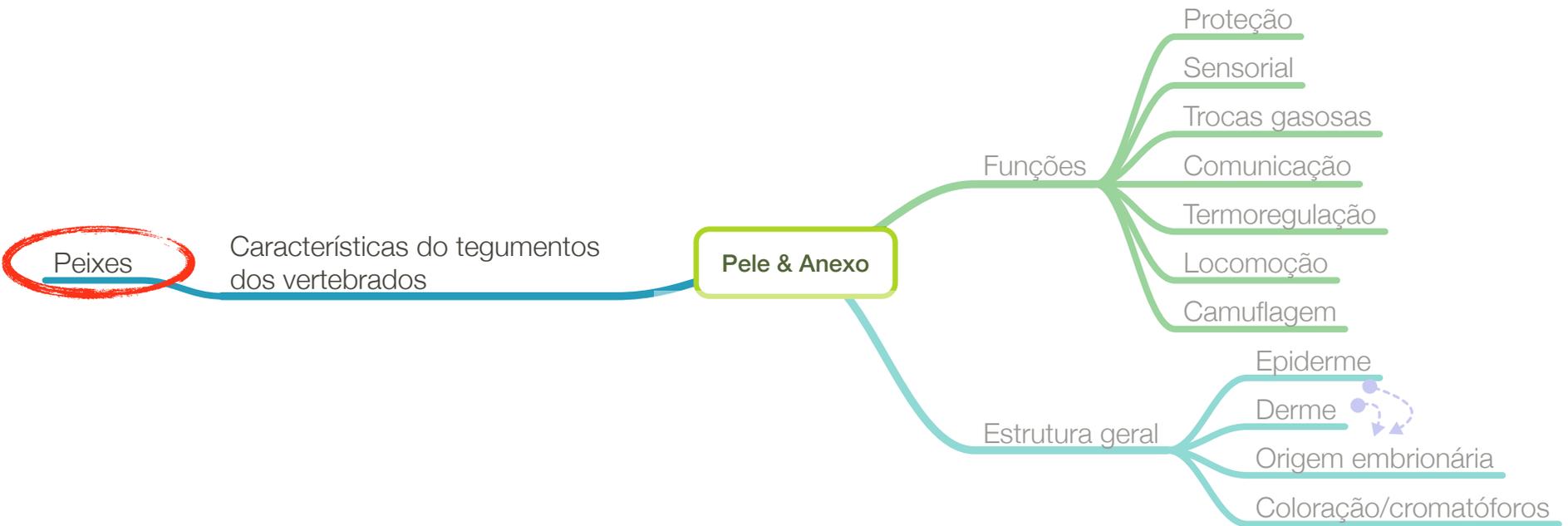


Na epiderme (aves, mamíferos)

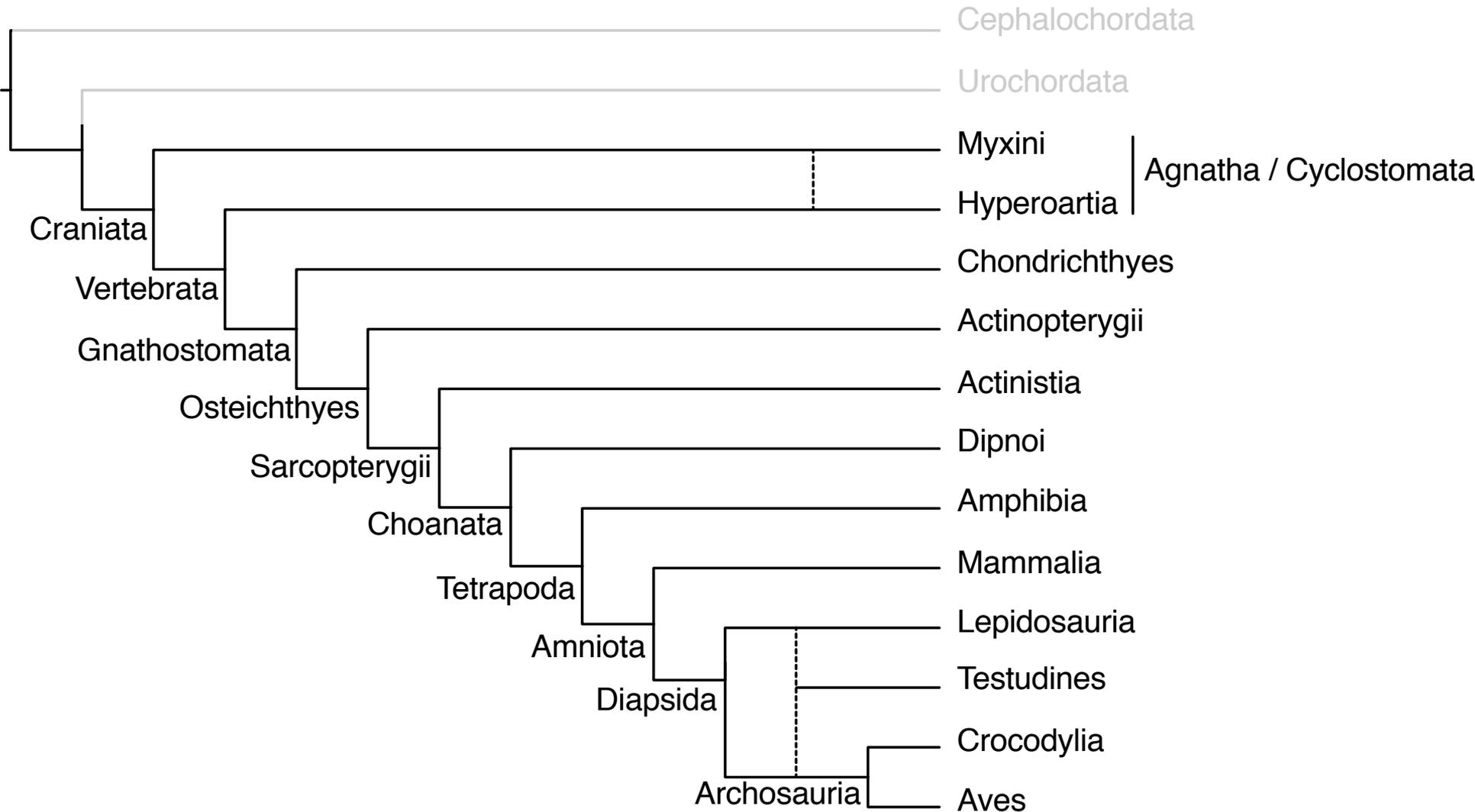
Na epiderme (aves, mamíferos)



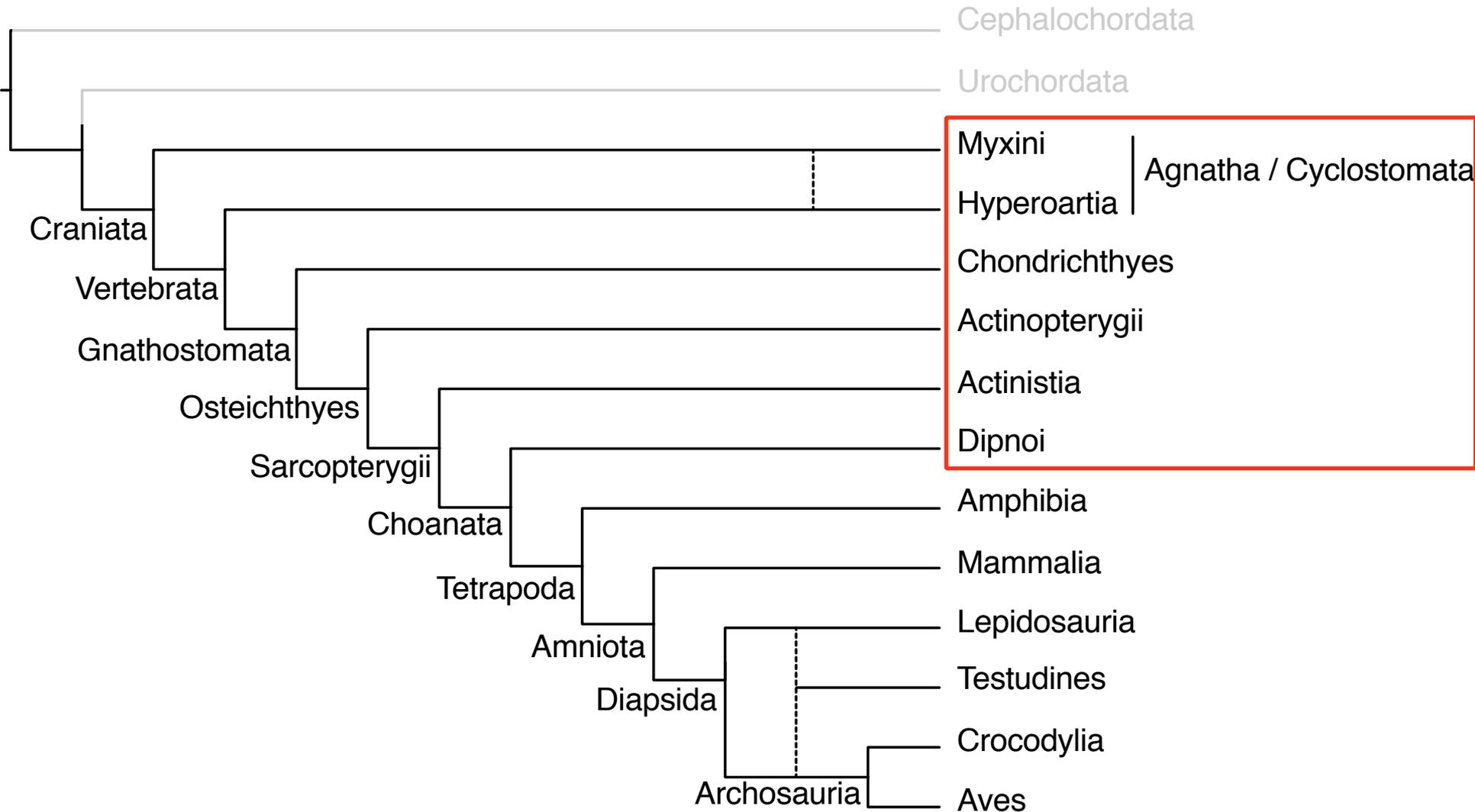
Aula de hoje



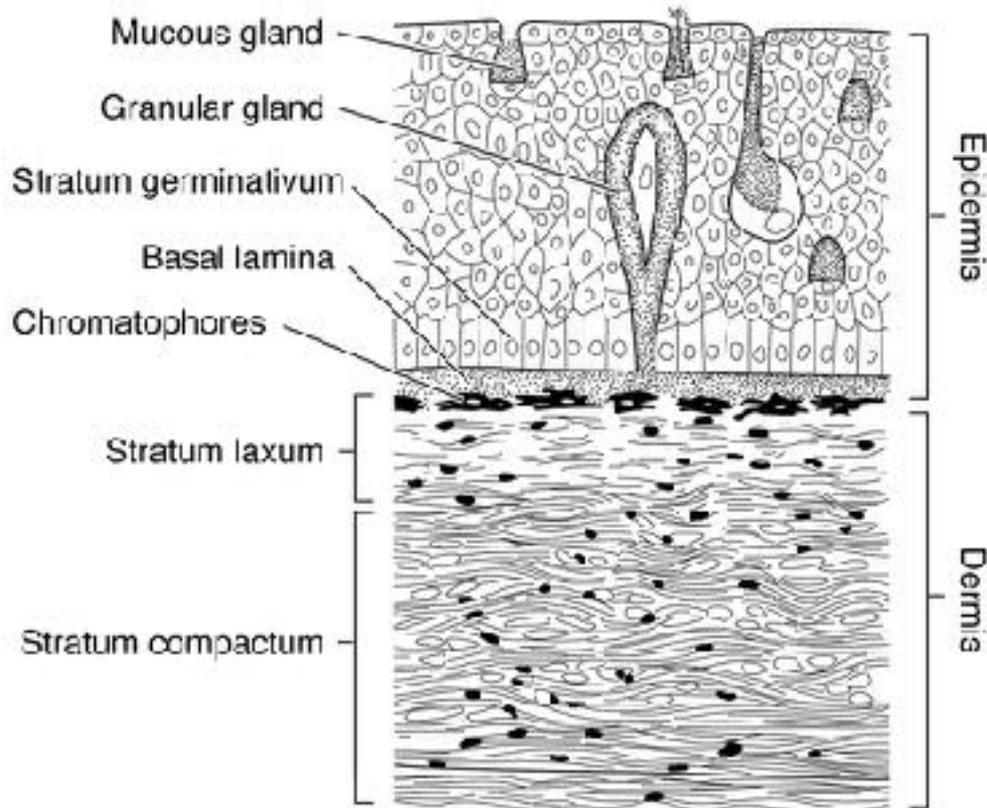
Filogenia



Filogenia



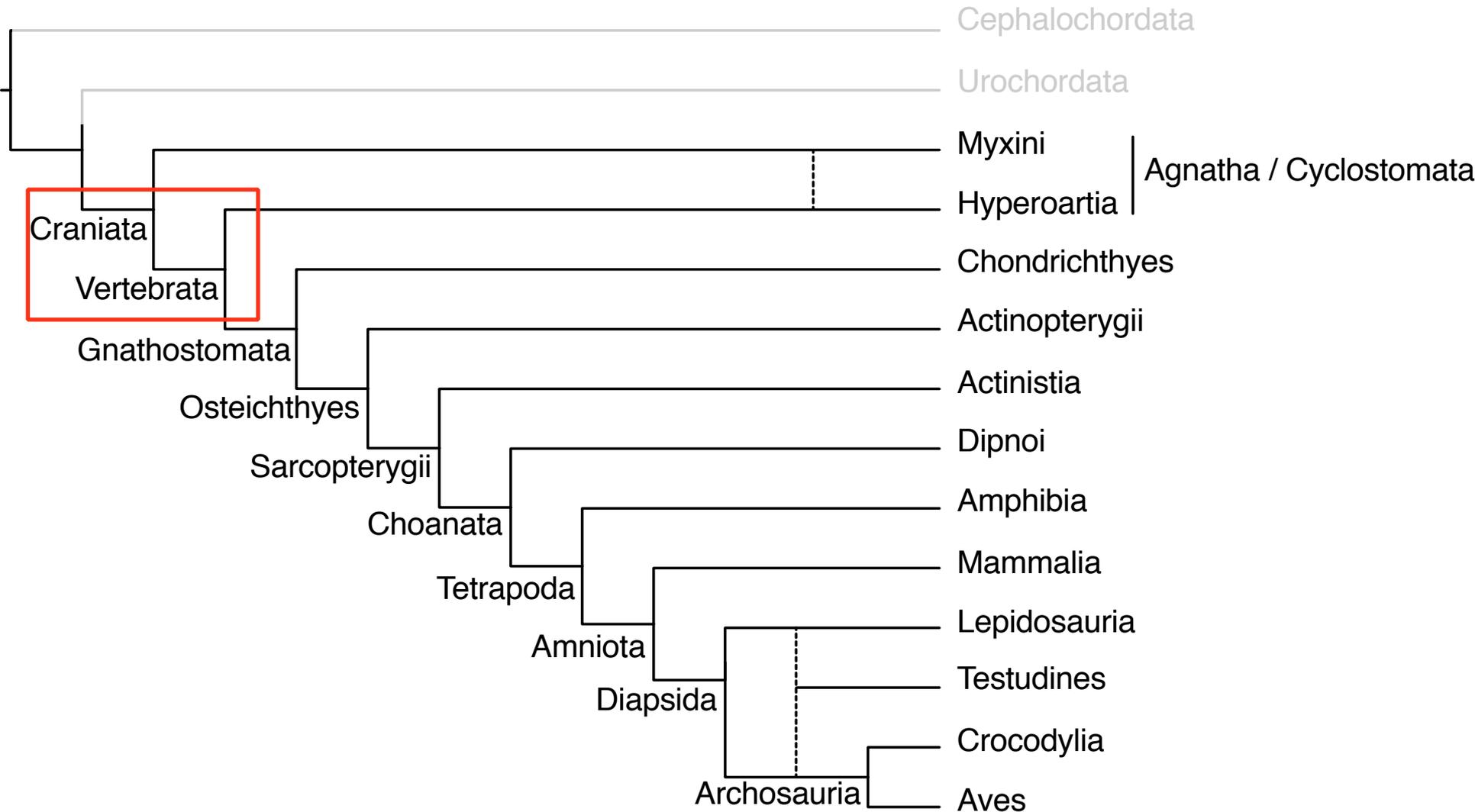
Tegumento dos peixes



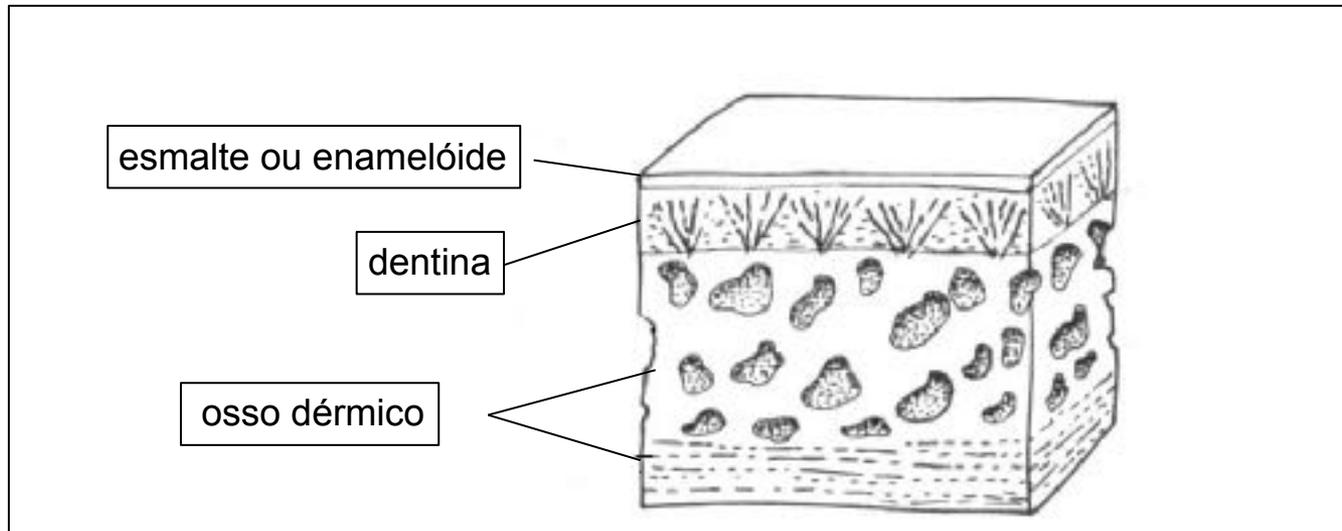
Delgada; queratina depositada em poucas circunstâncias; glândulas unicelulares mucosas e granulosas. Glândulas pluricelulares pouco comuns (gl. veneno; fotóforos)

Fibras de colágeno arranjadas de modo regular (45° de inclinação) – manutenção formato corpo durante natação e transmissão de força muscular

Filogenia



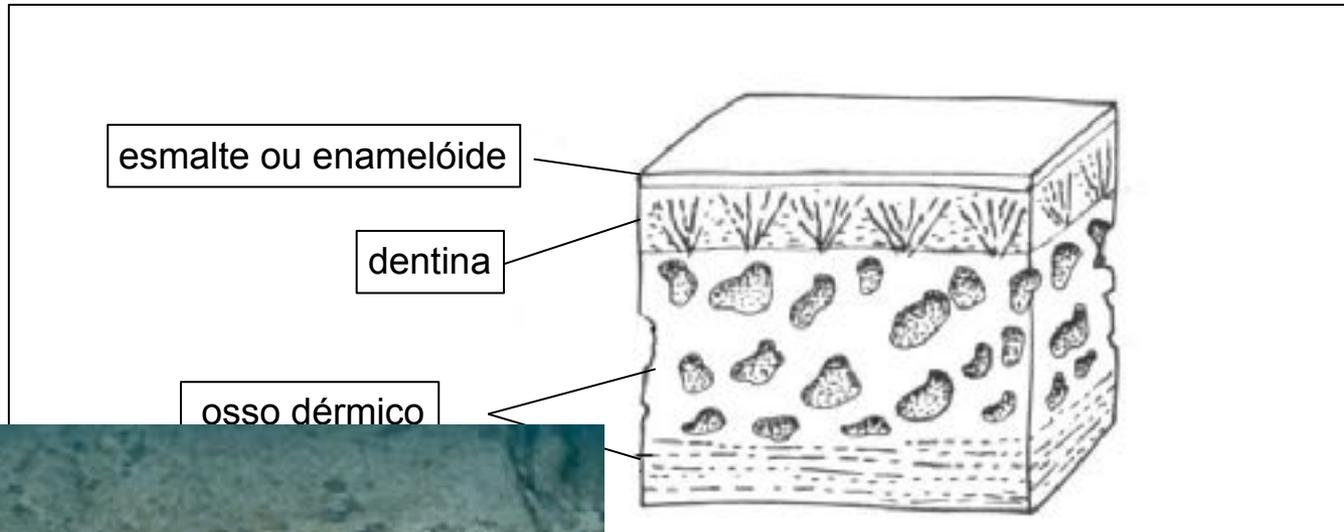
Esqueleto dérmico - escamas



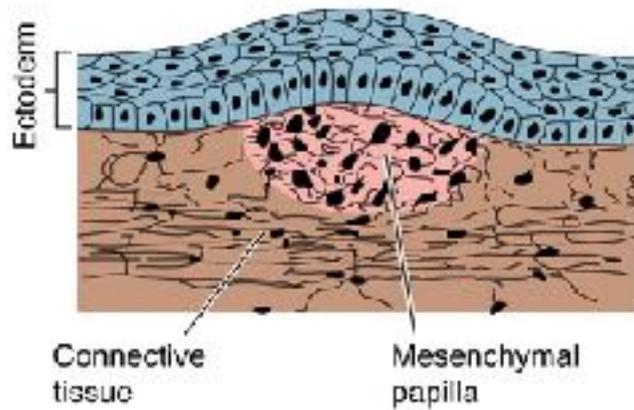
Esmalte: origem monotípica (epiderme)

Enamelóide: origem múltipla (epiderme, crista neural)

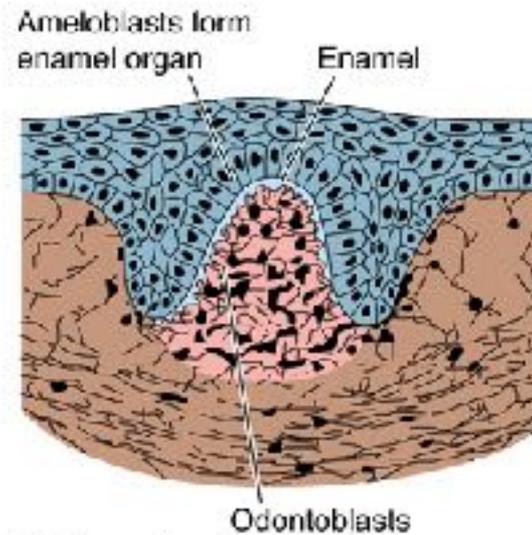
Esqueleto dérmico - escamas



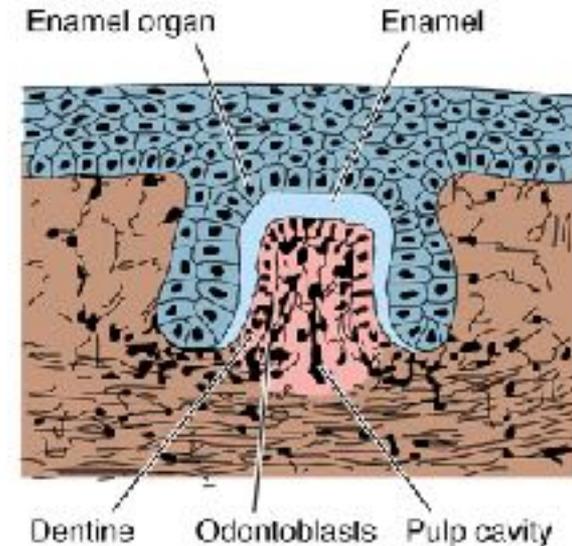
Interação entre epiderme e derme na formação de esmalte e dentina



A. Development of mesenchymal papilla

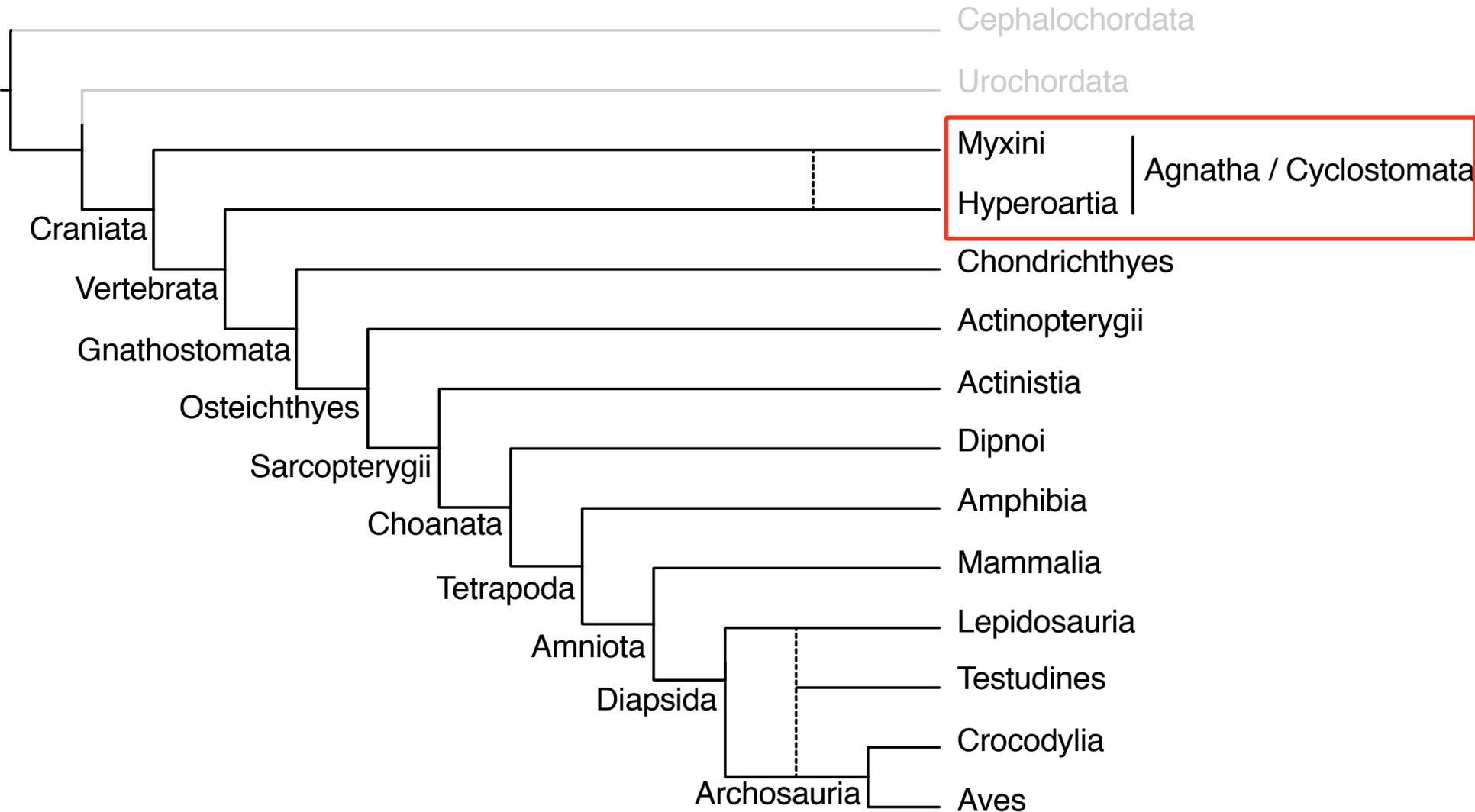


B. Enamel organ formation



C. Dentine formation

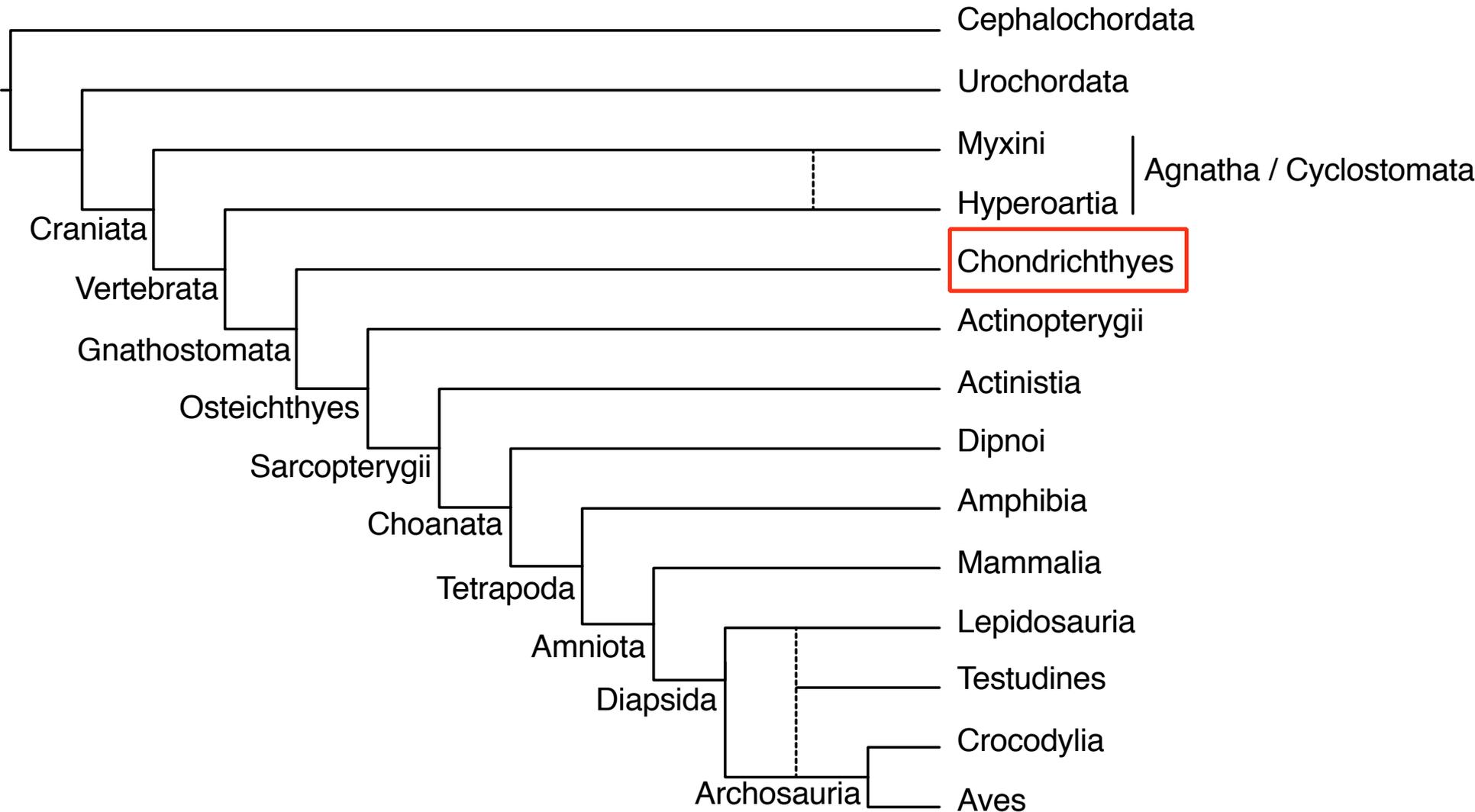
Filogenia



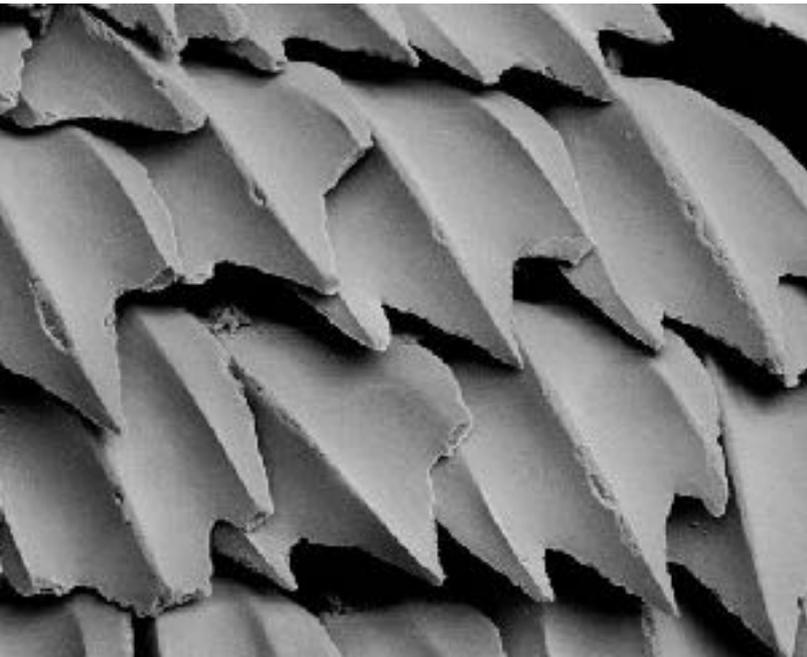
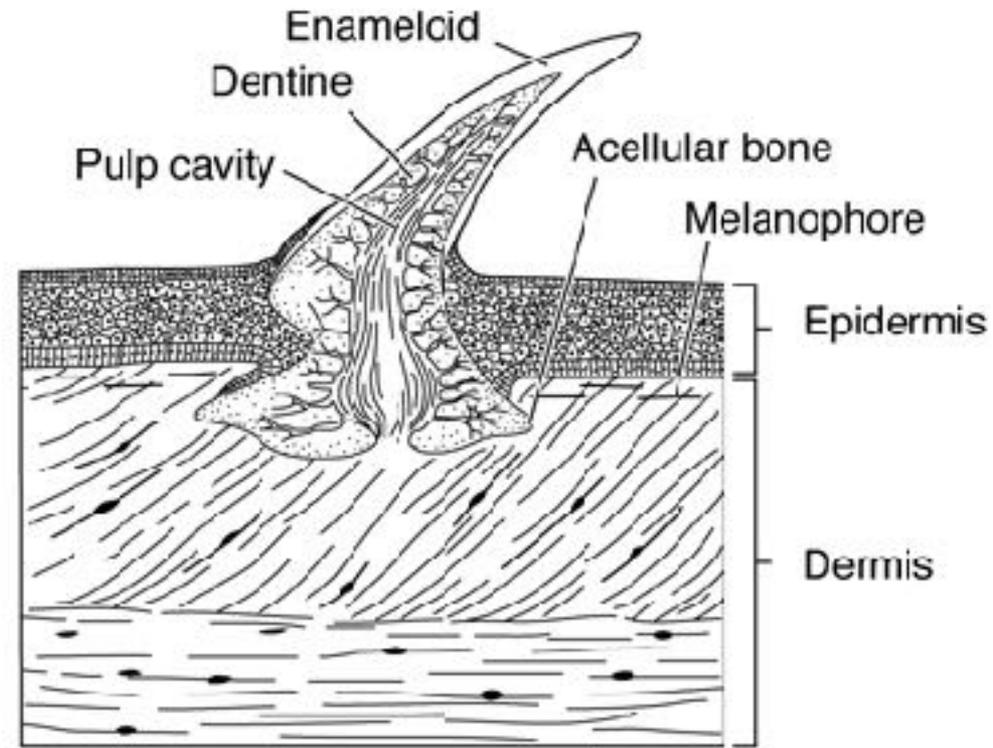
Lampreias & feiticeiras



Filogenia

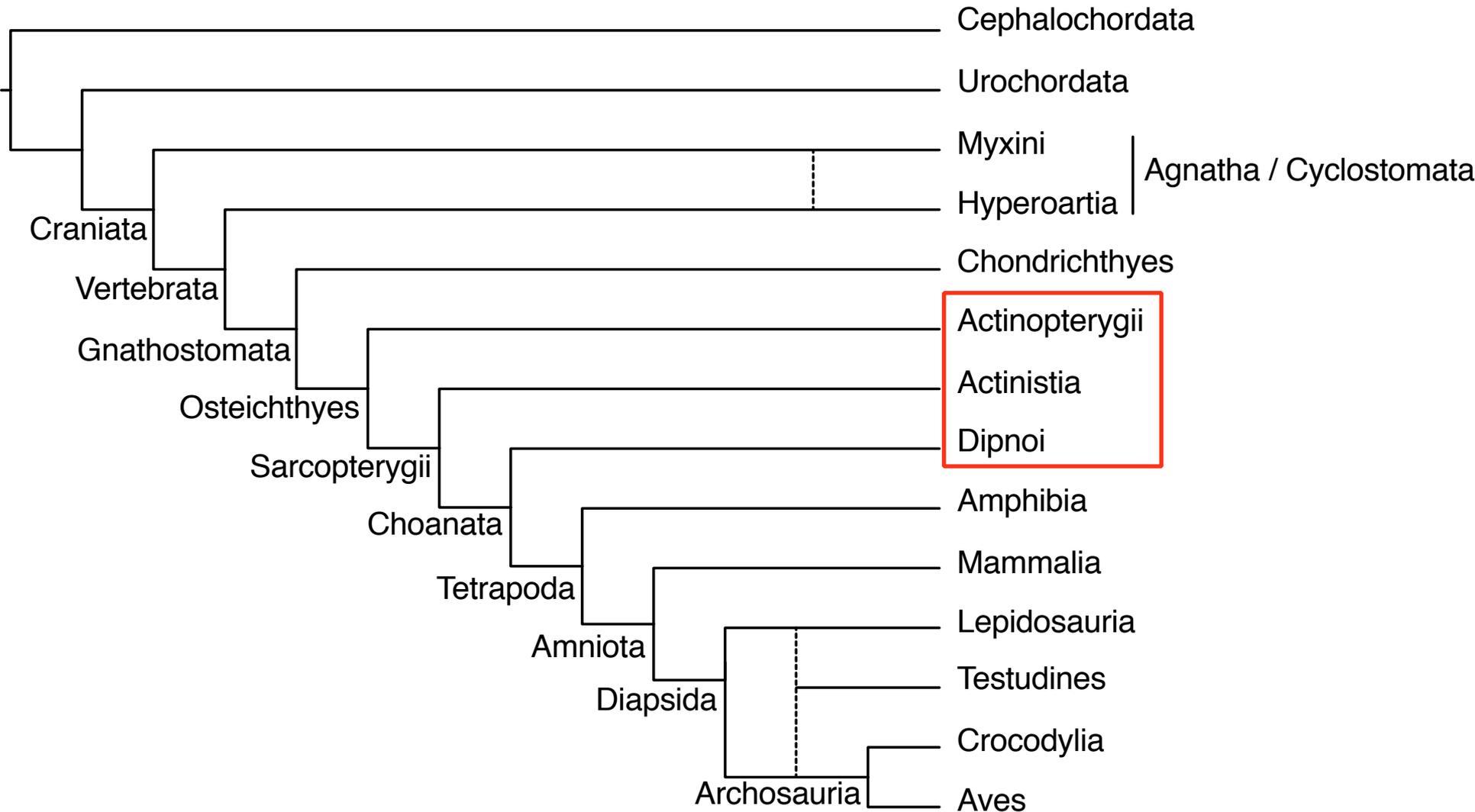


Escama placóide (Chondrichthyes)

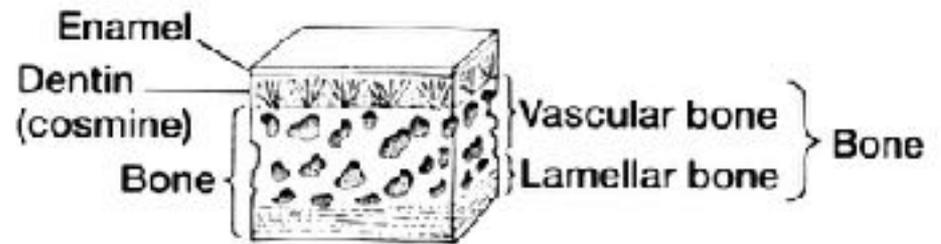


B. Shark skin

Filogenia



Escama cosmóide

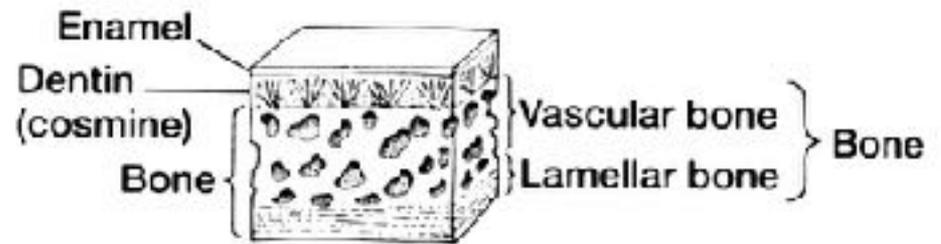


(a) Cosmoid scale



Image: C. Bento

Escama cosmóide

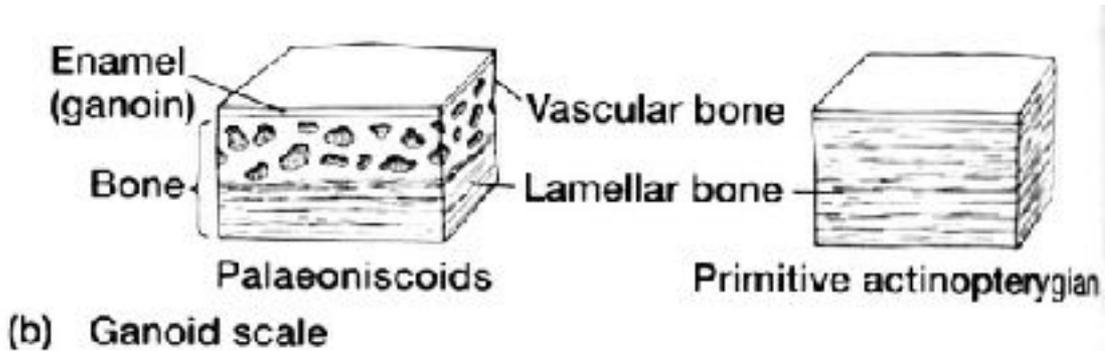


(a) Cosmoid scale



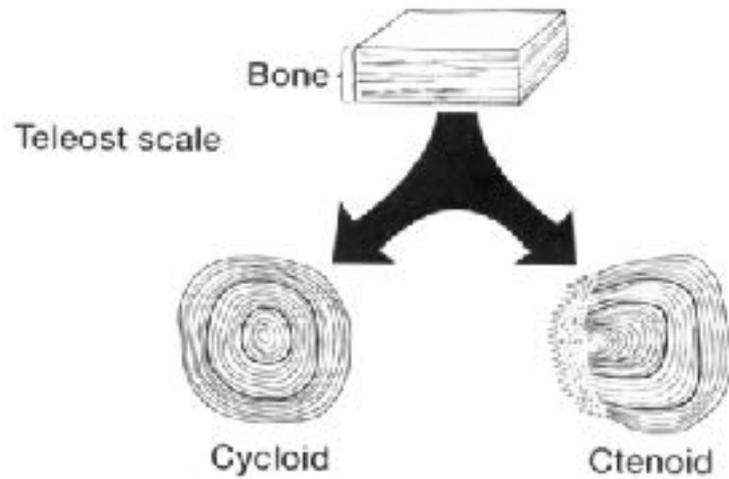
Escama ganóide

Actinopterygii

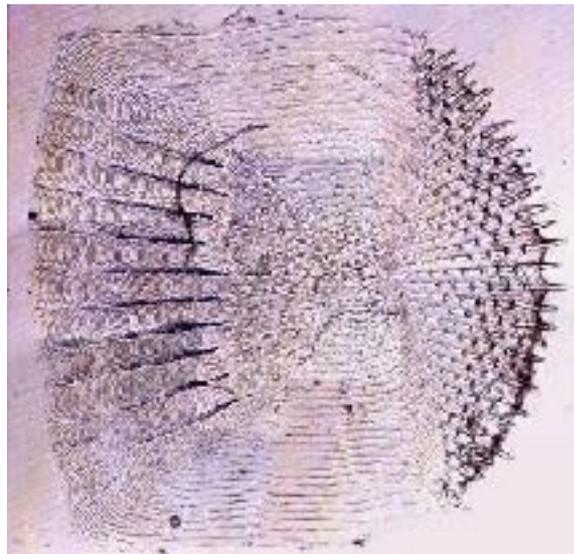


Ganoína: esmalte derivado da ectoderme com padrão de deposição lamelar

Escama elasmóide

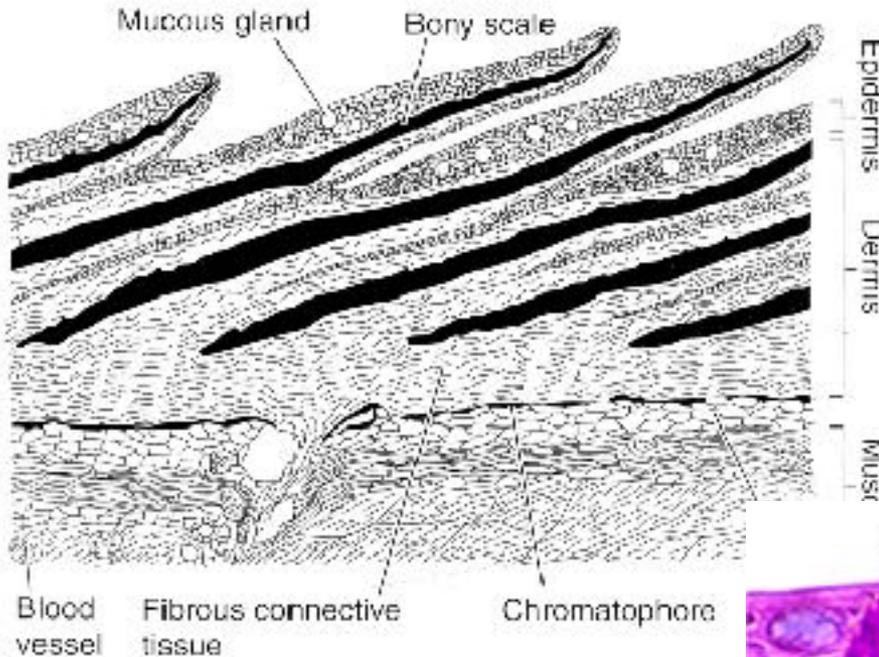


Escama ciclóide



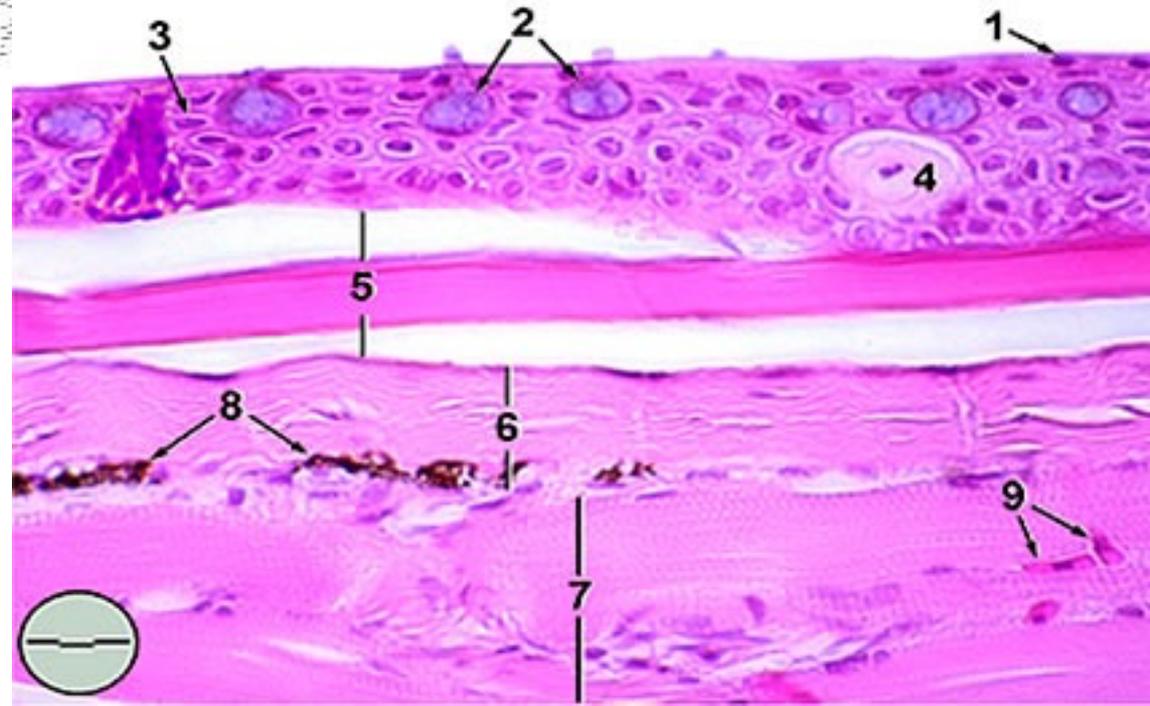
Escama ctenóide

Escama elasmóide

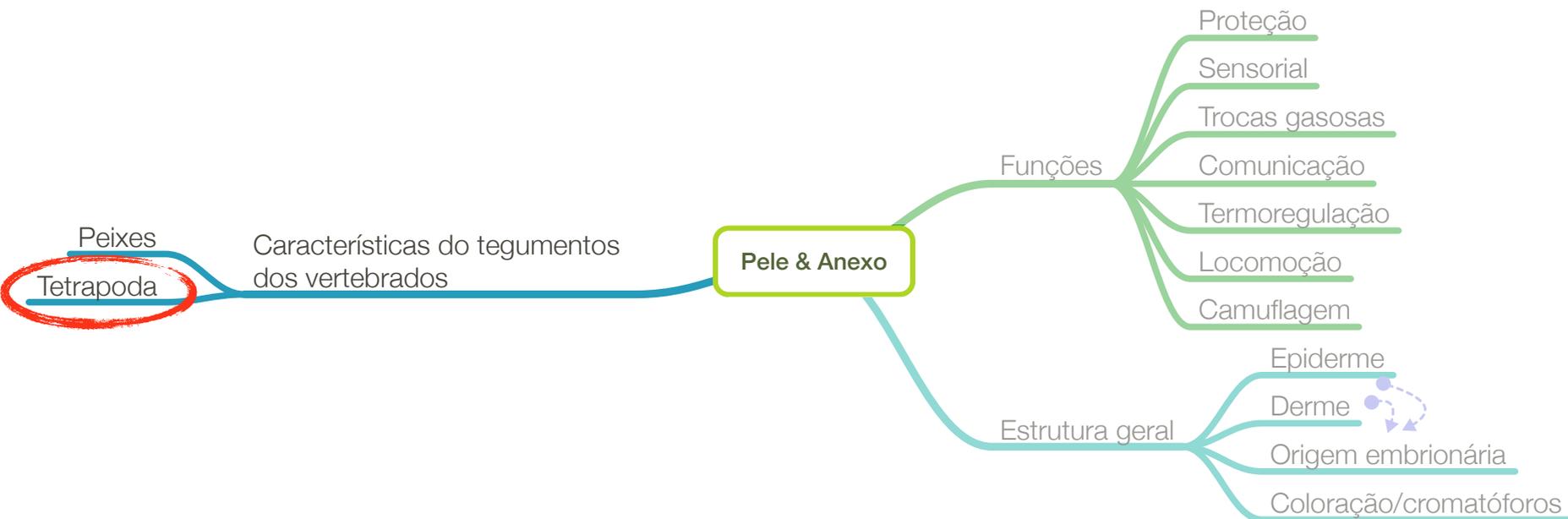


FHM Caudal peduncle, longitudinal section (Bar = 16.9 μm).

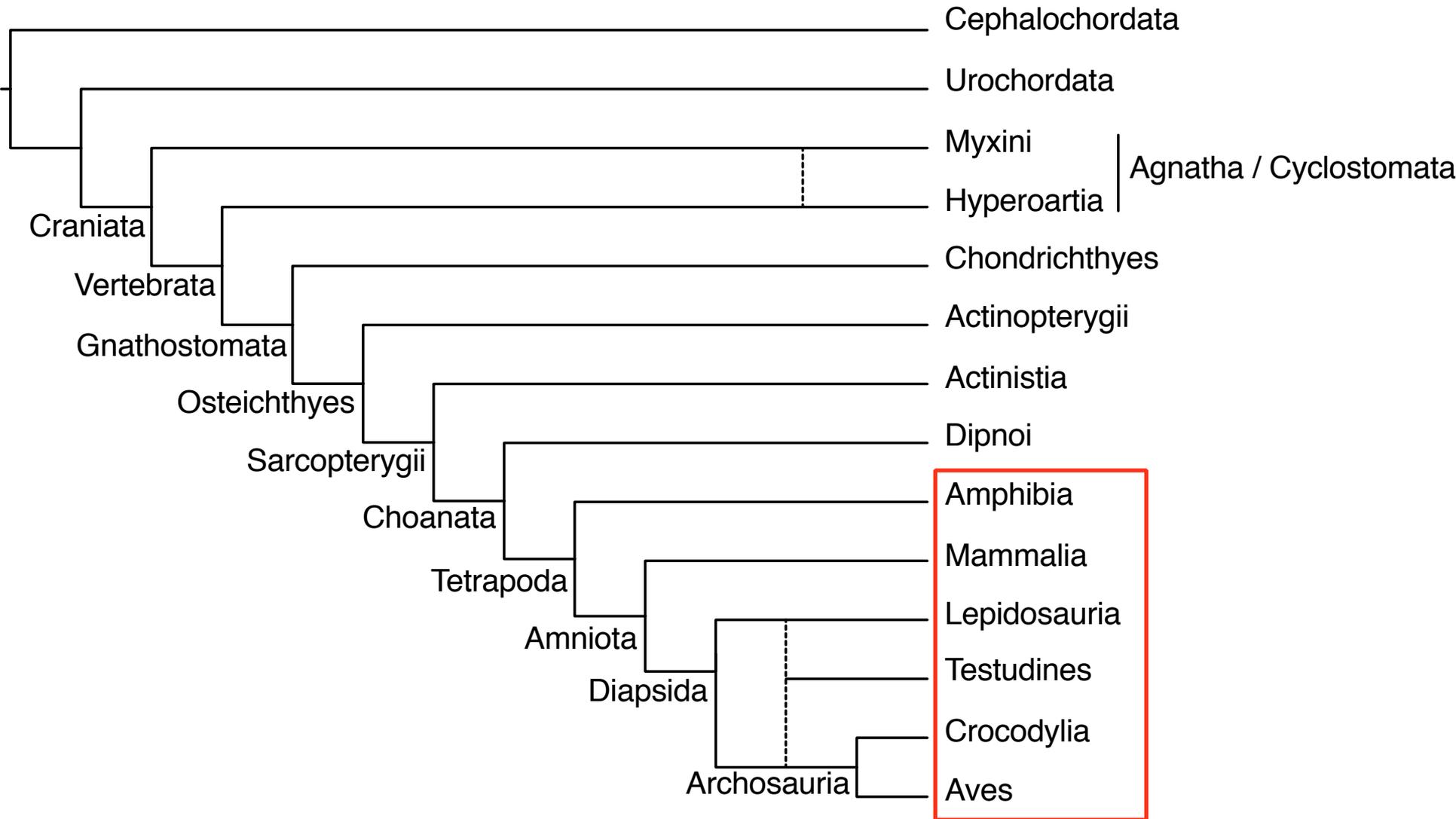
1. squamous epithelial cells
2. mucous cells (expelling mucus)
3. cuboidal epithelial cells
4. alarm cell; 5. scale pocket w/ scale
6. dermis (stratum compactum)
7. skeletal muscle
8. chromatophores (melanocytes)



Aula de hoje

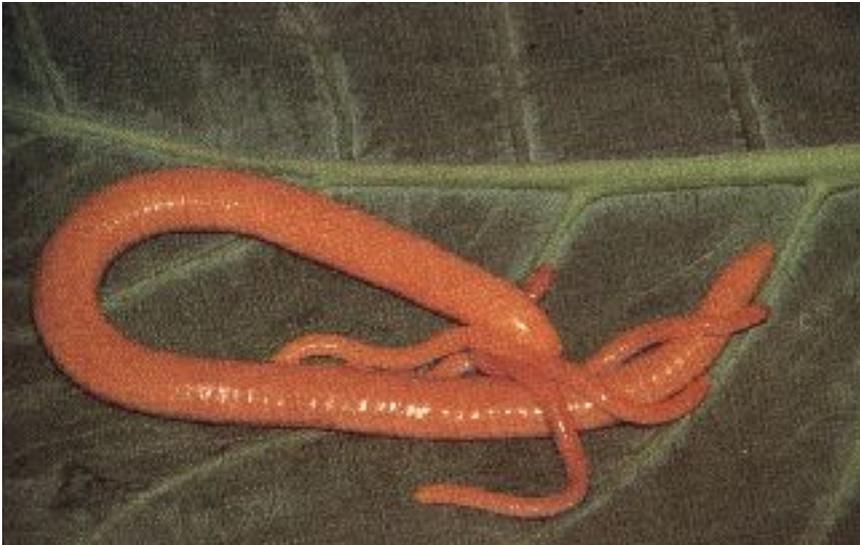


Filogenia

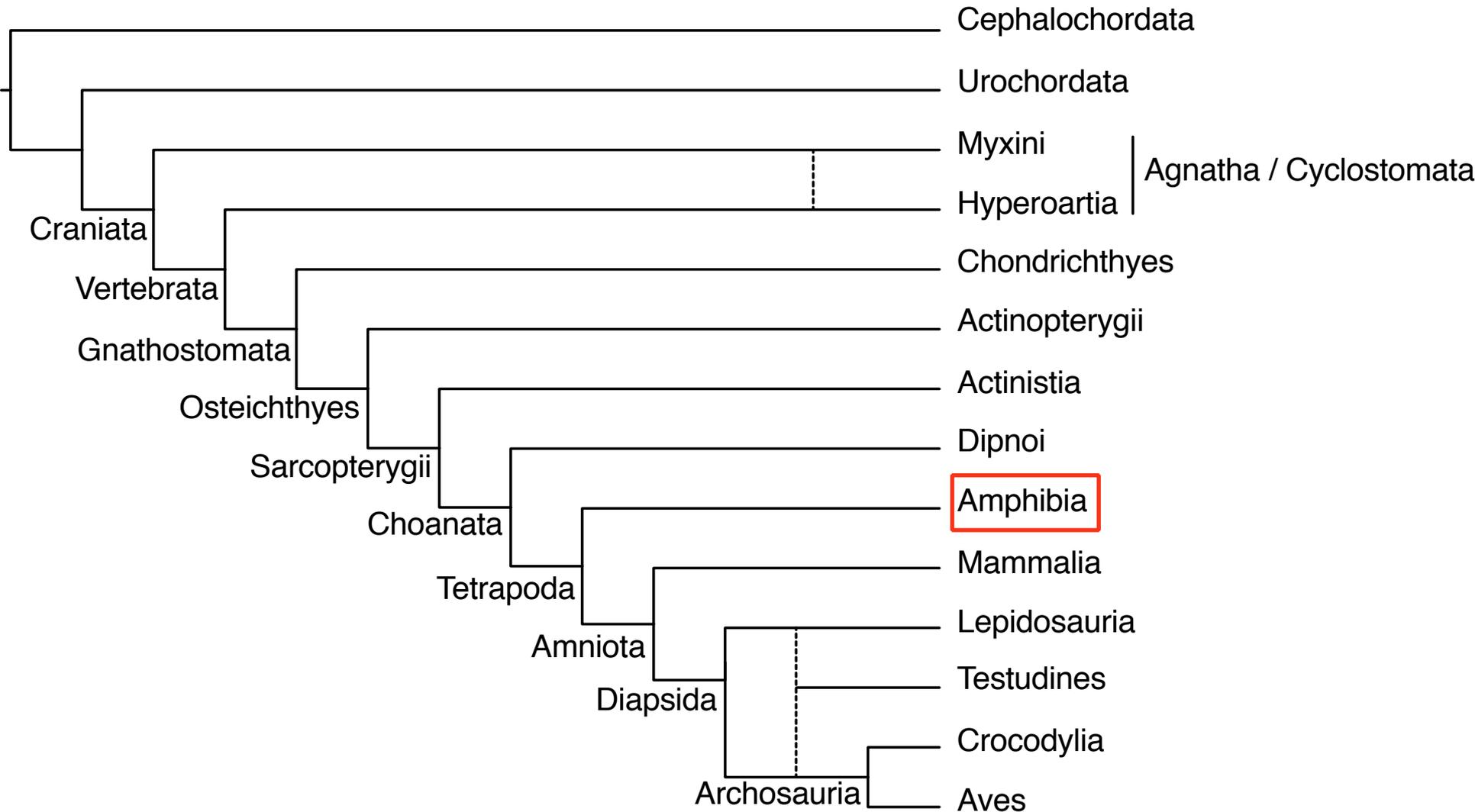


Tetrapoda

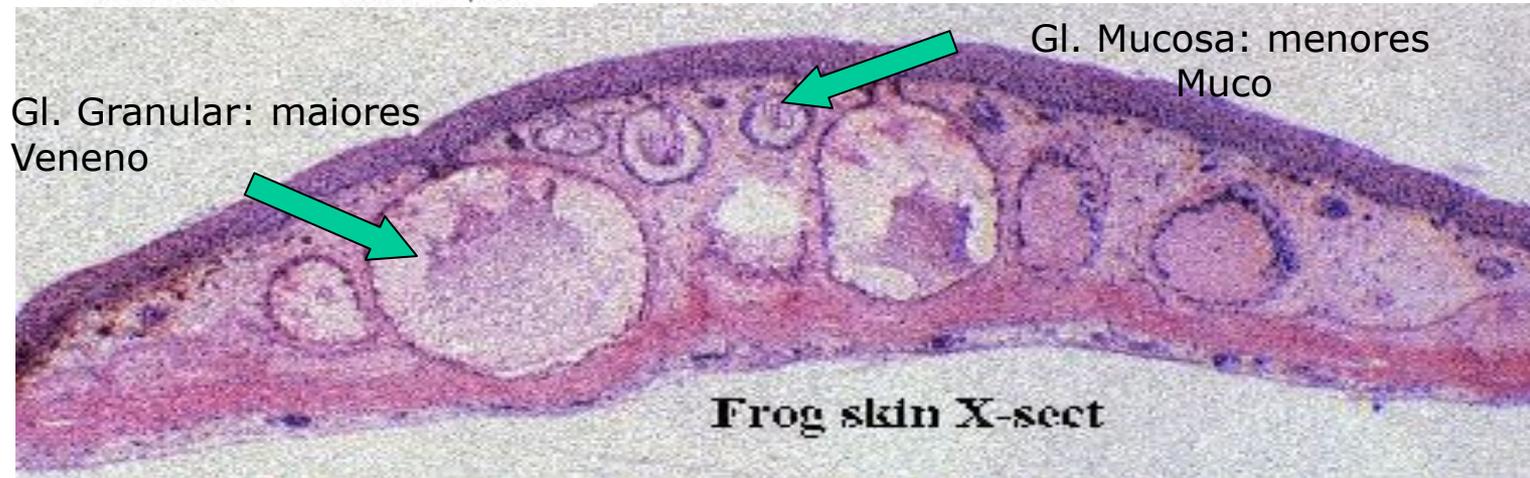
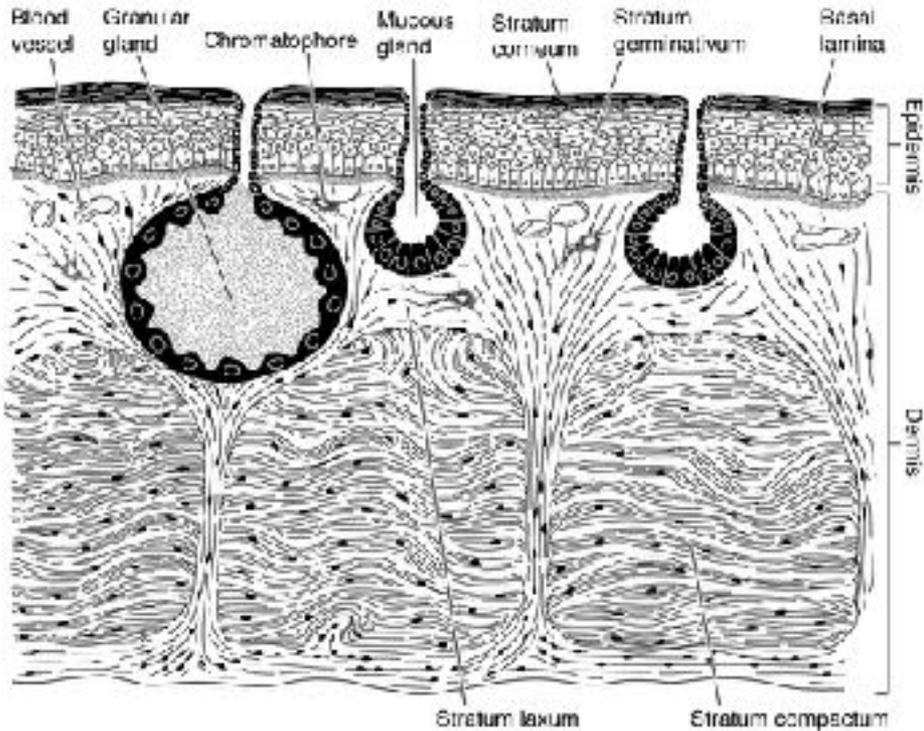
Mais queratina
Mais glândulas multicelulares



Filogenia



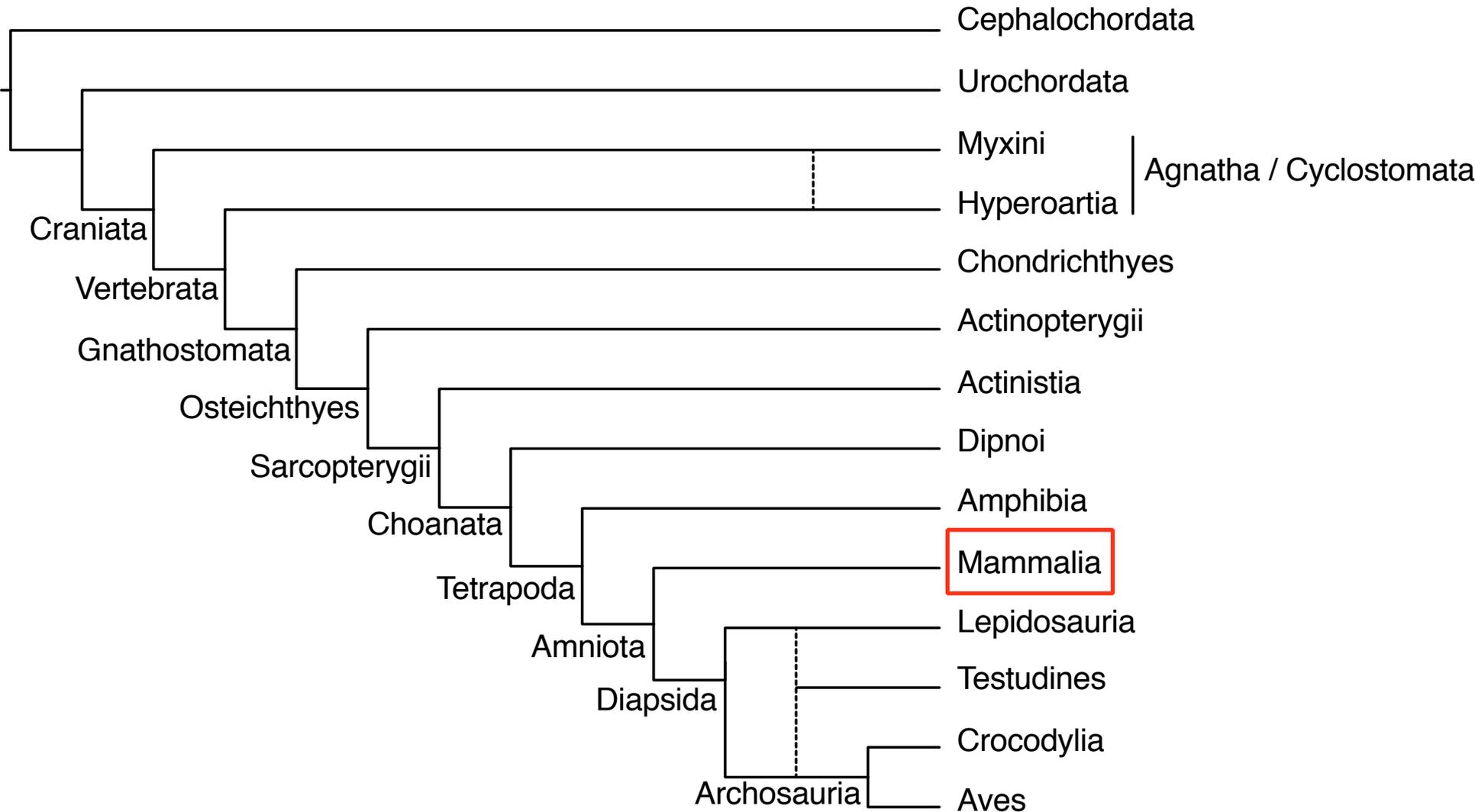
Amphibia



Calos nupciais
Toxinas potentes



Filogenia

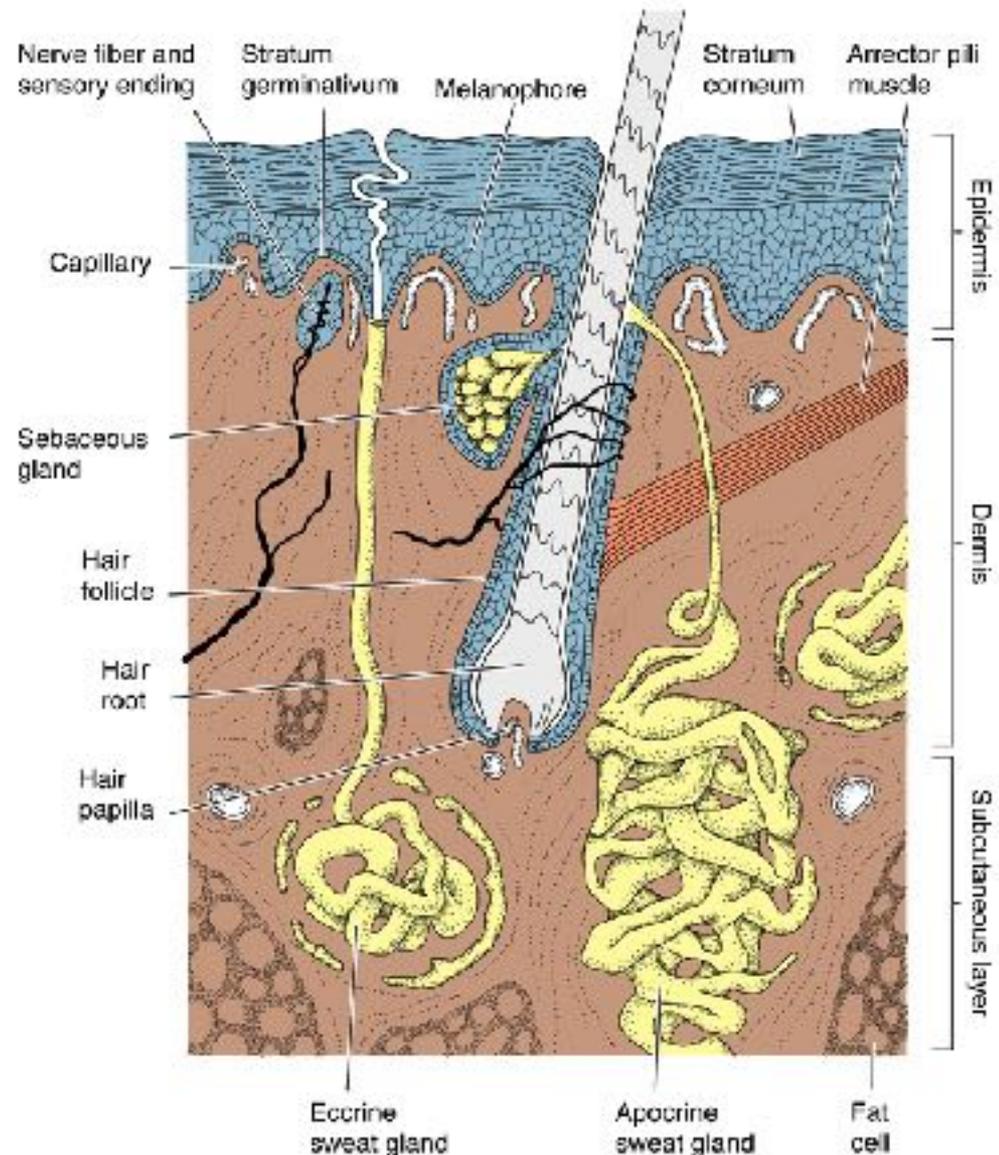


Mammalia

Presença de pelos e outras especializações epidérmicas (garras, cascos etc.)

Reposição constante da superfície

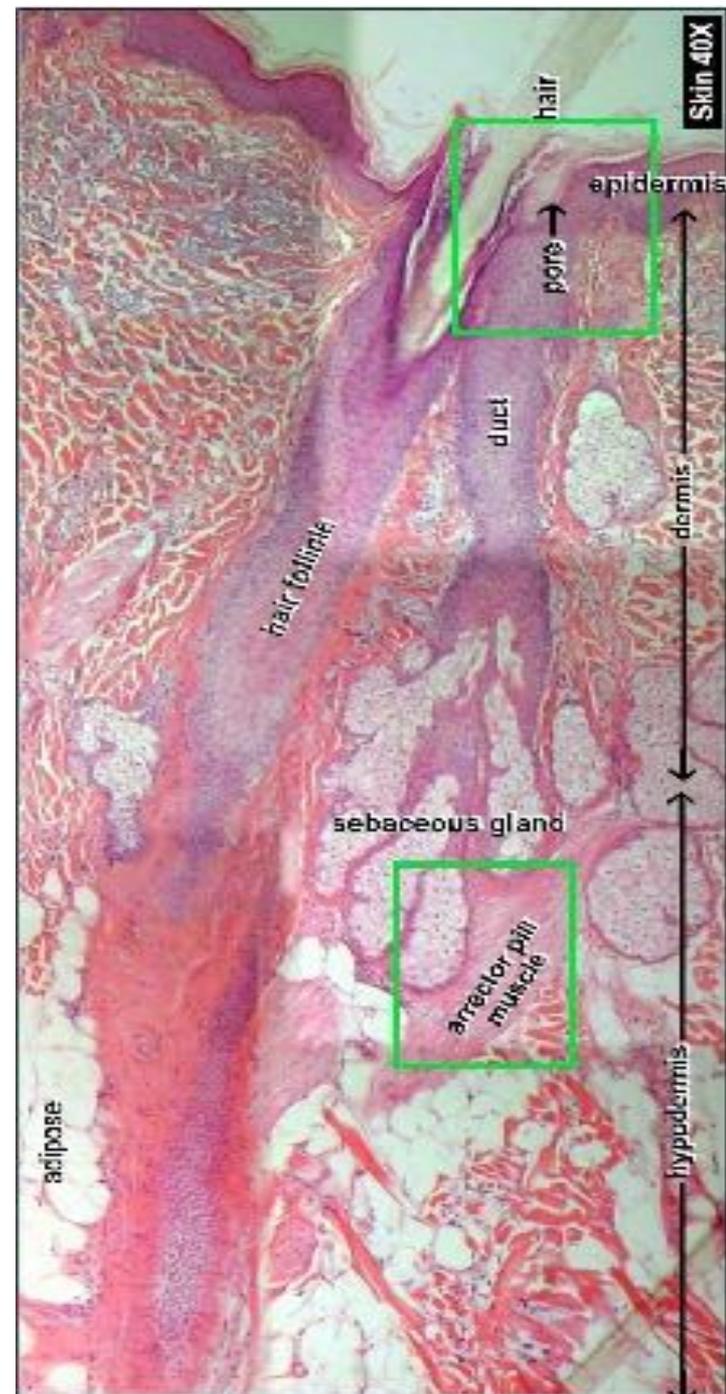
Cor = pigmentos dos cromatóforos + vasos sanguíneos + amarelado do estrato córneo



Mammalia

Gl. sebáceas: secreção oleosa, impermeabilização. Distribuídas por todo o corpo, não associadas ao pelo no canto da boca, genitais, mamilos.

Gl. sudoríparas: secreção aquosa resfriamento
Secreção viscosa também produz cheiro



Mammalia

Ossificação dérmica aparece secundariamente em tatus ou Glyptodon

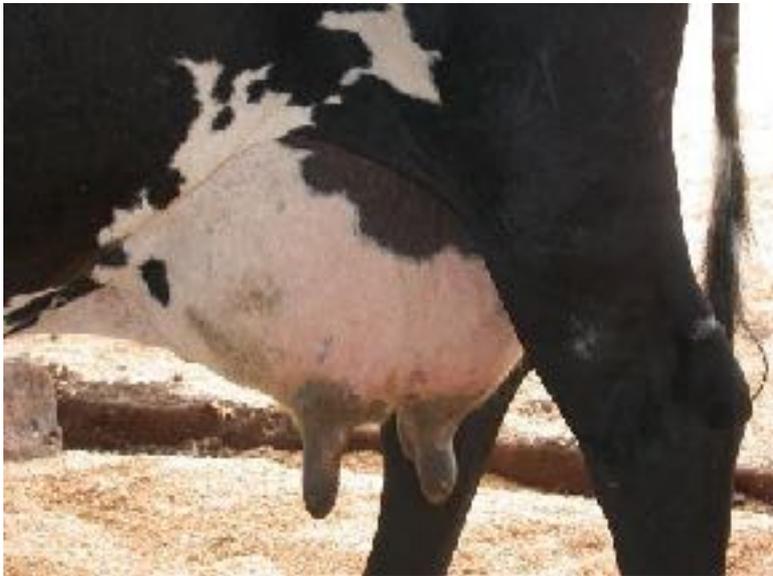


Glândulas mamárias

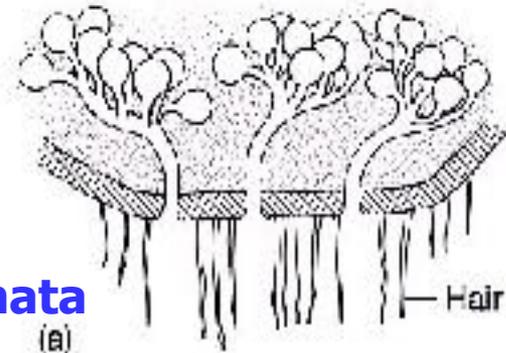
Funcionais apenas nas fêmeas

Derivadas de glândulas sebáceas

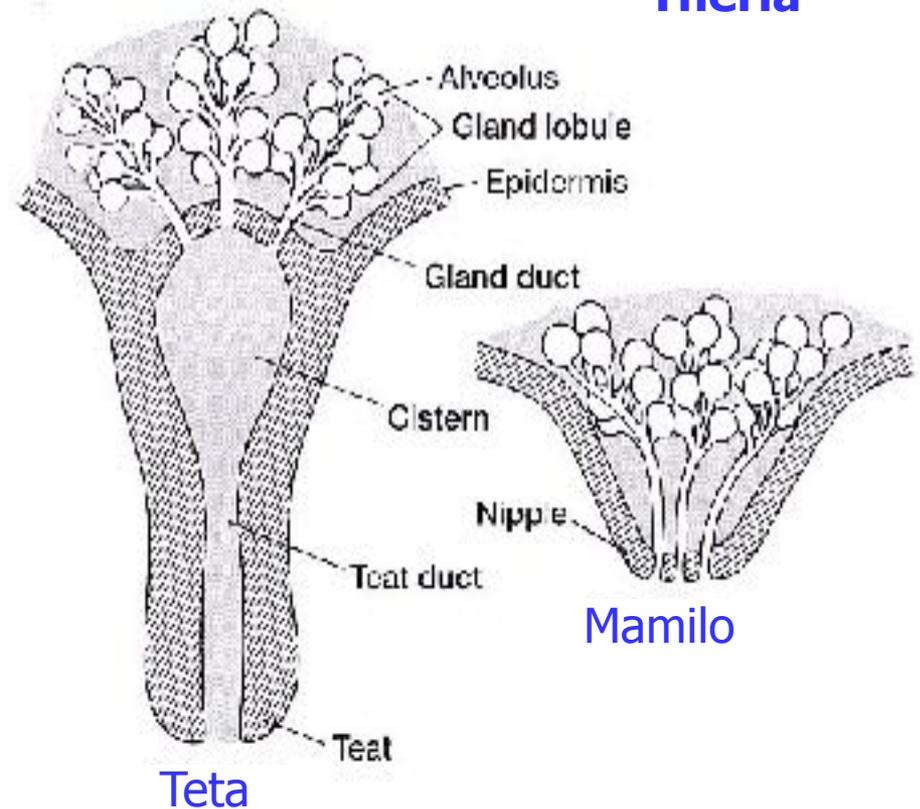
Dutos emergem em dois tipos principais



Monotremata
(a)



Theria



Glândulas odoríferas

Defesa

Comunicação

Demarcação de território

Identidade



Oreotragus oreotragus

Estruturas queratinizadas

corno

chifre

Cornos

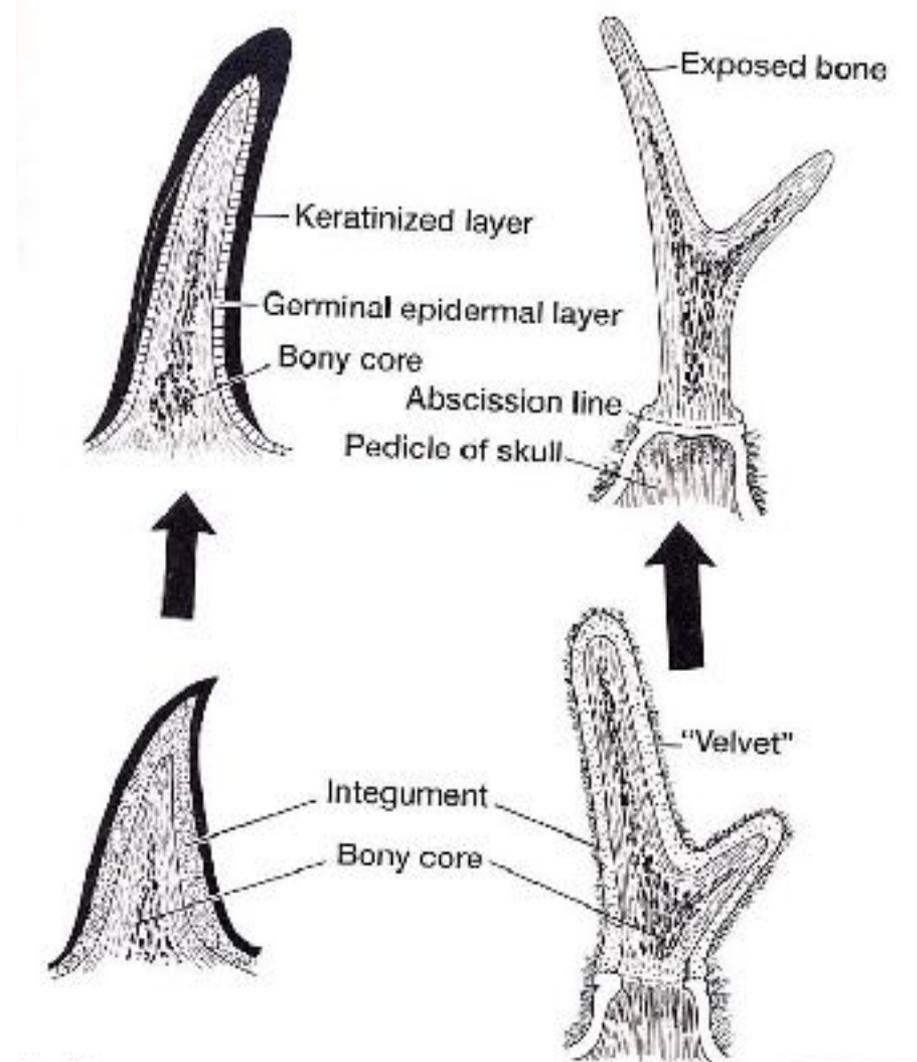
Bovídeos

Presente nos dois sexos
Não são bifurcados
Não são renovados
Coberto por tecido queratinizado

Chifres

Cervídeos

Apenas nos machos
Usualmente bifurcados
Renovados anualmente
Osso exposto (velame protege durante crescimento)



Corno



Chifre



Corno do rinoceronte é composto por fibras compactas de queratina, sem matriz óssea

Girafas possuem projeções ósseas recobertas pelo tegumento

Antilocapra possui o núcleo ósseo simples, com a cobertura epidérmica ramificada, que se renova



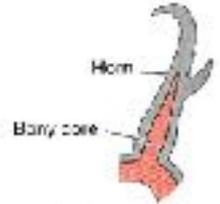
A. Cow (*Bovis*)



B. Detail of horn



C. Pronghorn (*Antilocapra*)



D. Detail of horn



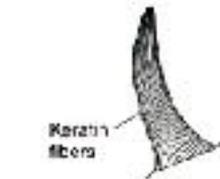
E. Deer (*Odocoileus*)



F. Detail of antler



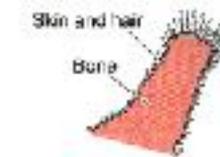
G. Rhinoceros



H. Detail of horn



I. Giraffe (*Giraffa*)



J. Detail of horn

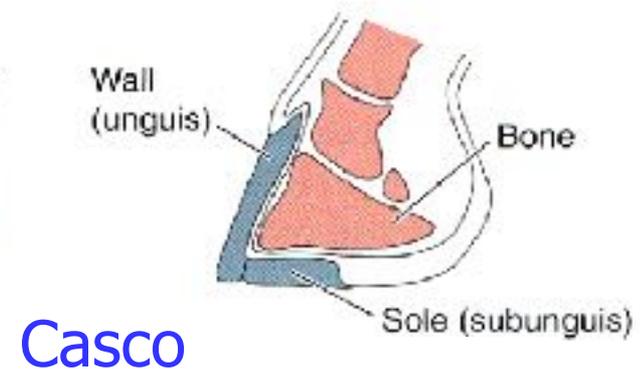
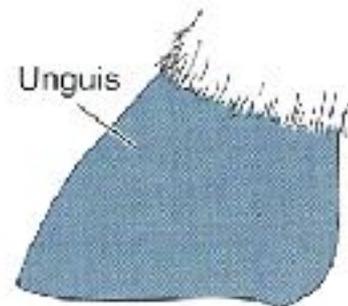
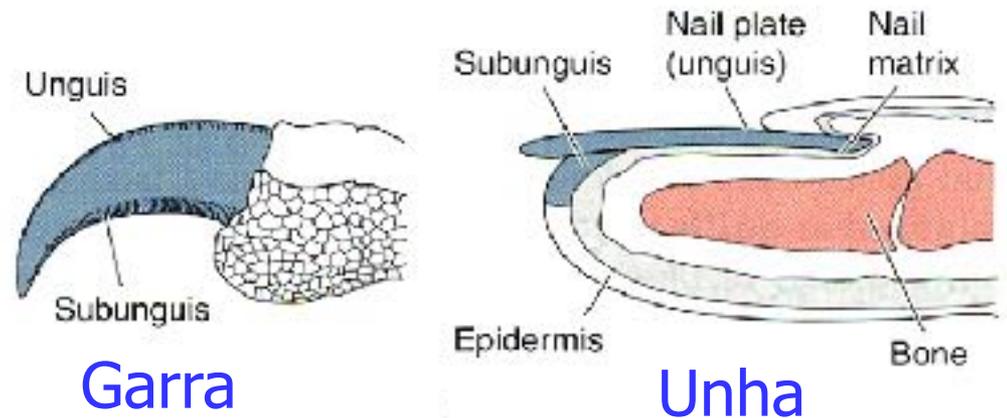


Locomoção, alimentação, defesa

Garras: projeções queratinizadas, comprimidas lateralmente. Felidae, Aves, Lepidossauria

Unhas: placas achatadas, proteção. Crescimento basal. Primatas e Didelphidae

Cascos: grandes placas de queratina bastante compacta

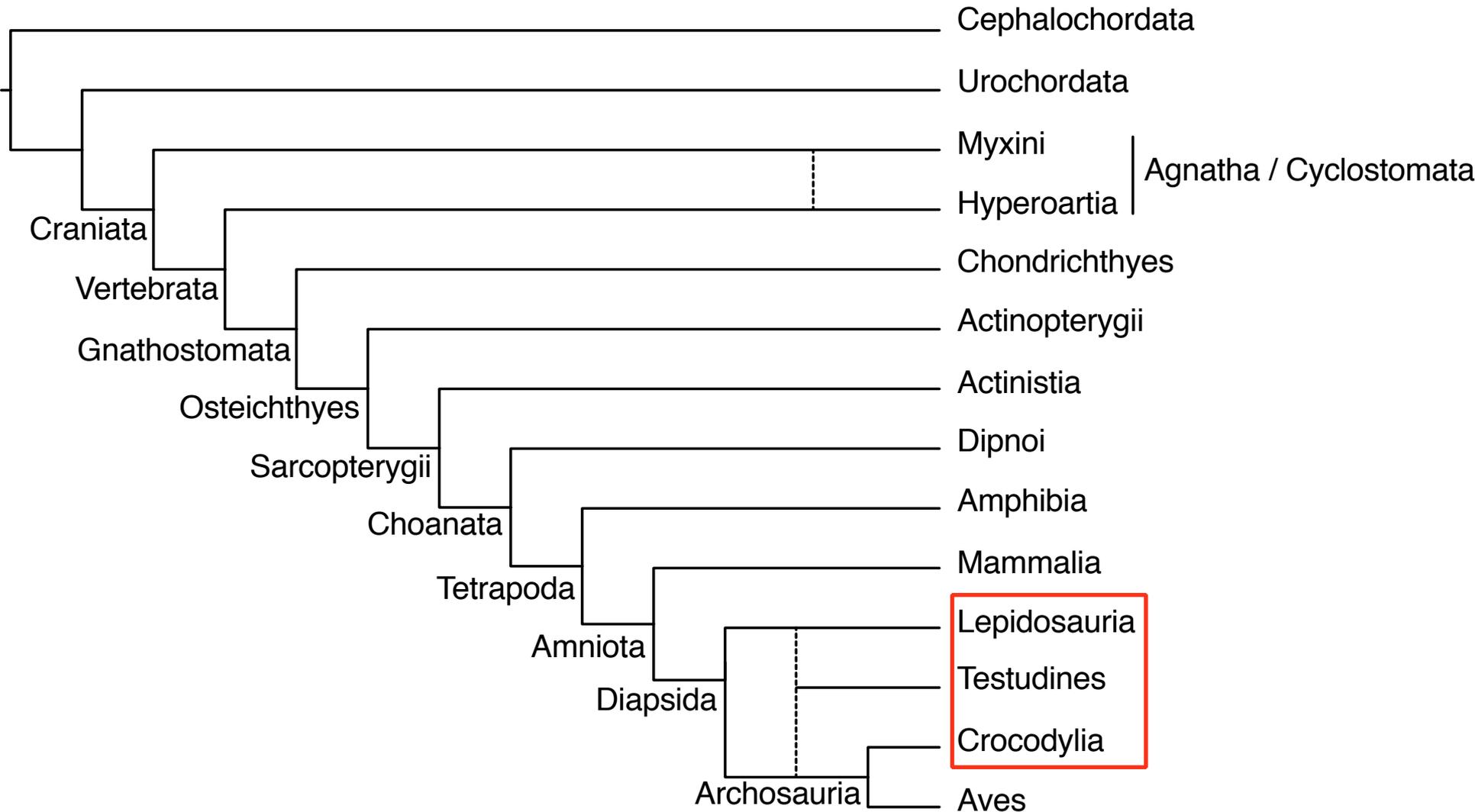


Garra

Unha

Casco

Filogenia

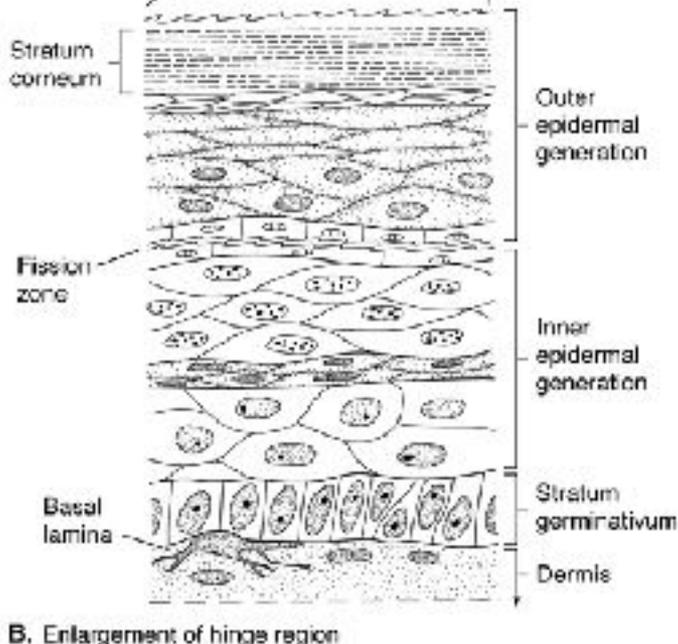
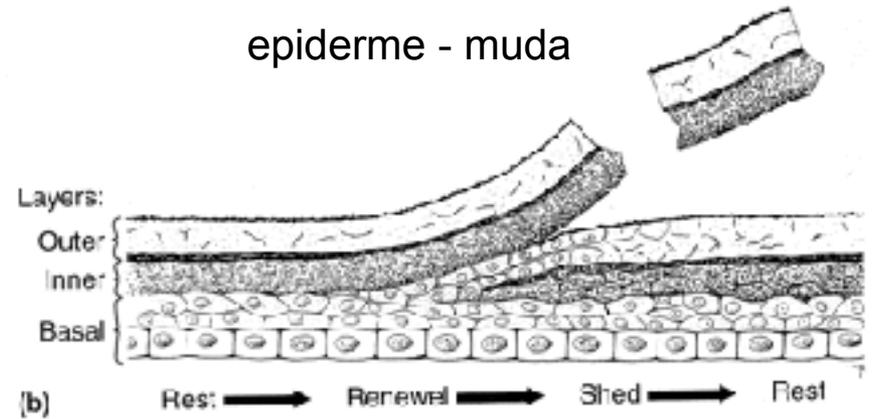
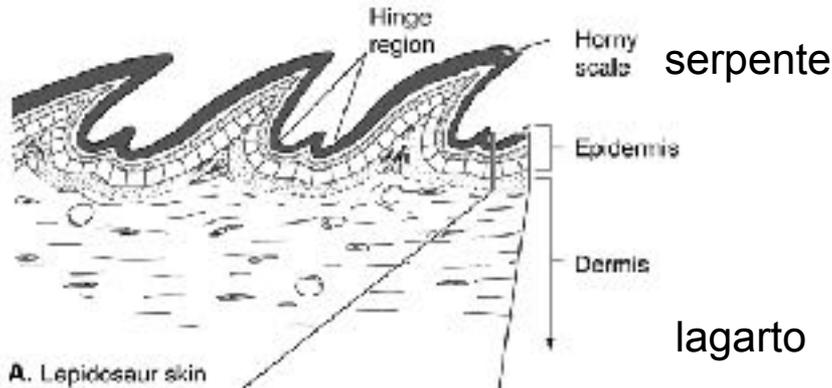


Répteis

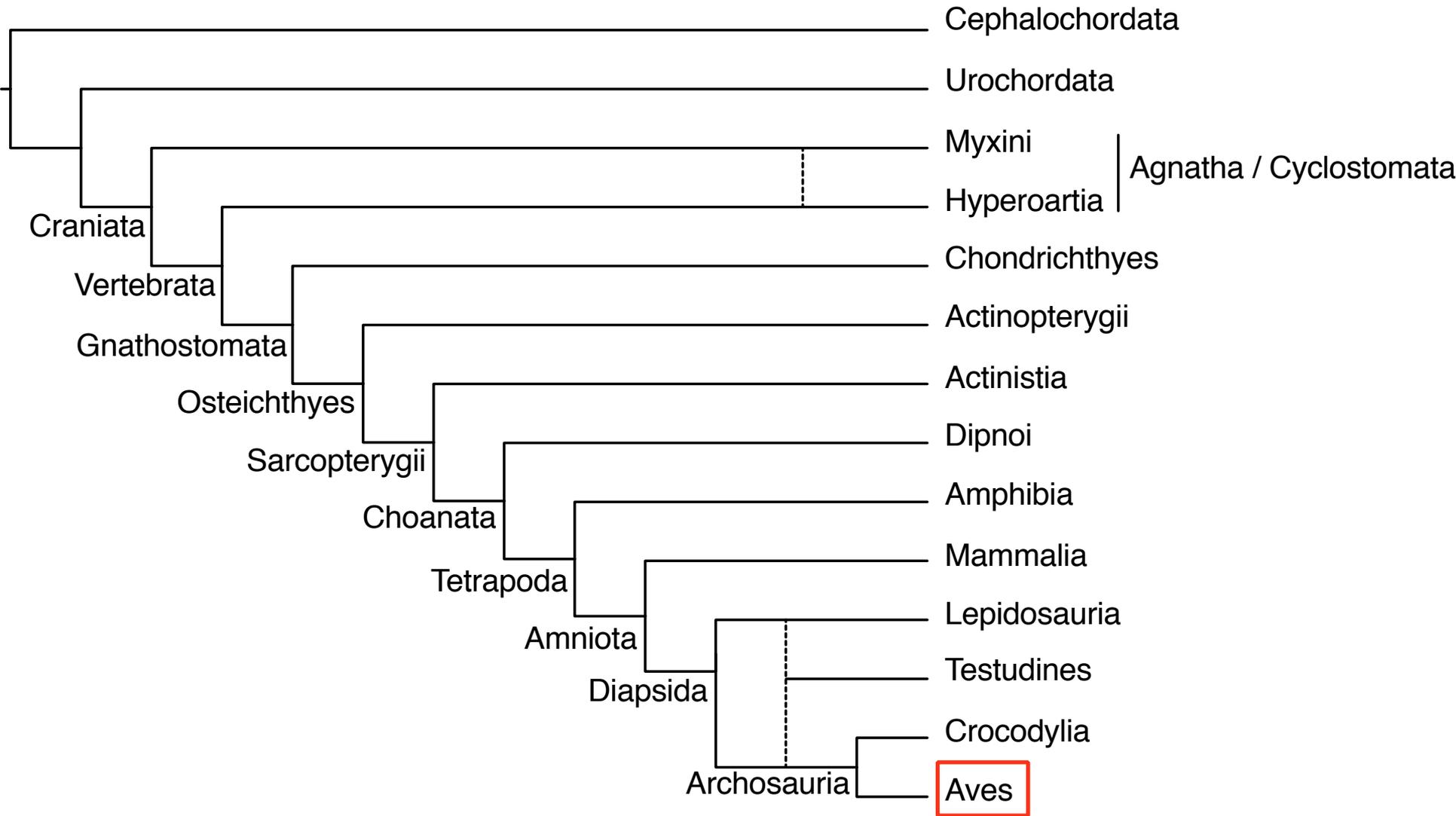
Tegumento reflete conquista do meio terrestre:
queratinização extensa, < número de glândulas, > resistência à
dessecação



Répteis - Squamata



Filogenia



AVES - penas

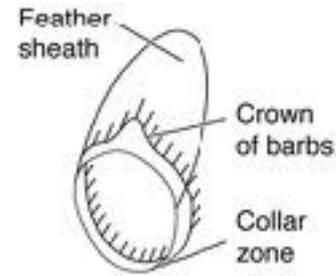
Origem epidérmica, a partir da proliferação e diferenciação dos queratinócitos

Composição: β -queratina (90%), H₂O (8%), lipídios (1%), pigmentos (1%)

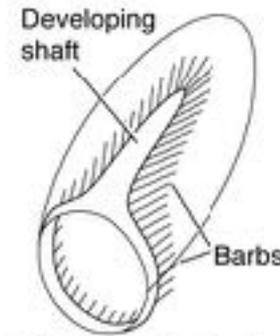
Bainha é de α -queratina



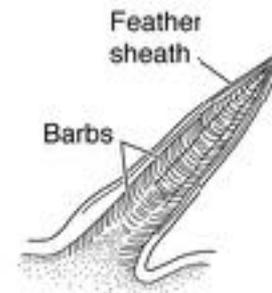
A. Dermal papilla



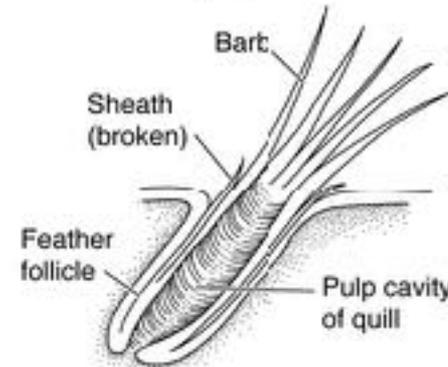
B. Crown of barbs



C. Developing shaft



D. Feather in sheath



E. Feather breaking through sheath

pena de contorno

pluma



Esporas



Dente de ovo



Bico queratinizado

Recapitulando

