



Estabelecimento e organização dos meristemas apicais: caulinar e radicular

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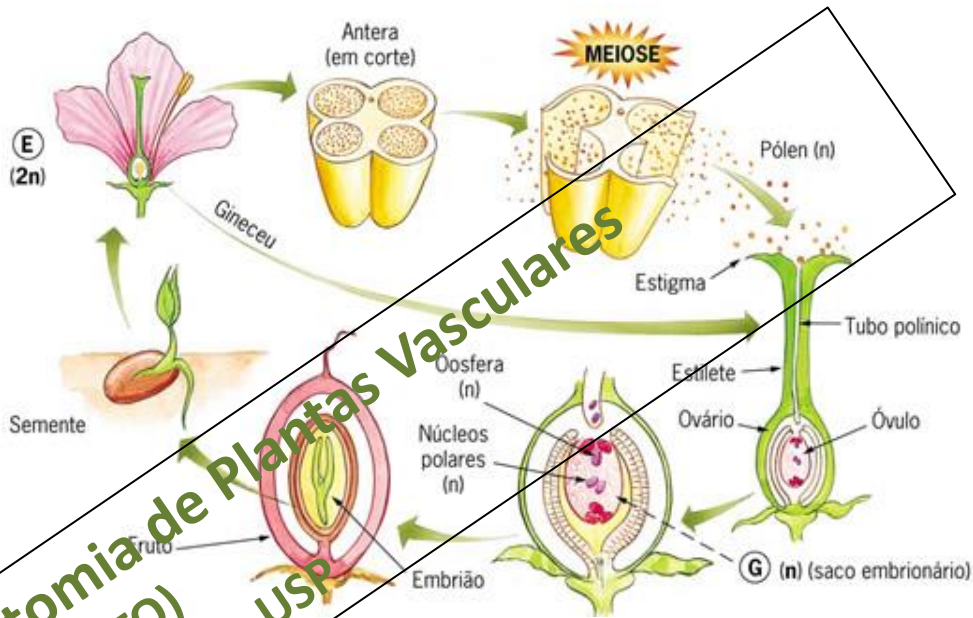
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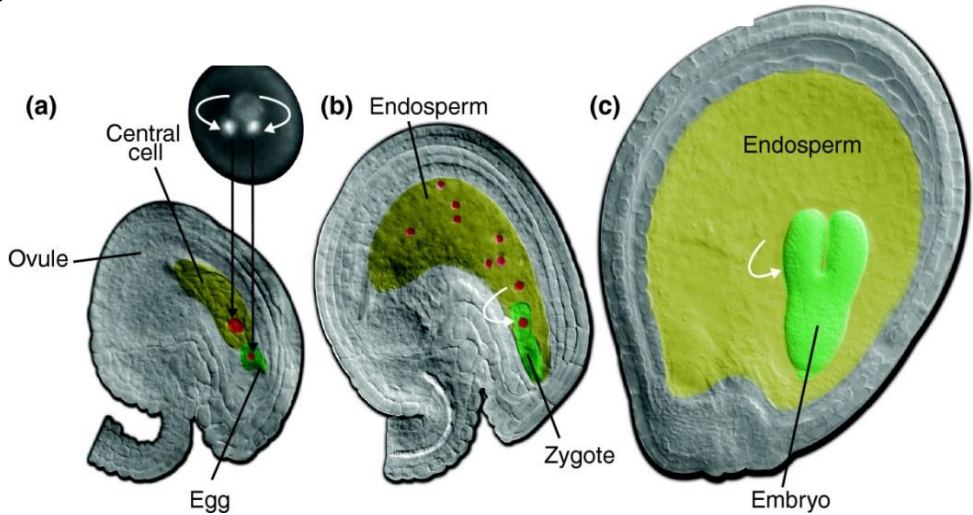


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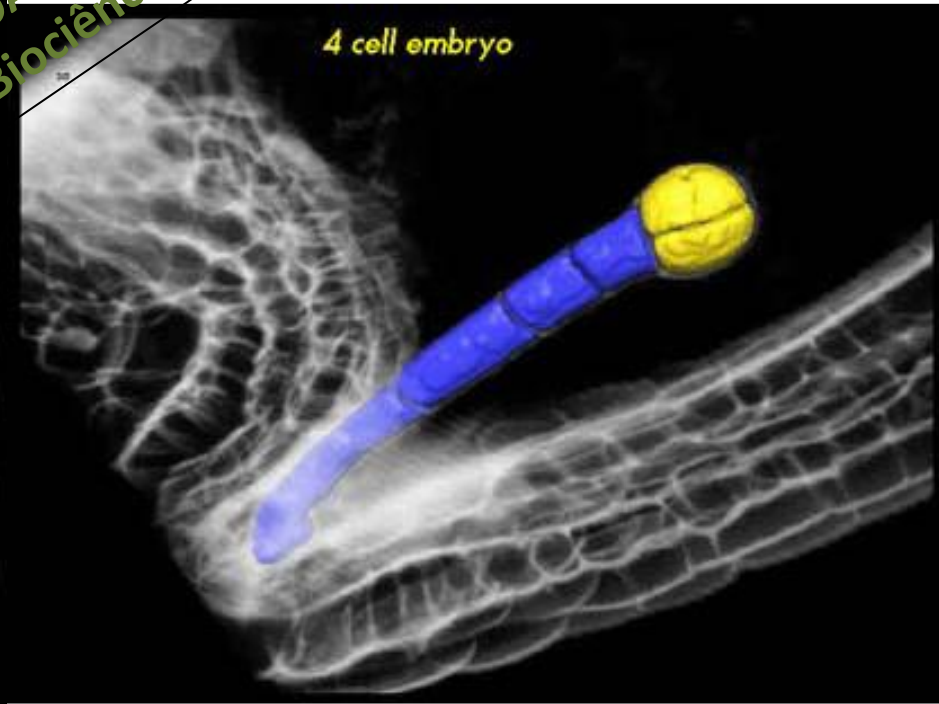
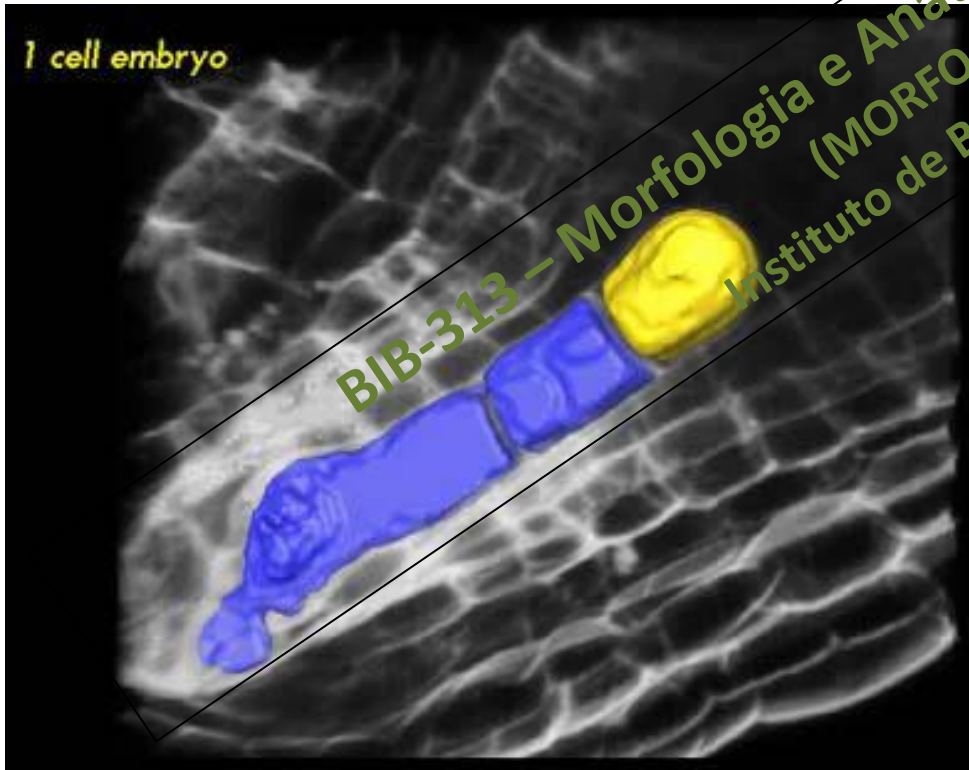
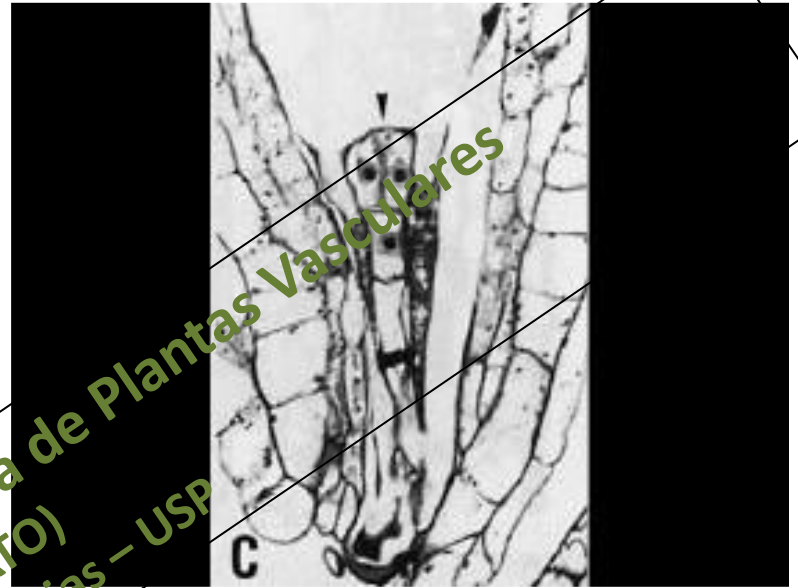
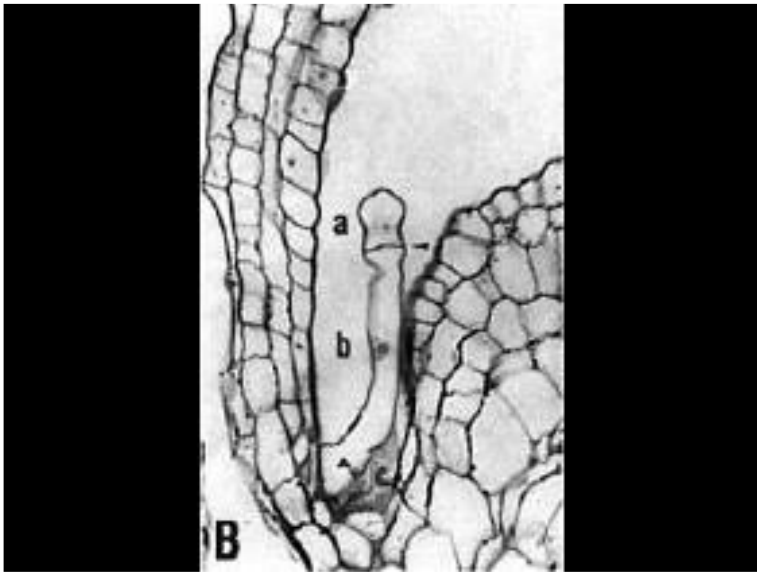
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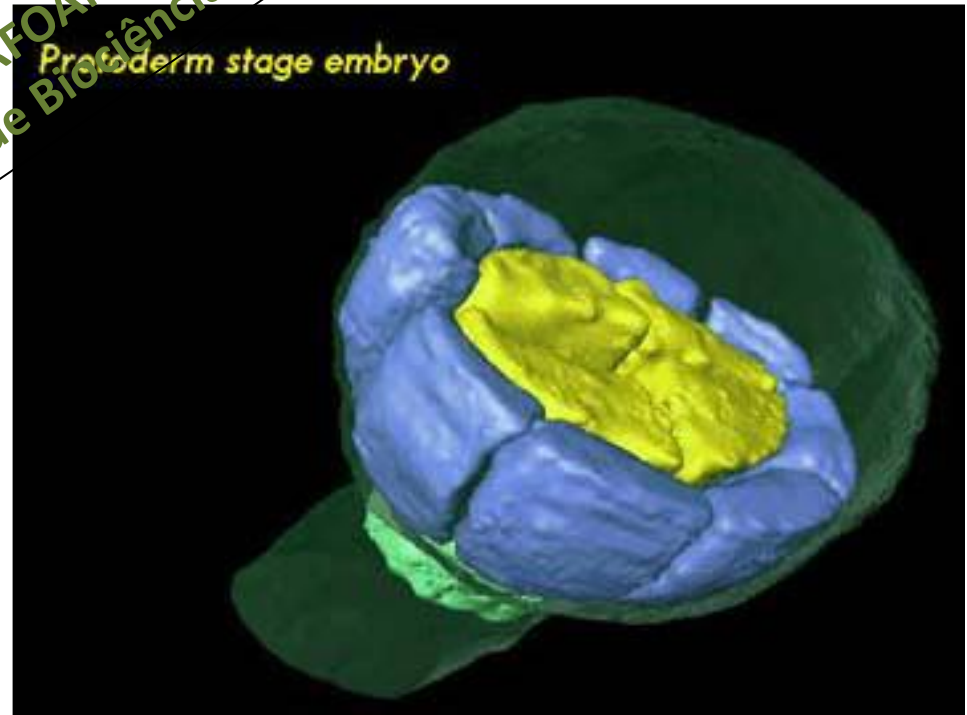
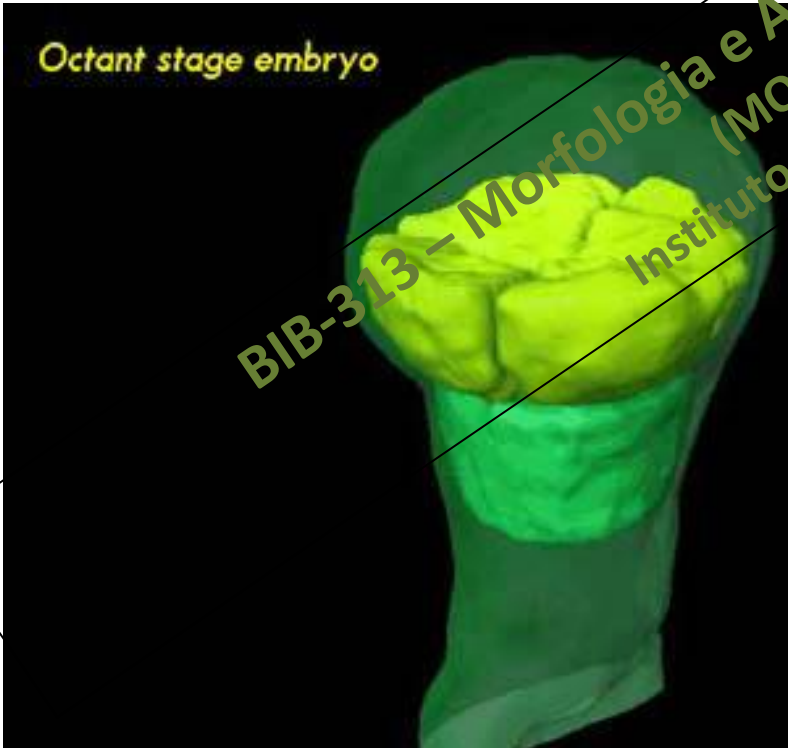
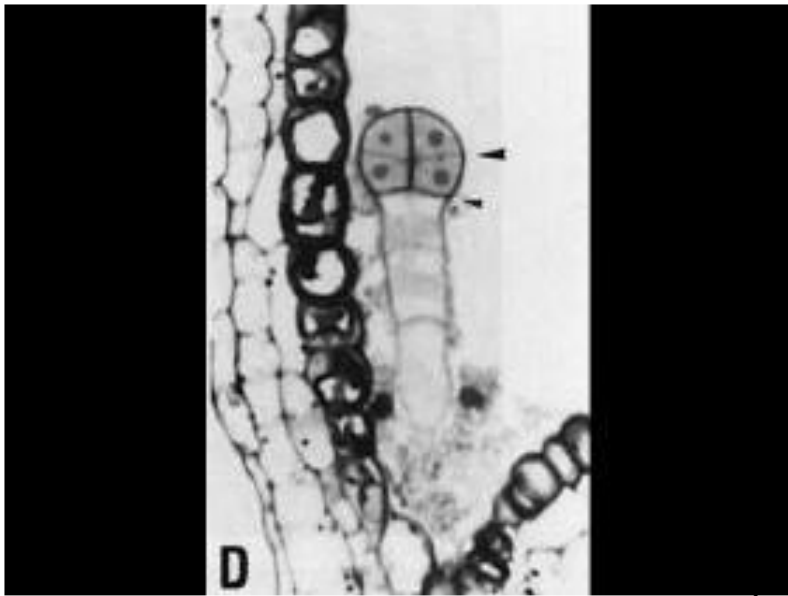


Vieira & Fonseca (2014)

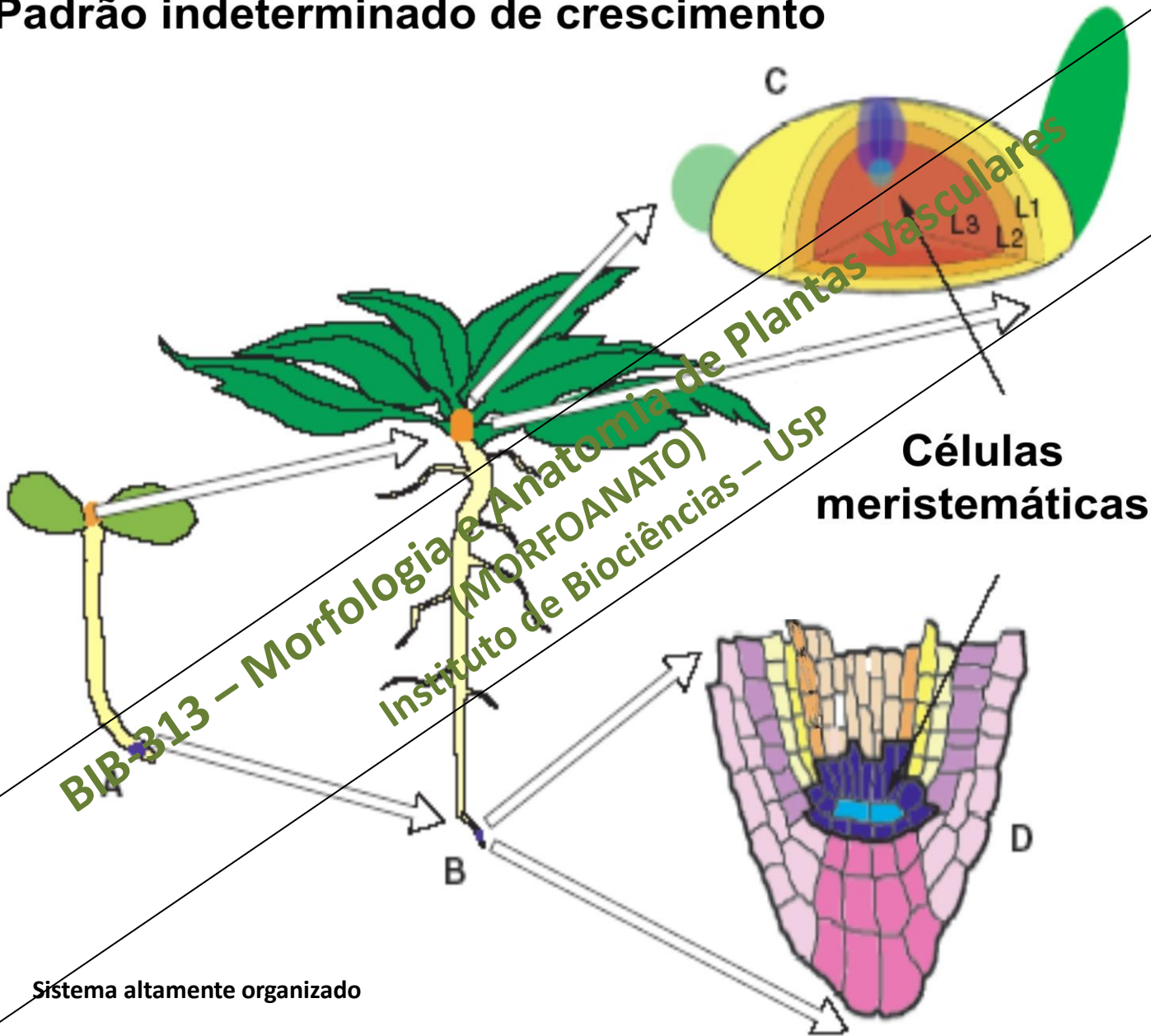
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Padrão indeterminado de crescimento



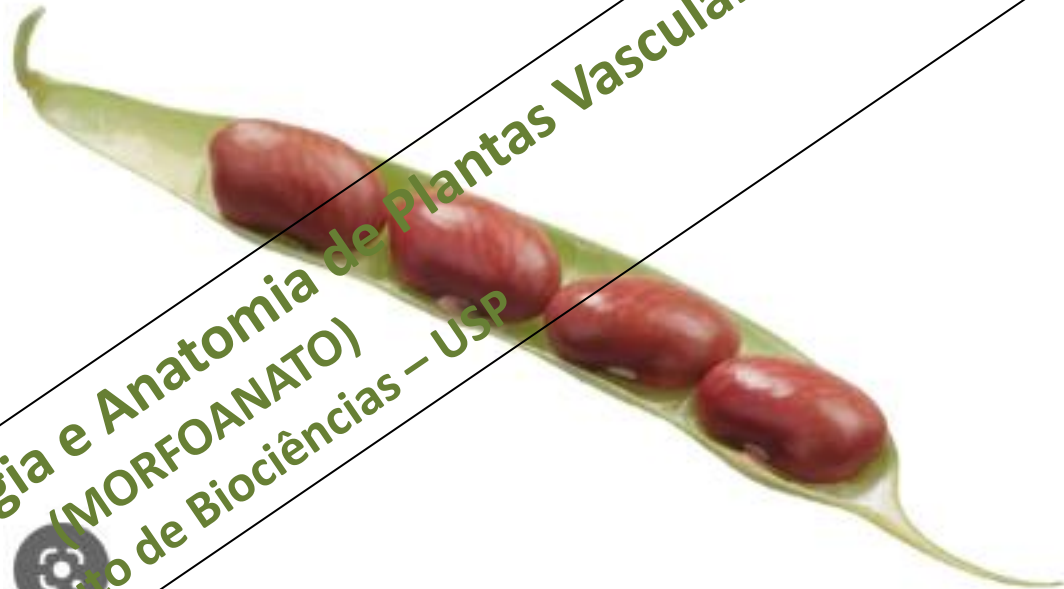
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Sistema altamente organizado

Células meristemáticas



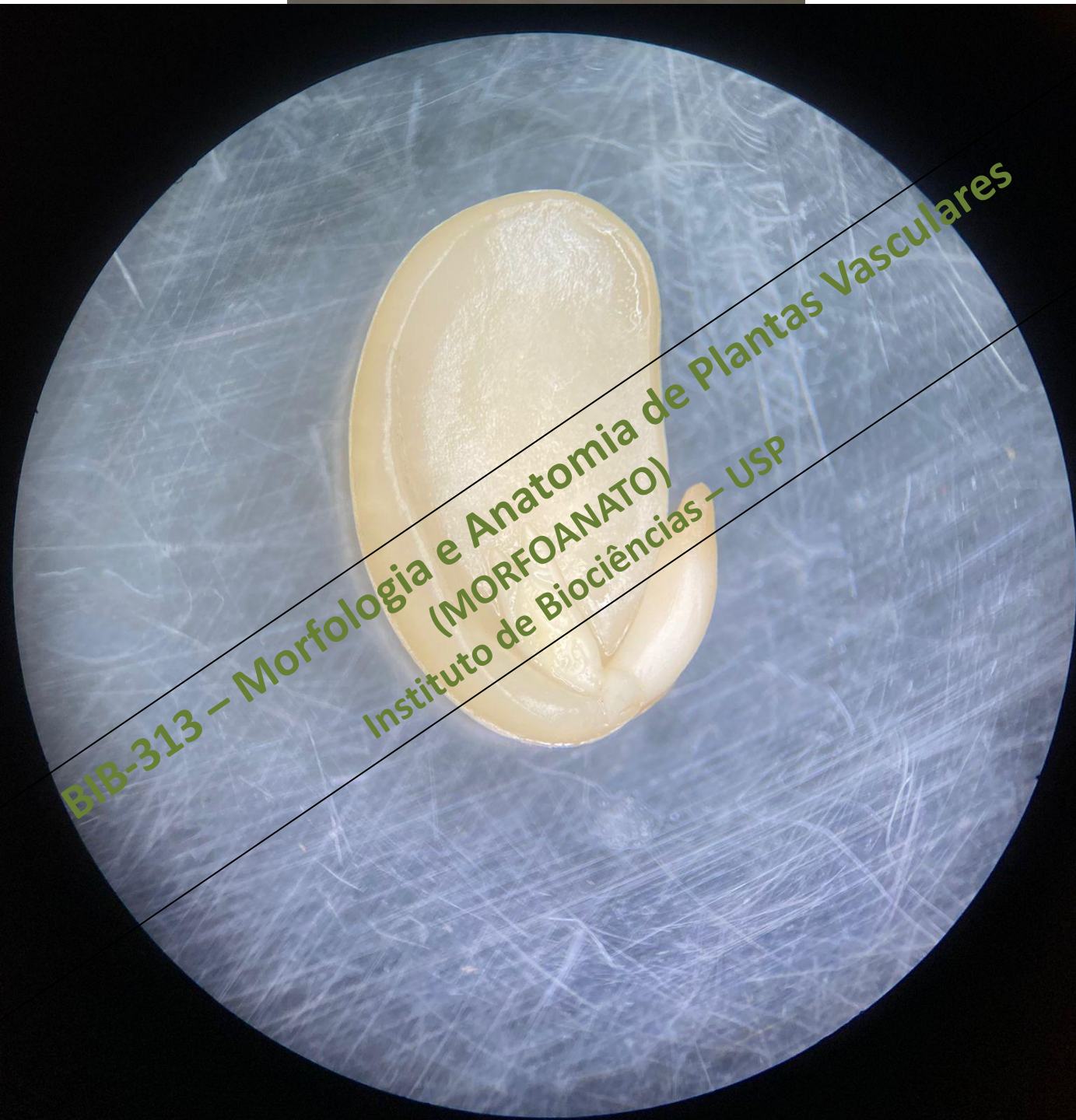
Semente do feijão (*Phaseolus vulgaris*, Fabaceae, Monocotiledônea)



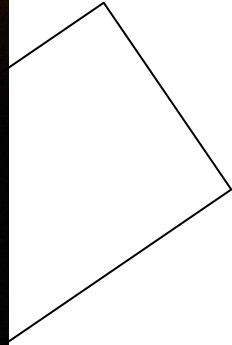
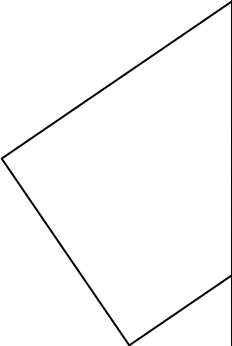
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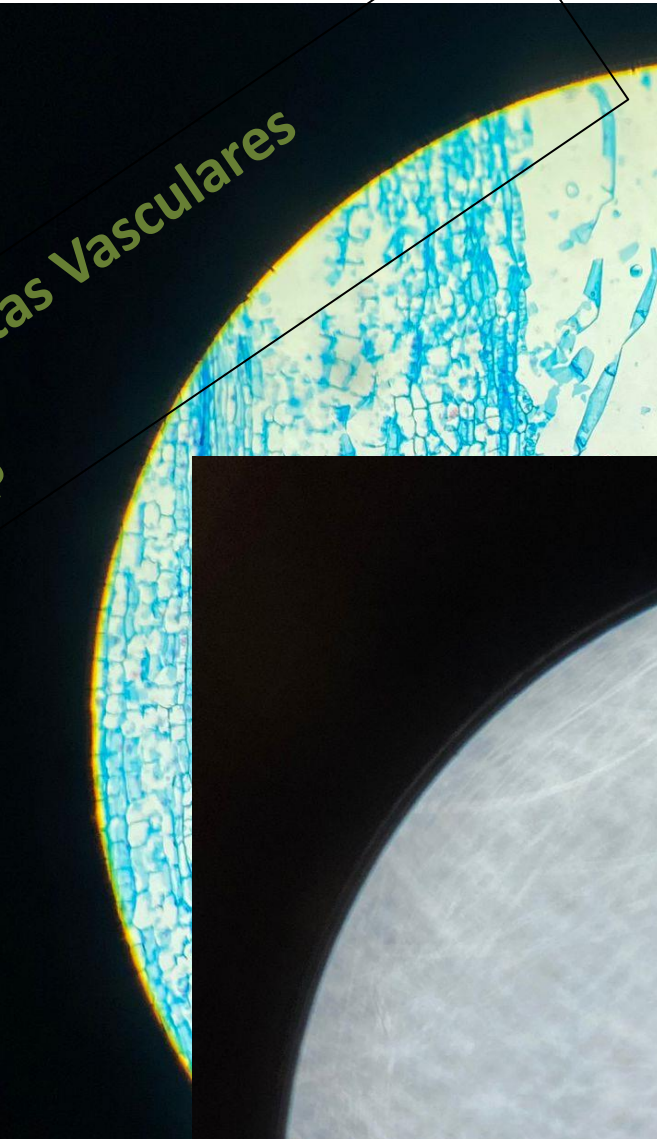
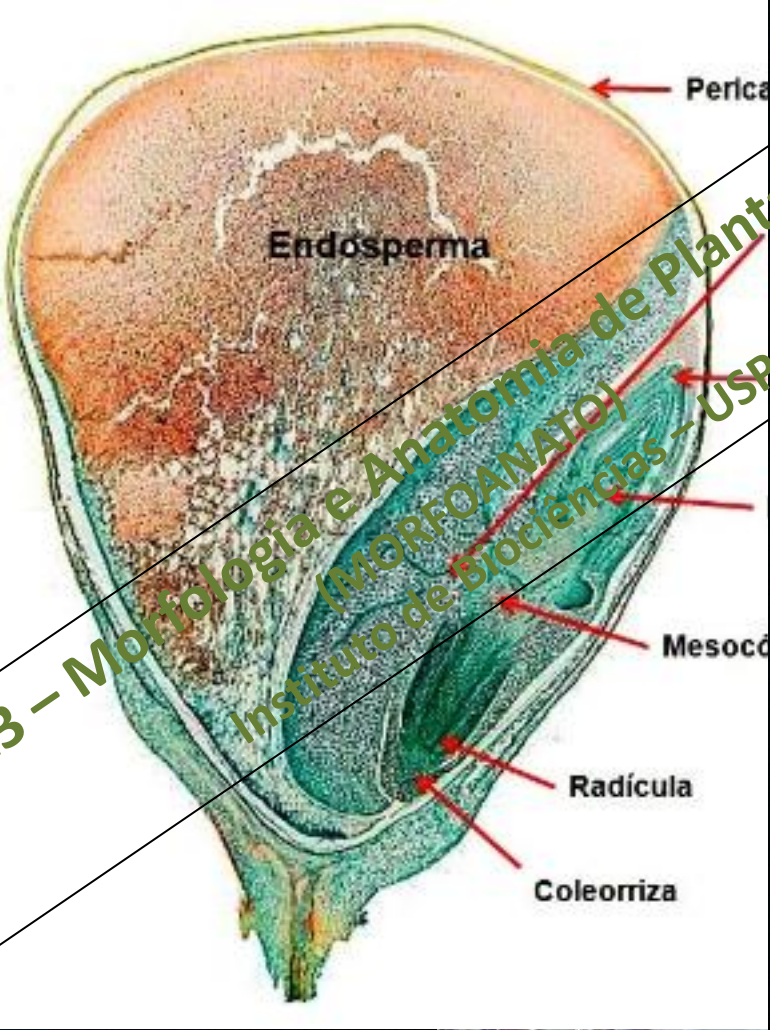
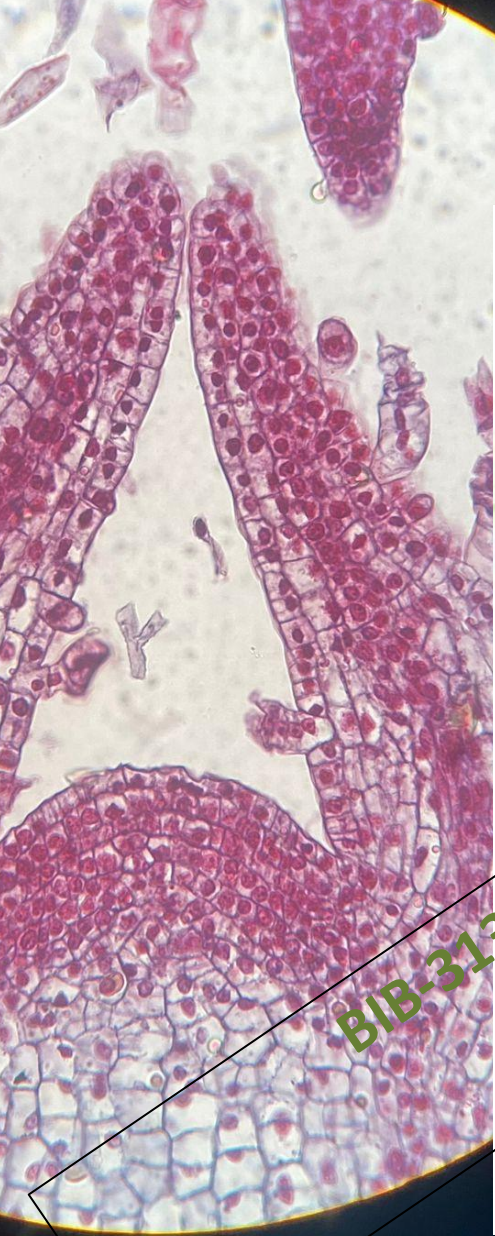


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Fruto do milho (*Zea mays*, Poaceae, Monocotiledônea)

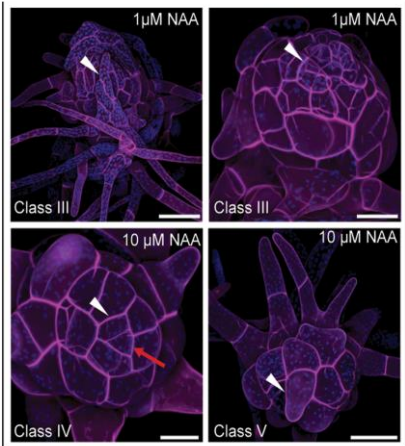


Fruto do milho = Cariopse

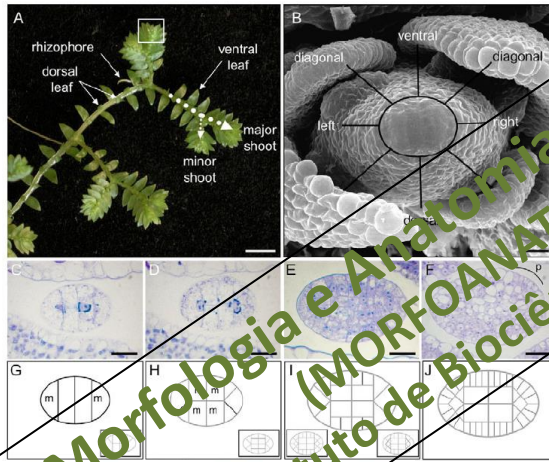
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Organização do Meristema apical caulinar

Gametófito de um musgo



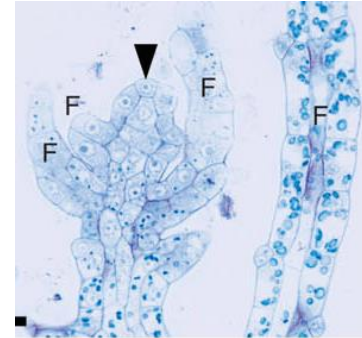
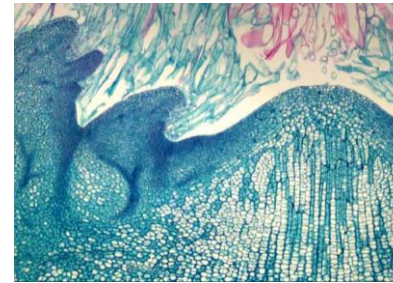
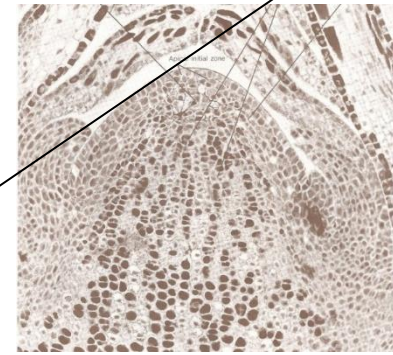
Esporófito de uma licófit



Esporófito de uma monilófit



Esporófito de espermatófit



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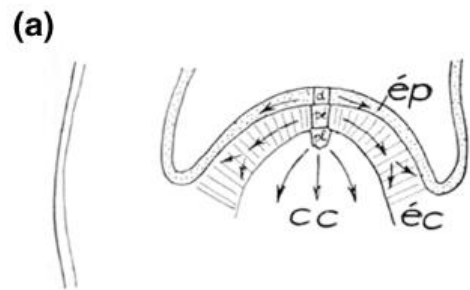
Terminologias adotadas em espermatófitas

ep: epiderme
ec: subepiderme
cc: centro

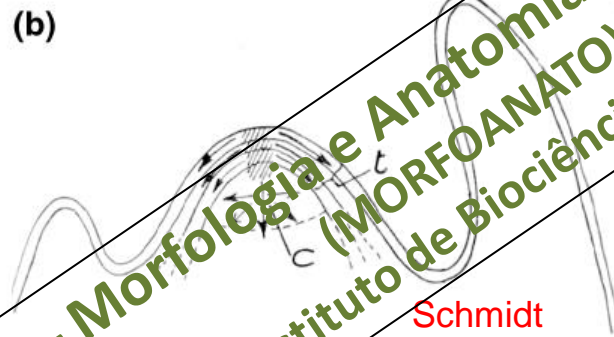
cmc: célula-mãe central
mc: meristema central
zp: zona periférica
zia: zona apical inicial

t: túnica
c: corpo

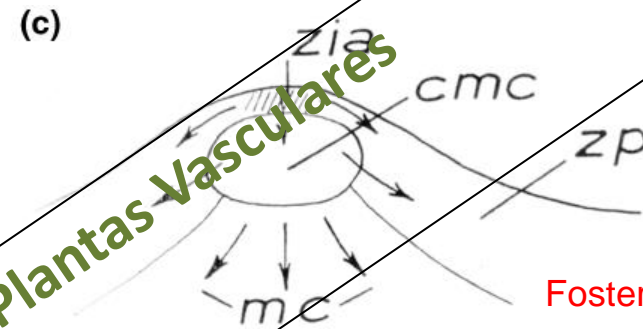
ma: meristema de "espera" (*attente*)
pmsp: promeristema esporogênico
pmr: promeristema receptacular
mm: meristema medular



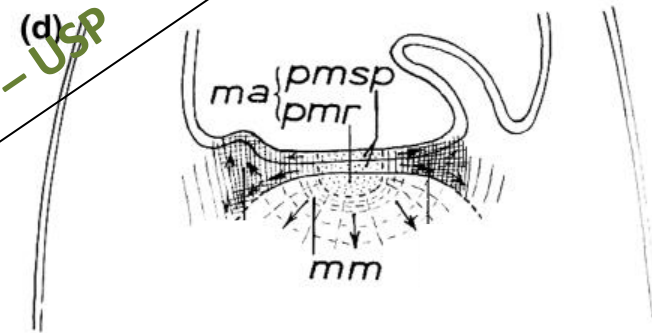
Hanstein



Schmidt



Foster



Buvat

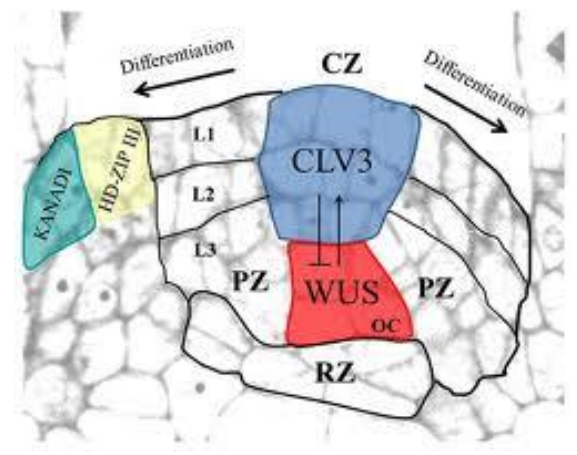
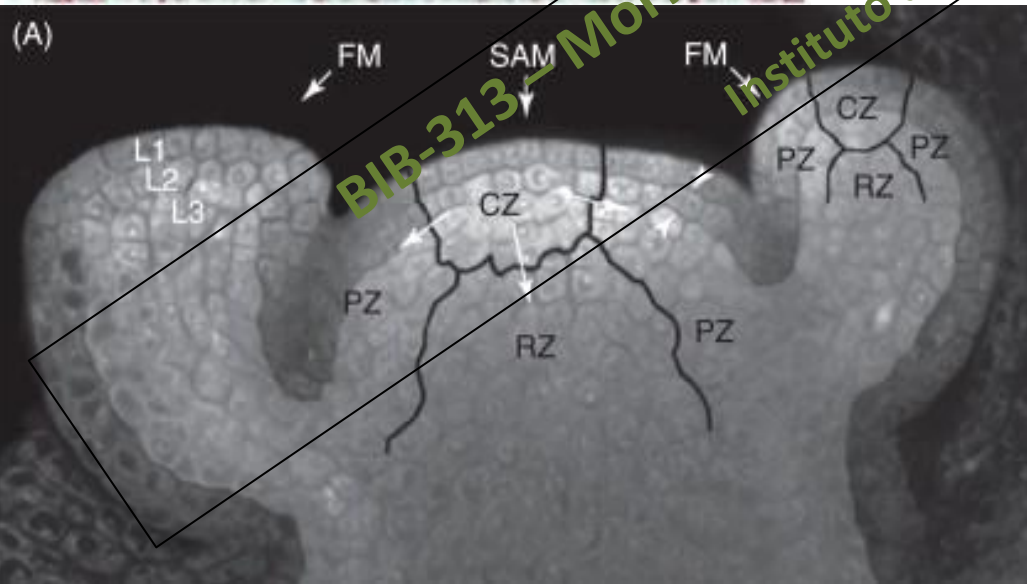
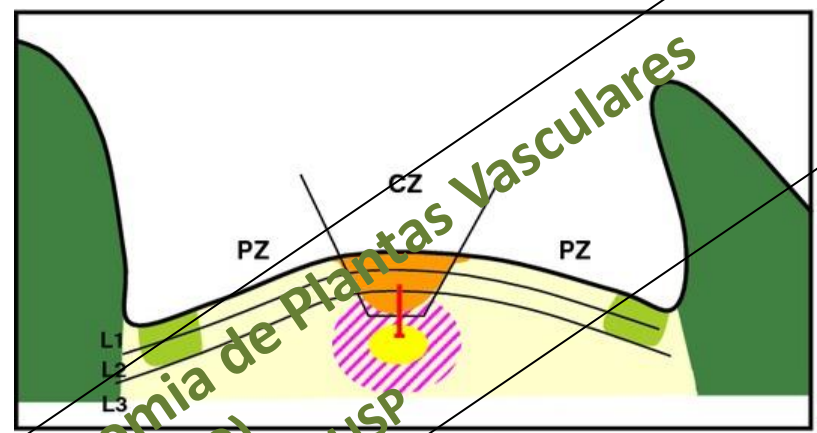
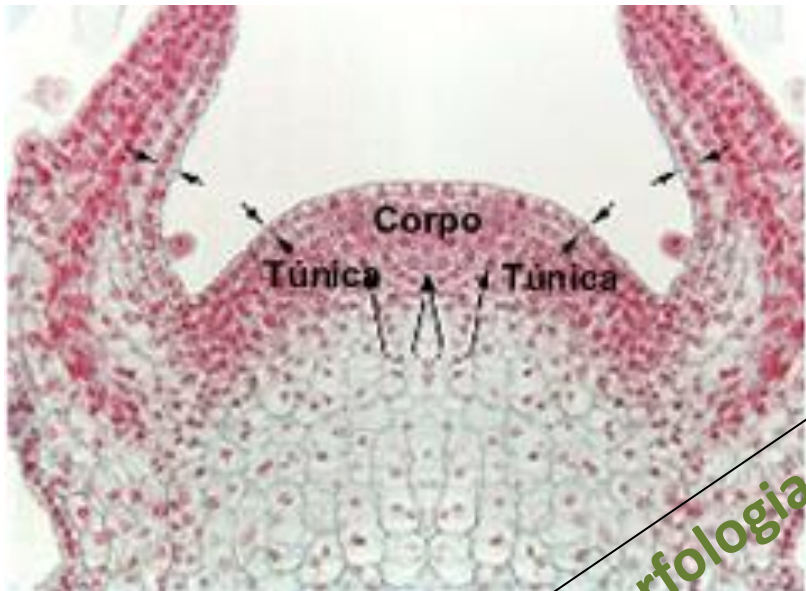
(e)

Hanstein 1868	Schmidt 1924	Buvat 1952	
Dermatogen	Tunica	Anneau initial	} Méristème d'attente
Periblem		Proméristème sporogène	
Plerome	Corpus	Proméristème réceptaculaire	
		Meristème médullaire	

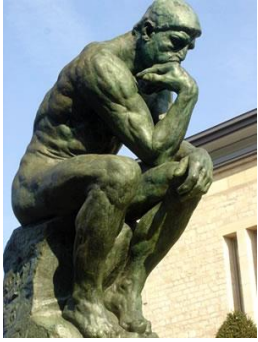
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Atualmente, as terminologias adotadas:

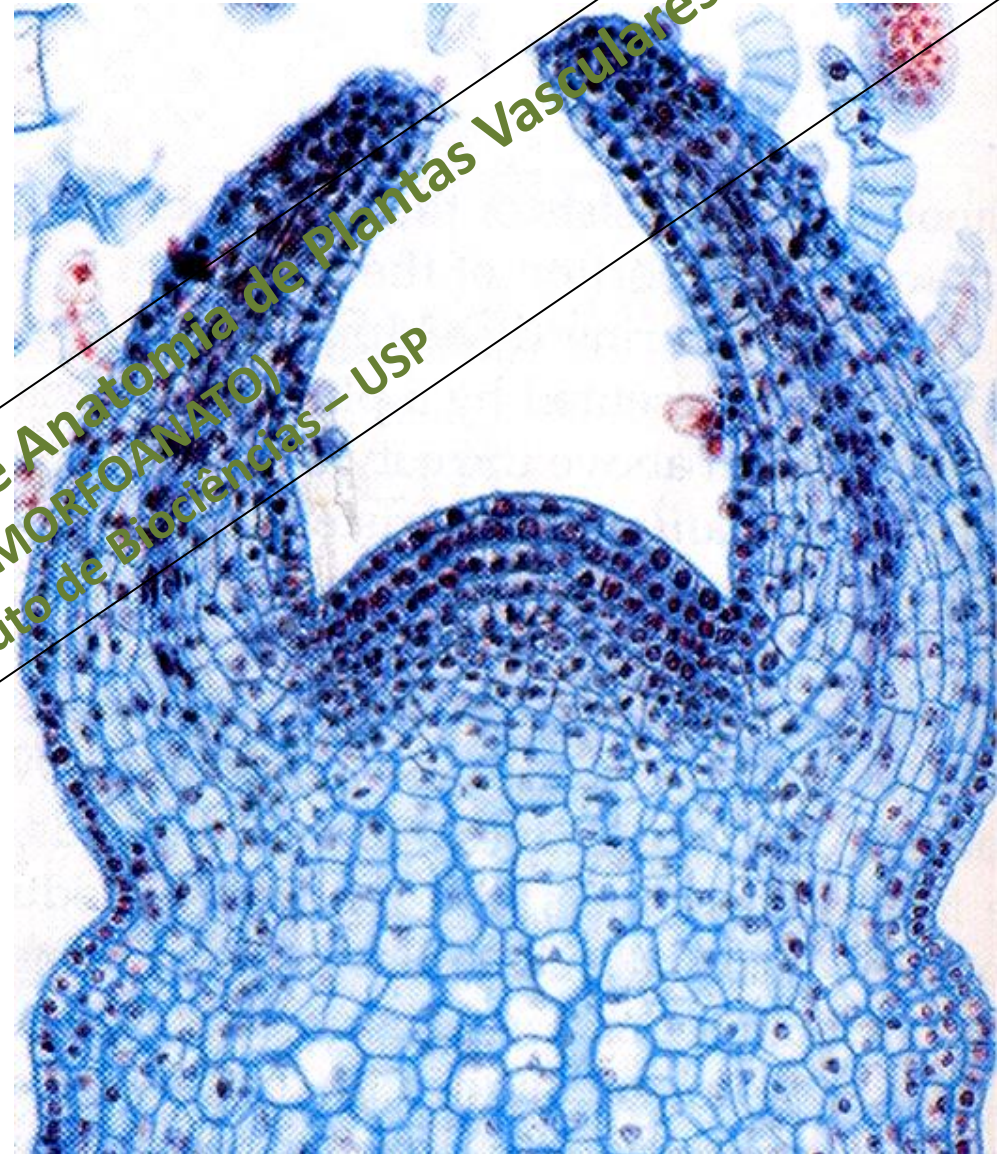
1. Teoria da Túnica-corpo
2. Teoria da Zonação



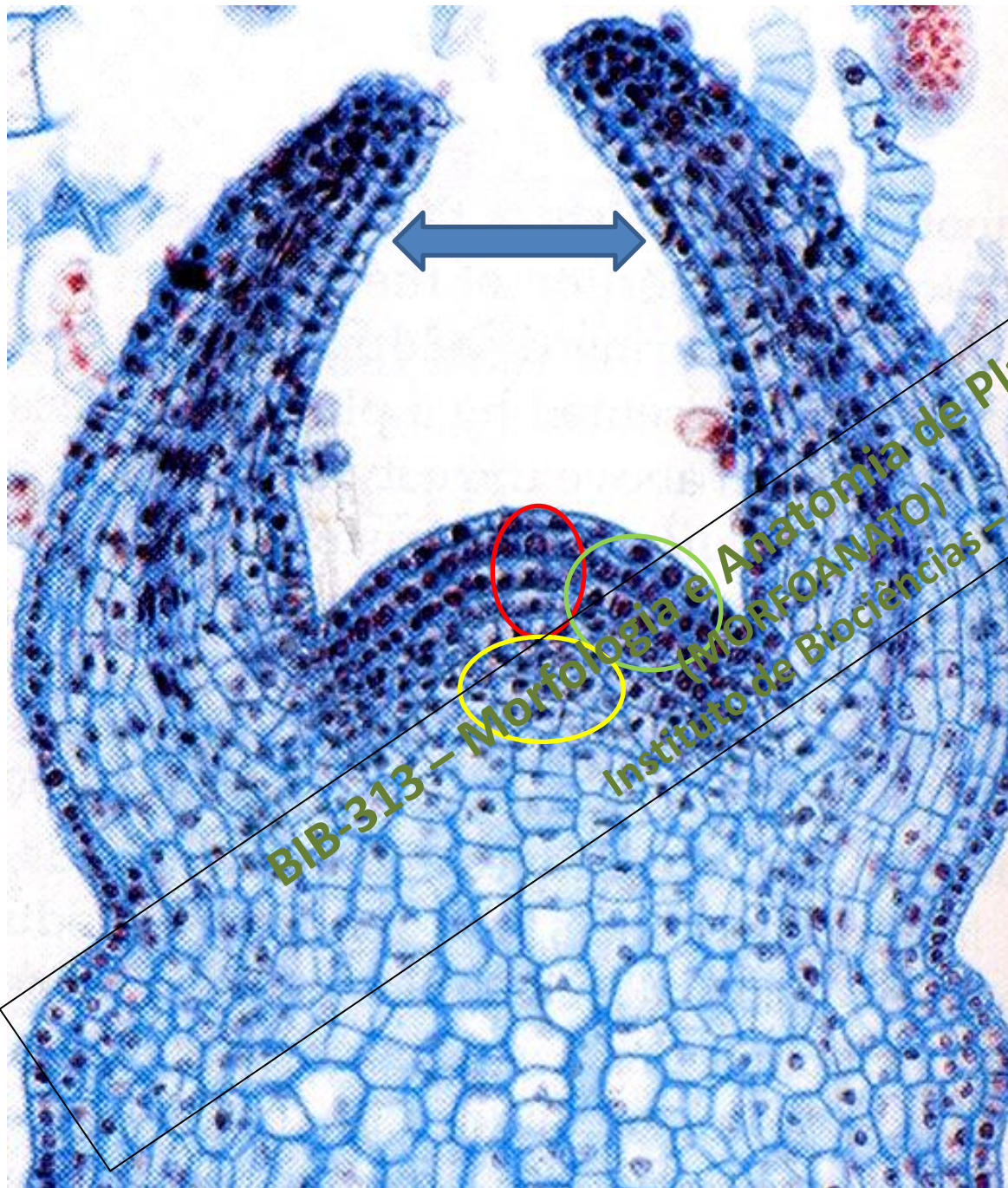
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Observe a secção longitudinal do ápice caulinar de *Plectranthus* sp.



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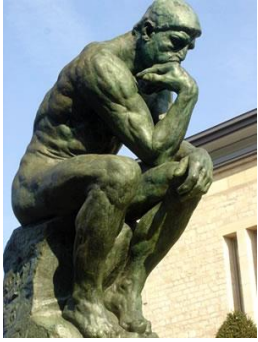
zona central (vermelho)

zona periférica (verde)

zona medular (amarelo)

primórdios foliares (seta)

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Ramo de *Murraya paniculata* (Rutaceae) e *Plectranthus* sp. (Lamiaceae)

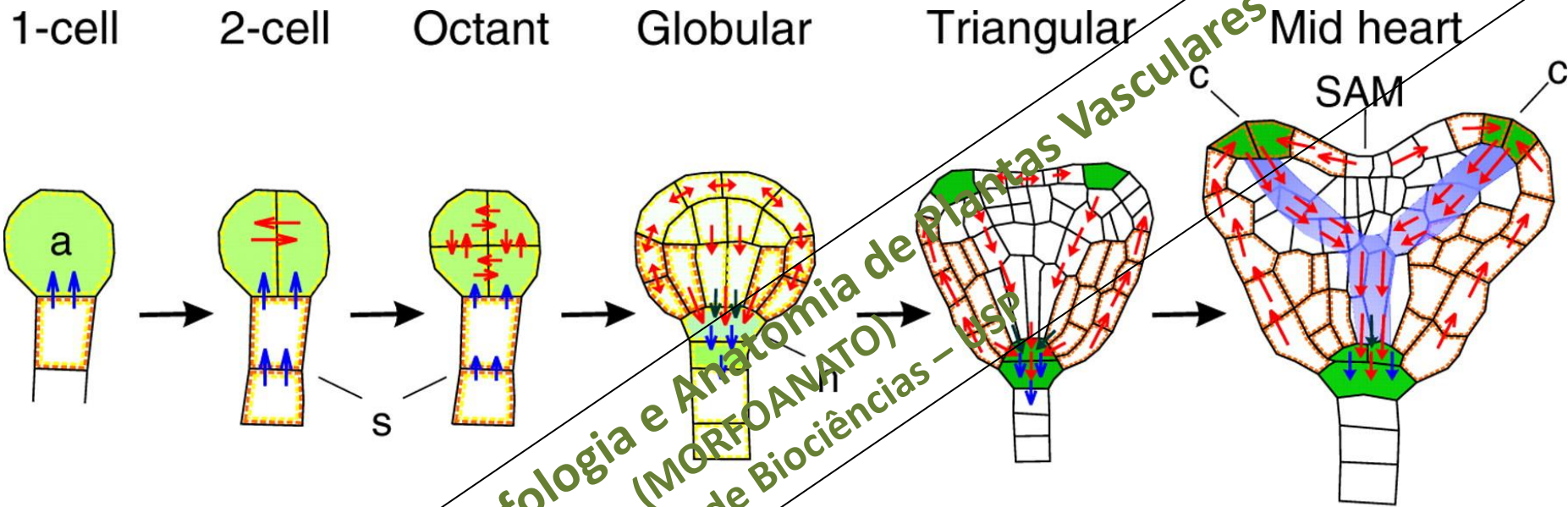


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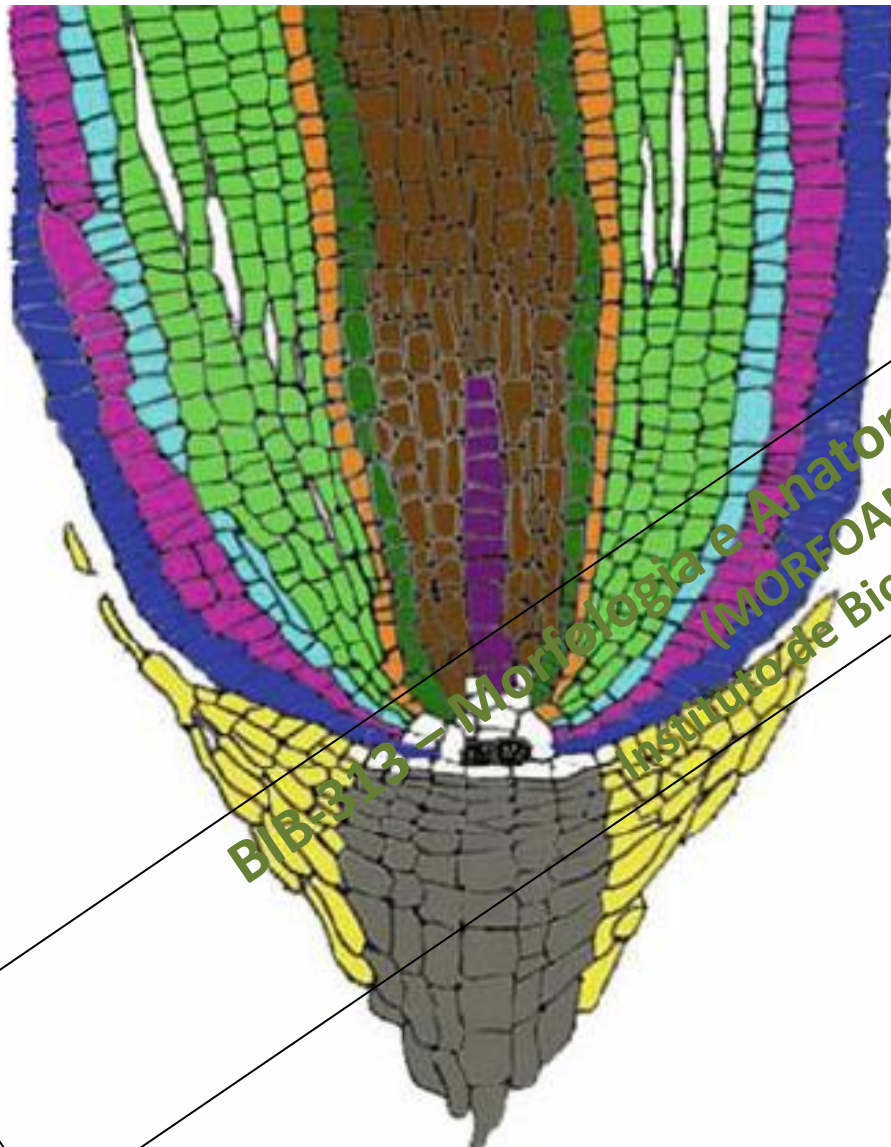


Diferenciação dos meristemas durante a embriogênese



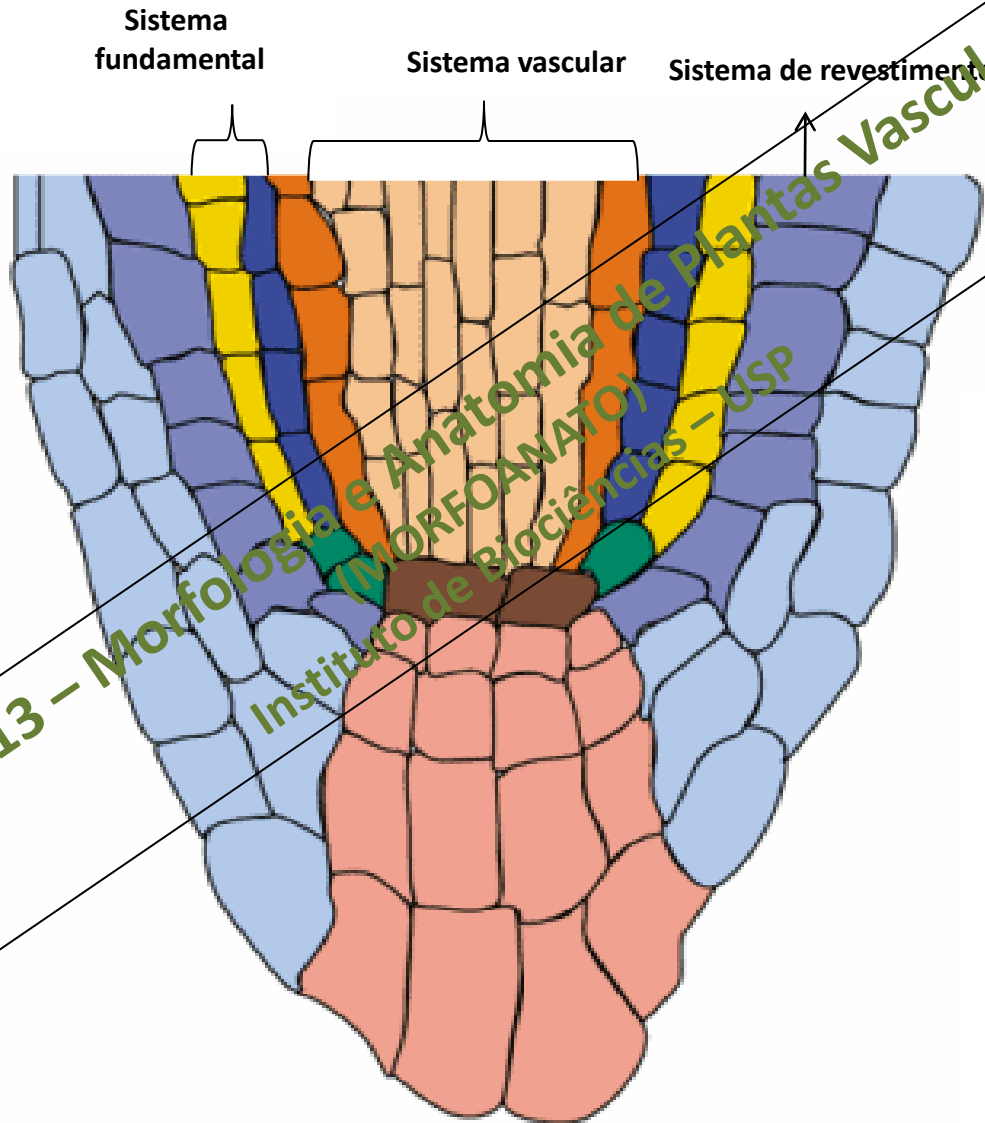
Key	PIN1	PIN4	PIN7	ABCB1	ABCB19	Auxin concentration gradient (low-high)	Future vasculature	SAM	Future shoot apical meristem	a Apical cell	c Cotyledon	h Hypophysis	s Suspensor cells
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MAR: Meristema Apical Radicular



- Epidermis
 - Exodermis
 - Sclerenchyma
 - Cortex
 - Endodermis
 - Pericycle
 - Stele
 - Xylem
 - Columella
 - Lateral root cap
 - Initials and derivatives
 - Quiescent Center (QC)
- Outer cell layer
- Ground tissues
- Stele

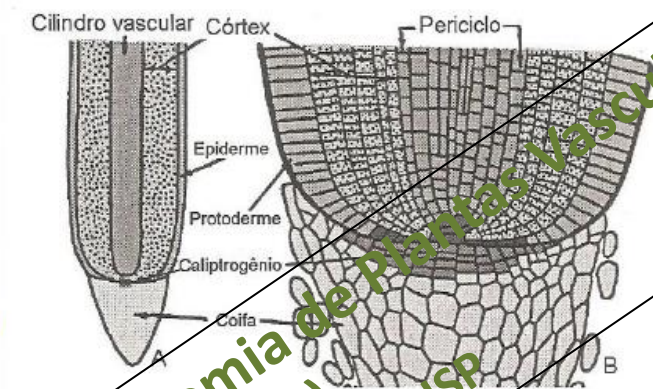
Epiderme e coifa originadas a partir da mesma inicial



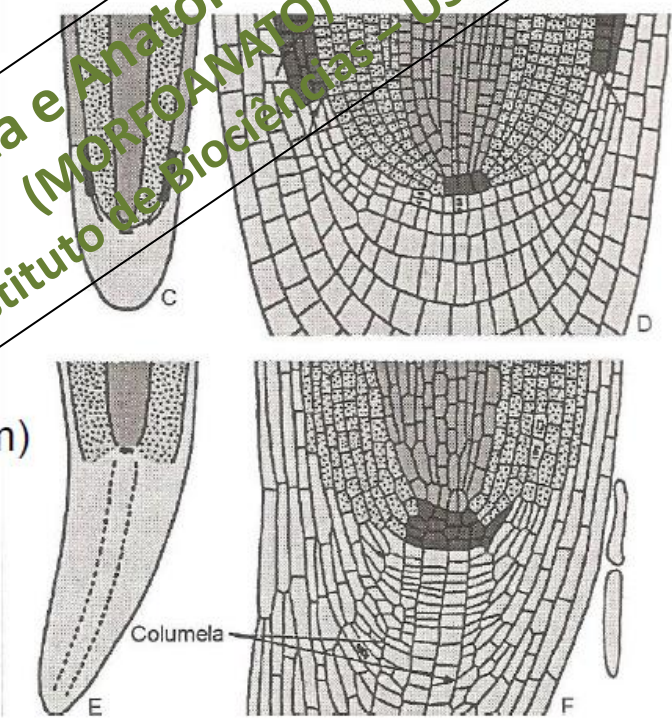
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Padrões gerais de organização do MAR em espermatófitas

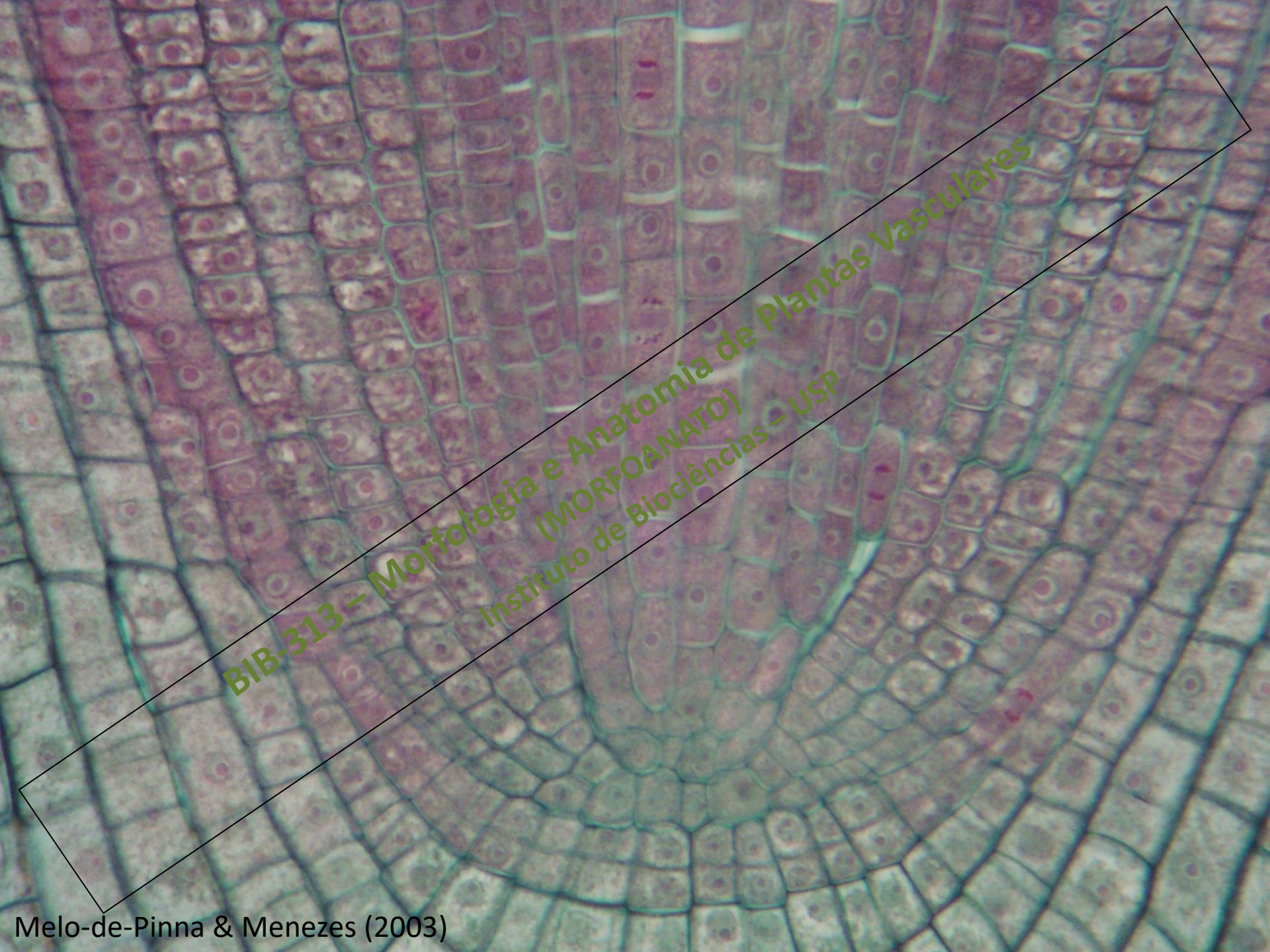
Fechado
(Diferentes iniciais)



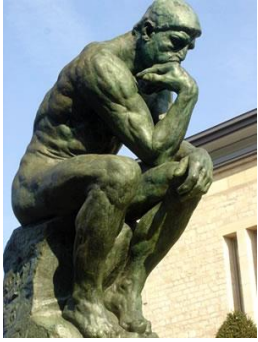
Aberto
(Iniciais em comum)



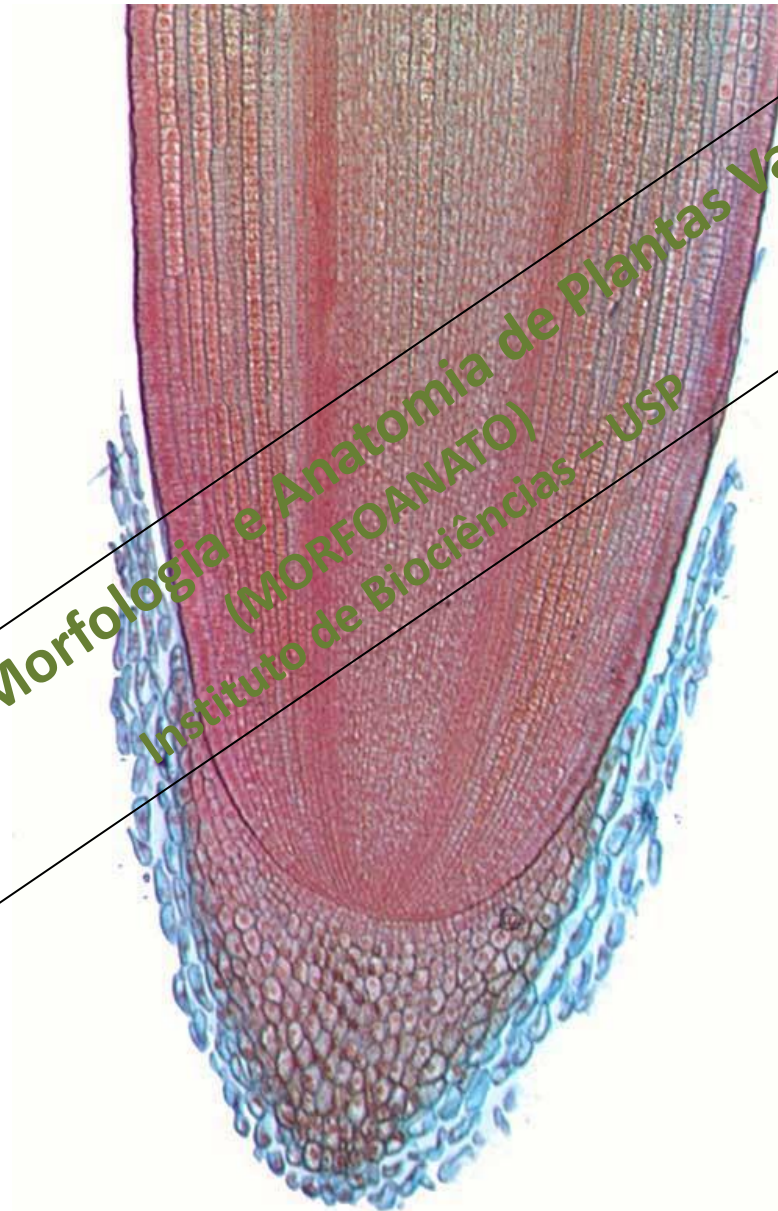
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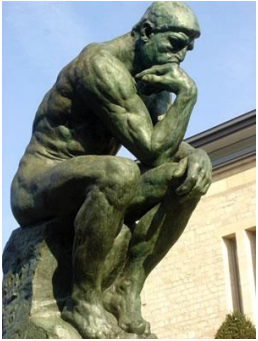


Observe a secção longitudinal do ápice radicular de *Allium cepa*.



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Onde encontramos MAR no sistema radicular?

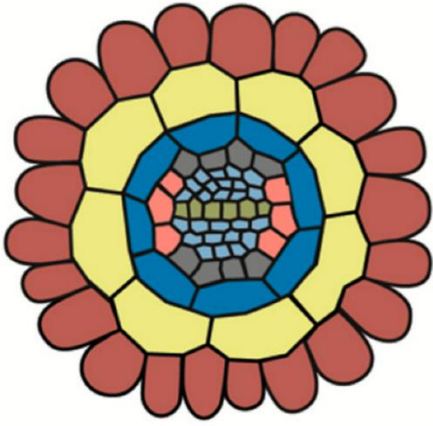


Secção longitudinal da raiz de *Eichornia crassipes* (Pontederiaceae).



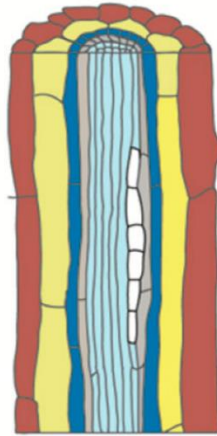
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a

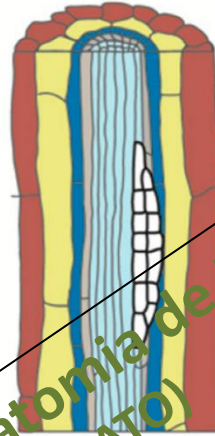


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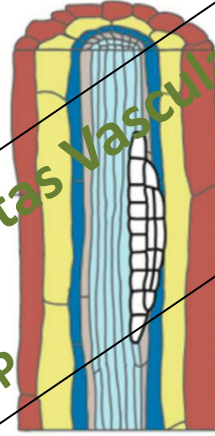
Stage I



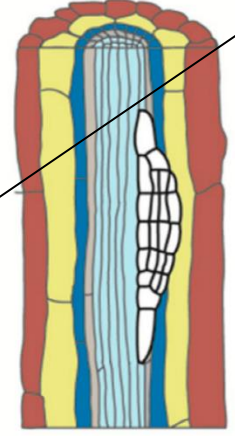
Stage II



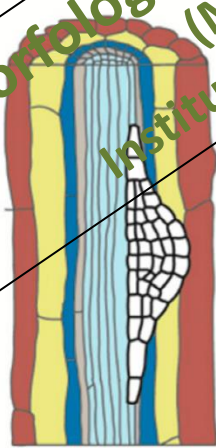
Stage III



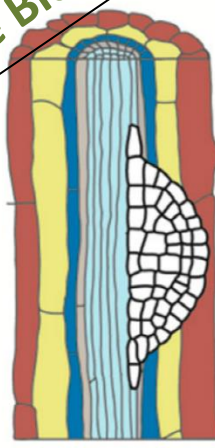
Stage IV



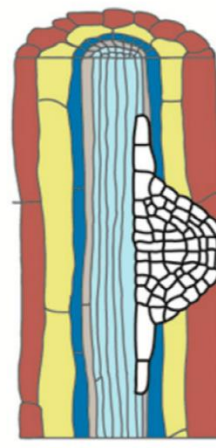
Stage V



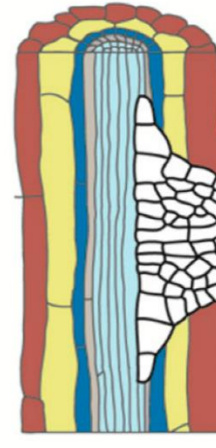
Stage VI













Stage VII

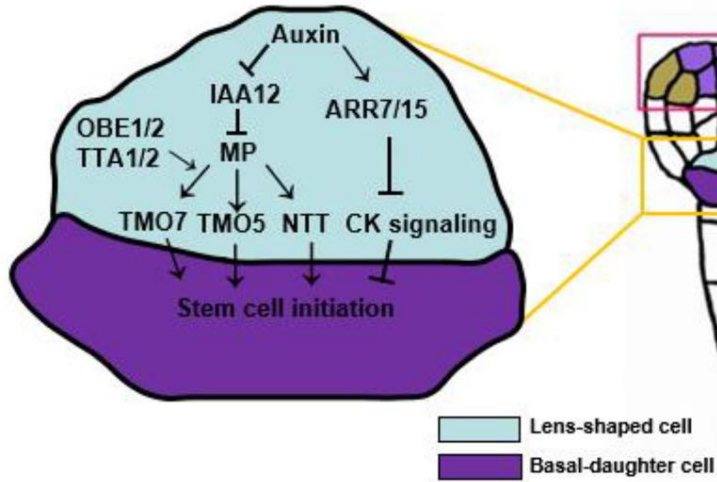
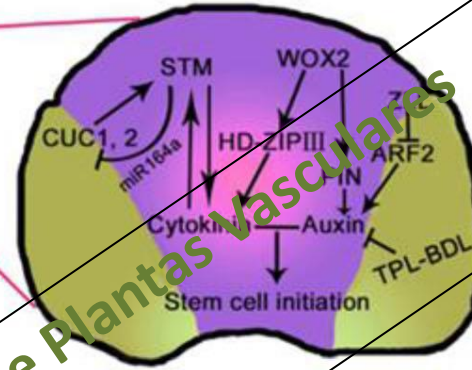
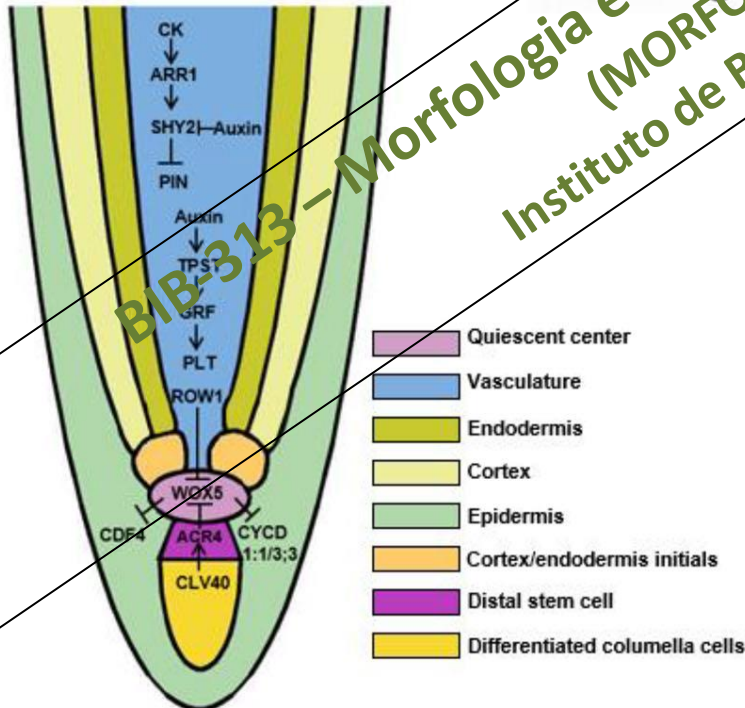
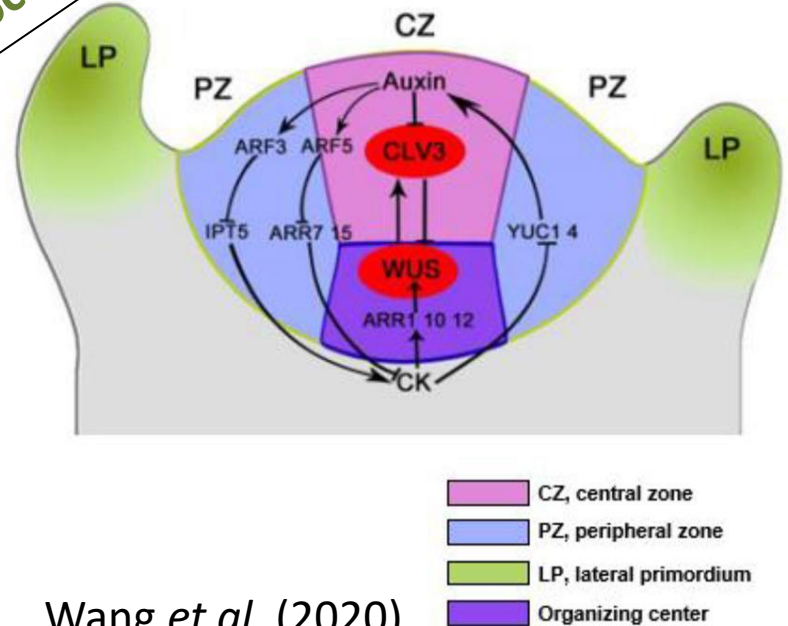


Stage VIII



-  Epidermis
 -  Cortex
 -  Endodermis
 -  Phloem pole pericycle
 -  Xylem pole pericycle
 -  Pericycle
 -  Phloem
 -  Xylem
 -  Lateral root primordia
-  Stele

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A**B****C****D**Wang *et al.* (2020)

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