

# Samičí gametofyt a gameta

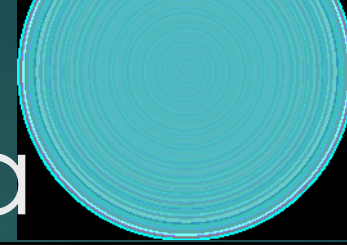
ROSTLINNÁ EMBRYOLOGIE, PODZIMNÍ SEMESTR 2023

MGR. HANA CEMPÍRKOVÁ, PH.D.



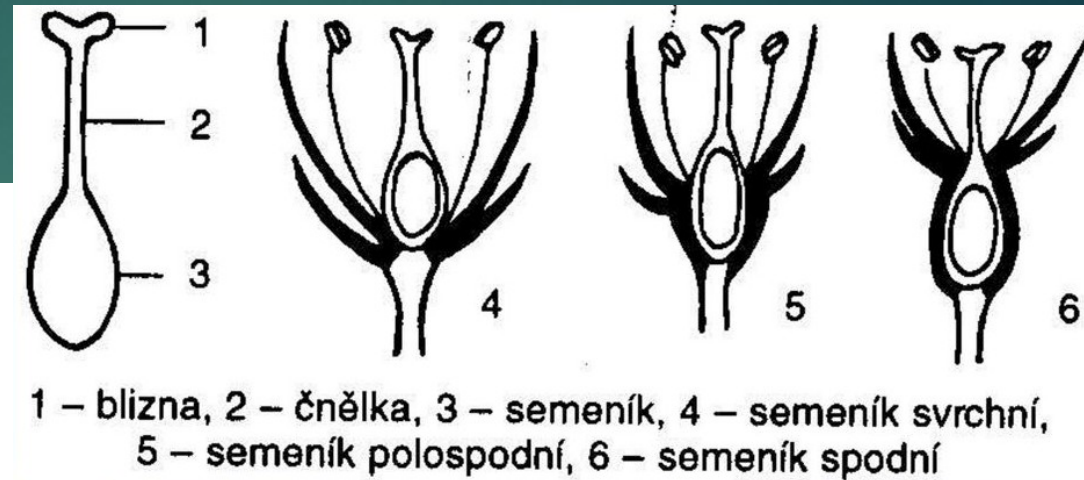
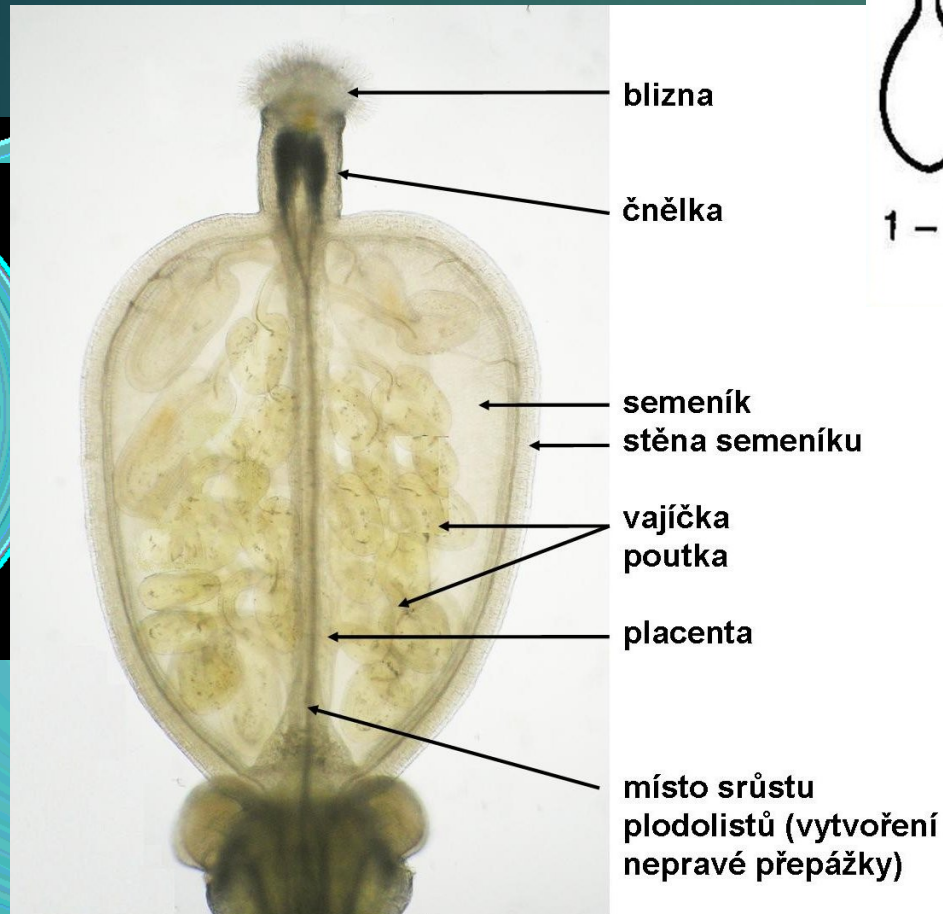
# Samičí gametofyt a gameta

- ▶ Jak to vypadá uvnitř pestíku?
- ▶ Co je samičí gameta a jak vzniká?
- ▶ Jak to vypadá uvnitř zralého vajíčka?



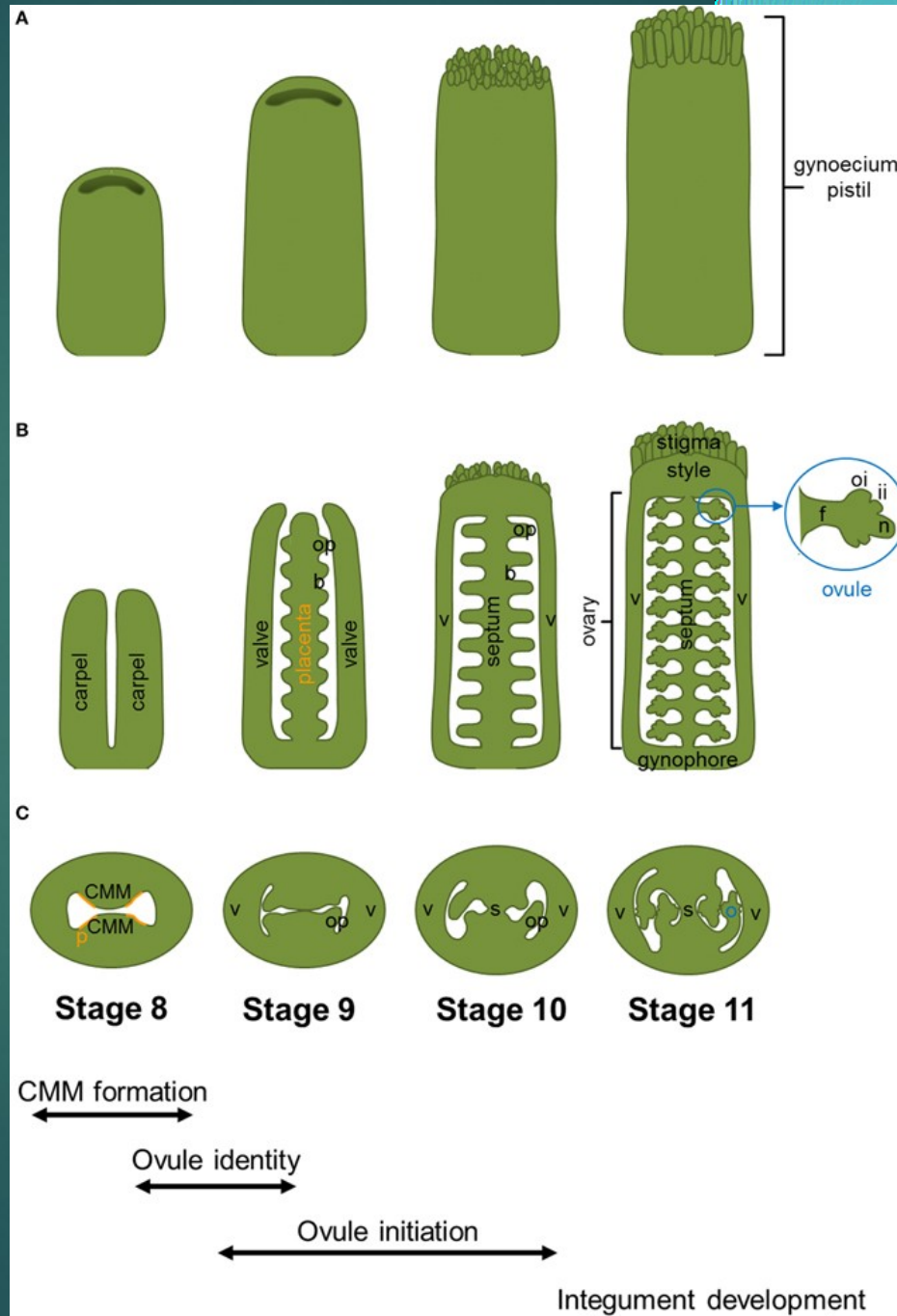
# Pestík – samičí pohlavní ústrojí

## Gyneceum

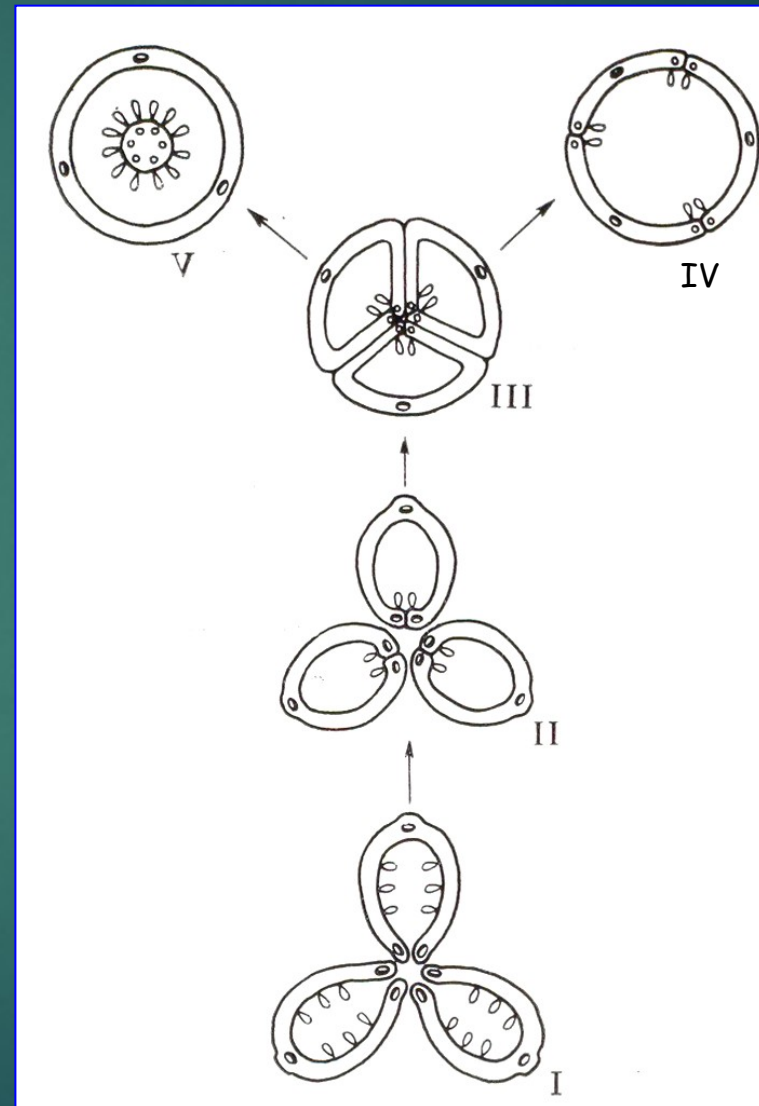
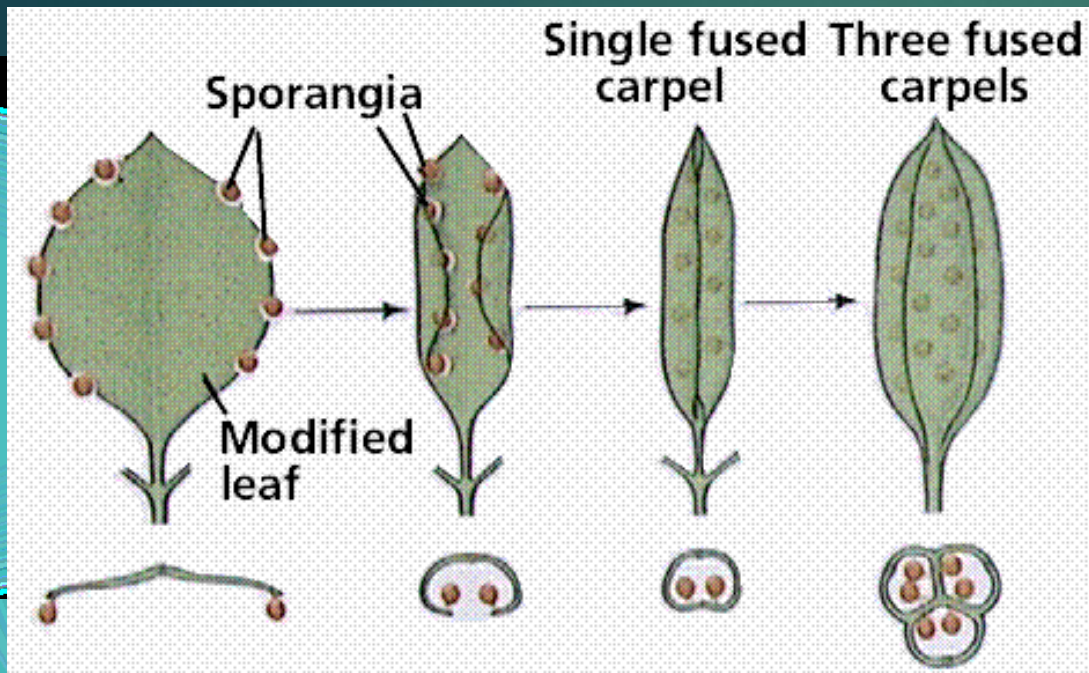


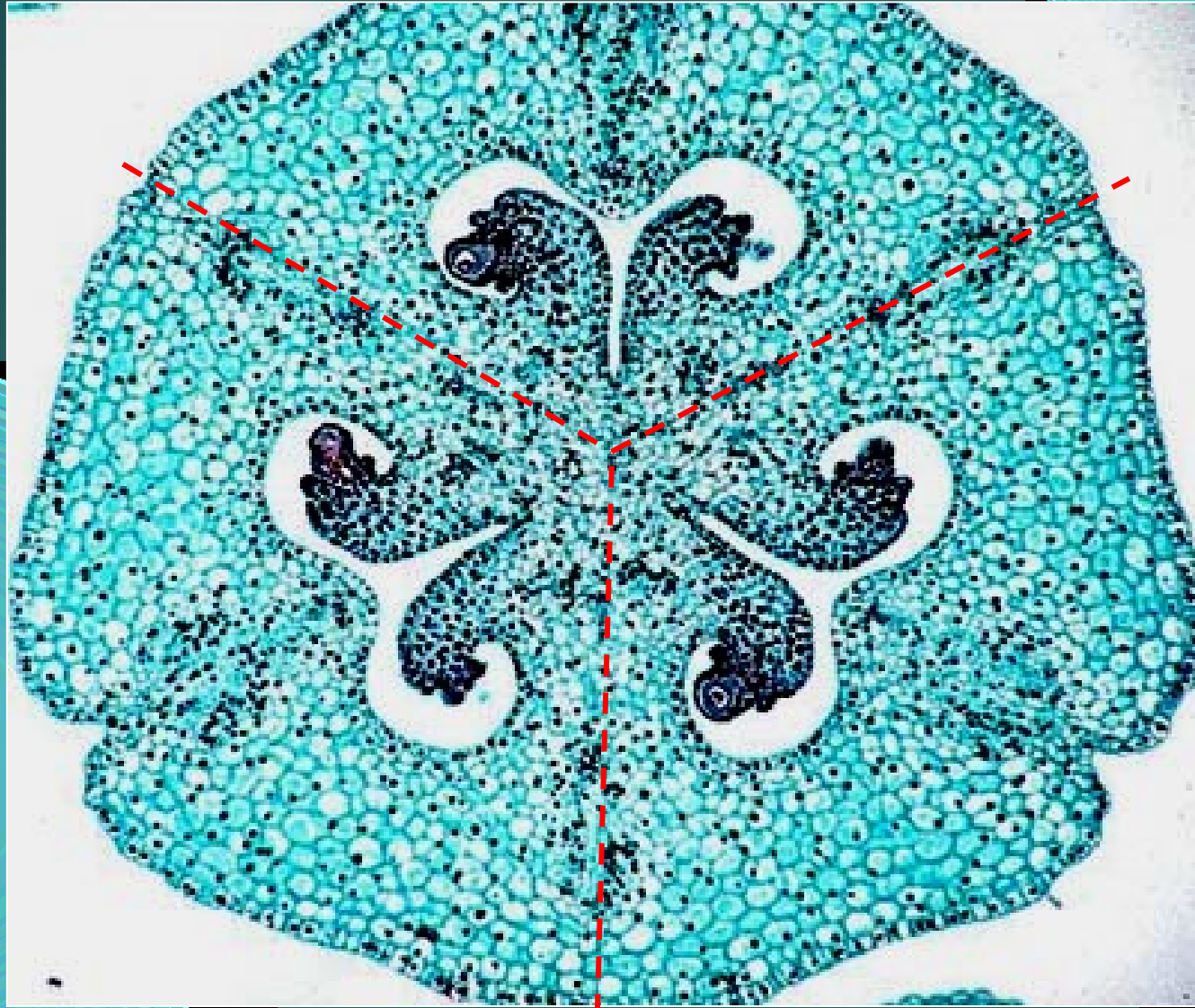


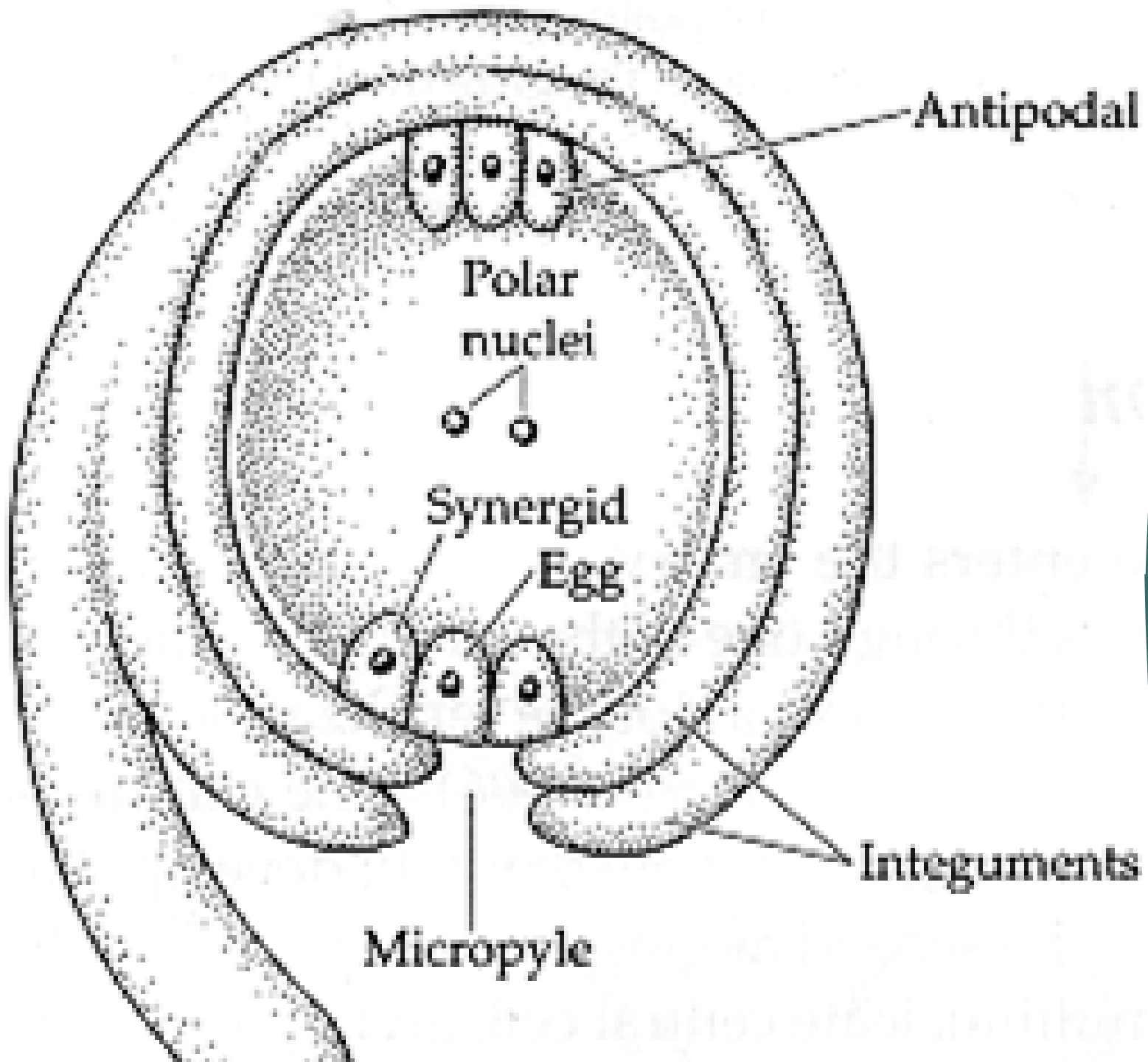
# Vývoj pestíku



# Typy semeníků a placentace







# Anatropní vajíčko

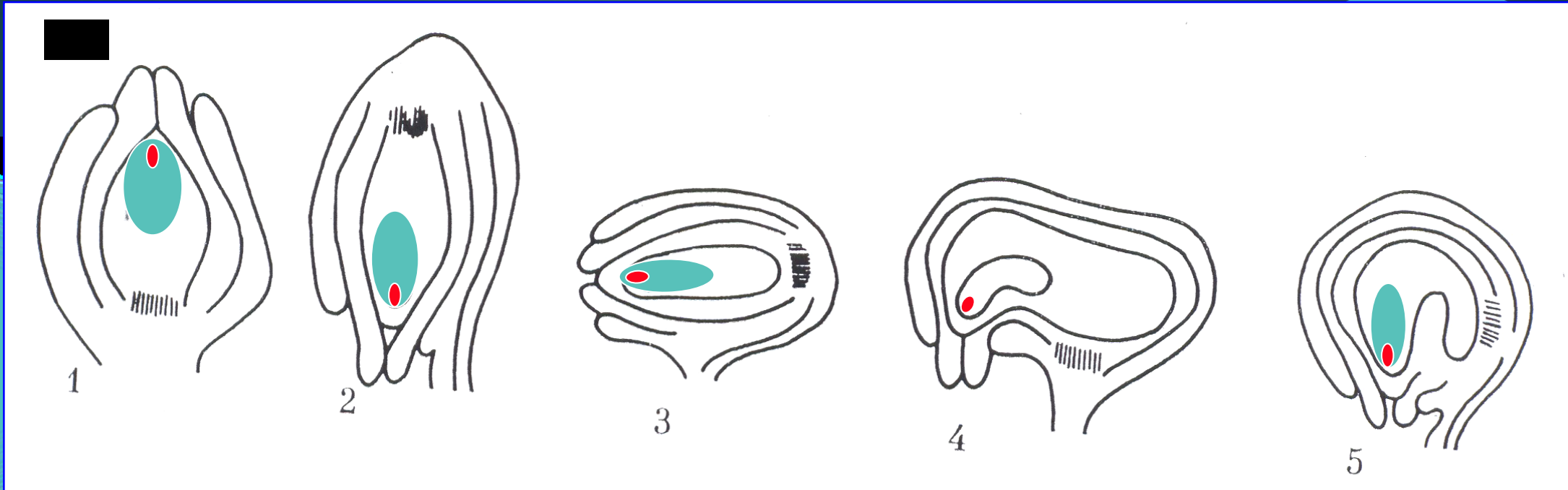


# Základní typy vajíček

přímé

obrácené

příčné





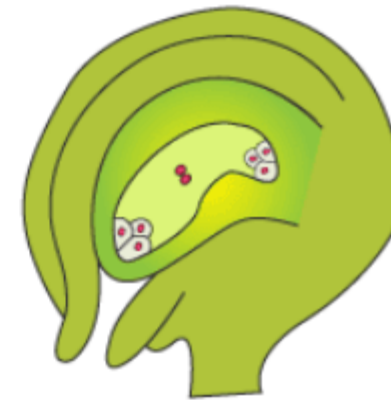
## TYPES OF OVULES



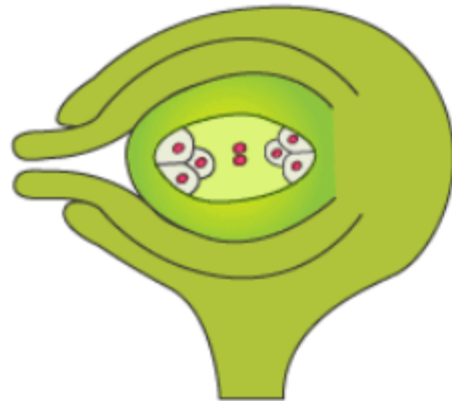
Atropous



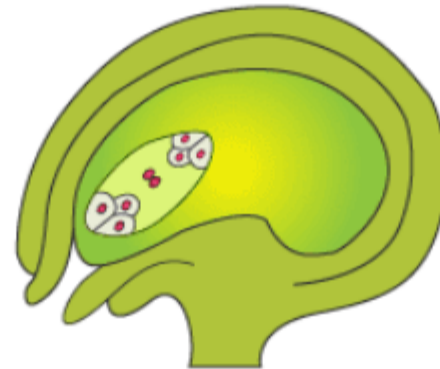
Anatropous



Amphitropous



Hemianatropous

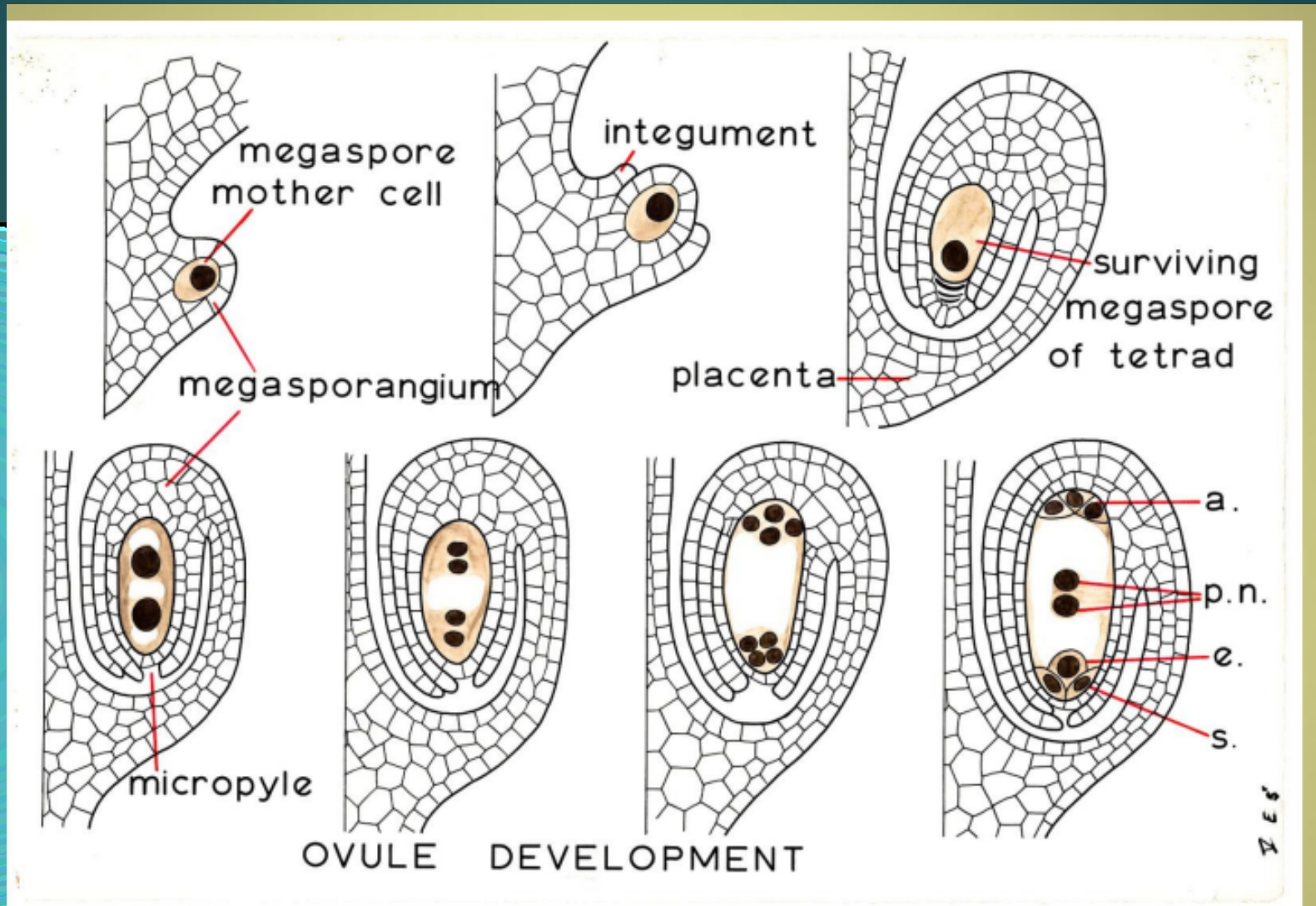


Campilotropous



Circinotropous

# Vývoj vajíčka



# Přehled typů zárodečných vaků

Erdelská 1981 (podle Maheshwari 1951)

monosporické

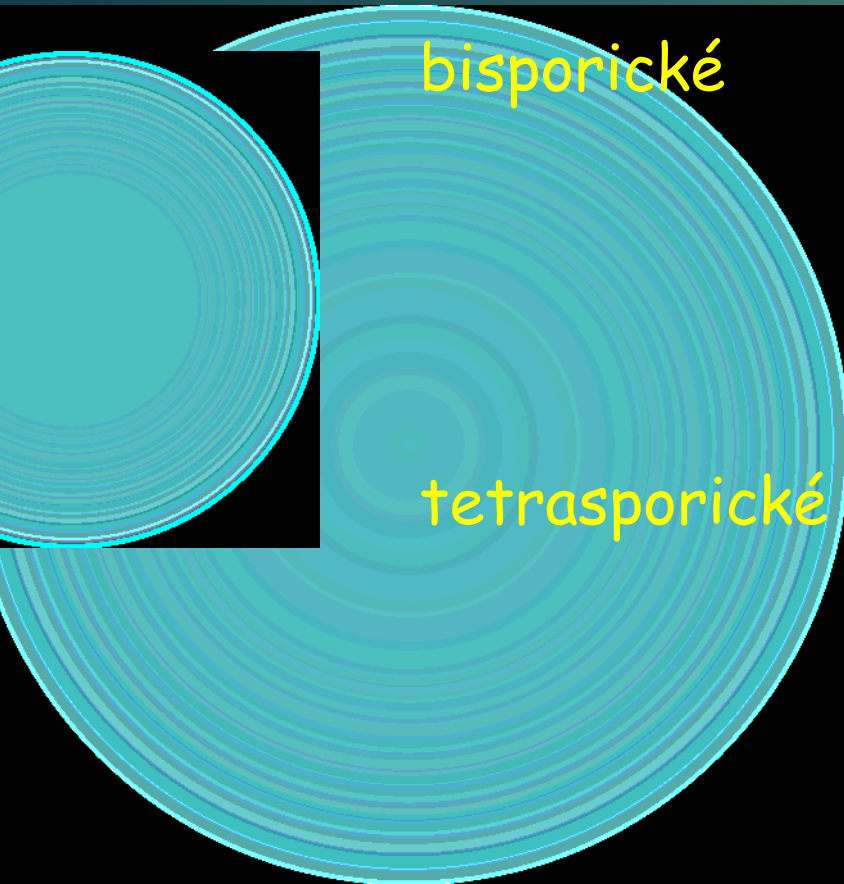
*Polygonum*  
*Oenothera*

bisporické

*Allium*  
*Podostemon*

tetrasporické







































*Adoxa*  
*Fritillaria*  
*Plumbagella*  
*Drusa*  
*Peperomia*  
*Penea*  
*Plumbago*





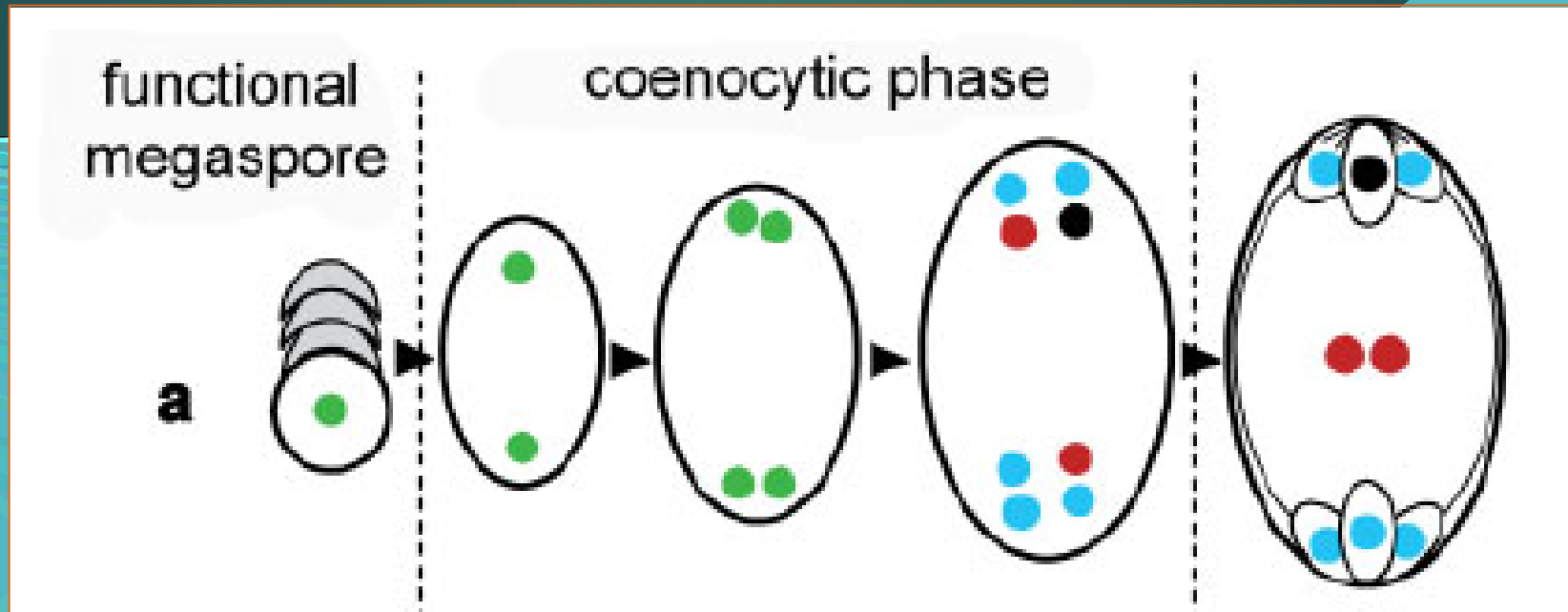
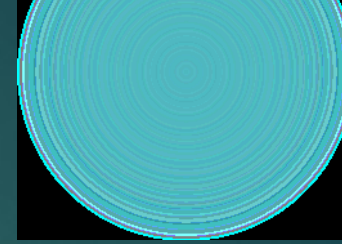
### Megasporogenesis

### Megagametogenesis

MMC	Meiosis I	Meiosis II	Mitosis I	Mitosis II	Mitosis III	Mature Embryo sac			
							<b>Polygonum</b> 8-nucleate 7-celled	Monosporic	
					—		<b>Oenothera</b> 4-nucleate 4-celled		
					—		<b>Nuphar/Schisandra</b> 4-nucleate 4-celled		
					—	—		<b>Helosis</b> 4-nucleate 4-celled	Bisporic
				—	—		<b>Podostemon</b>		
				—	—		<b>Polypleurum</b>		
							<b>Allium</b> 8-nucleate 7-celled		
				—			<b>Adoxa</b> 8-nucleate 7-celled	Tetrasporic	
				—	—		<b>Plumbagella</b>		



# Zárodečný vak typu *Polygonum*



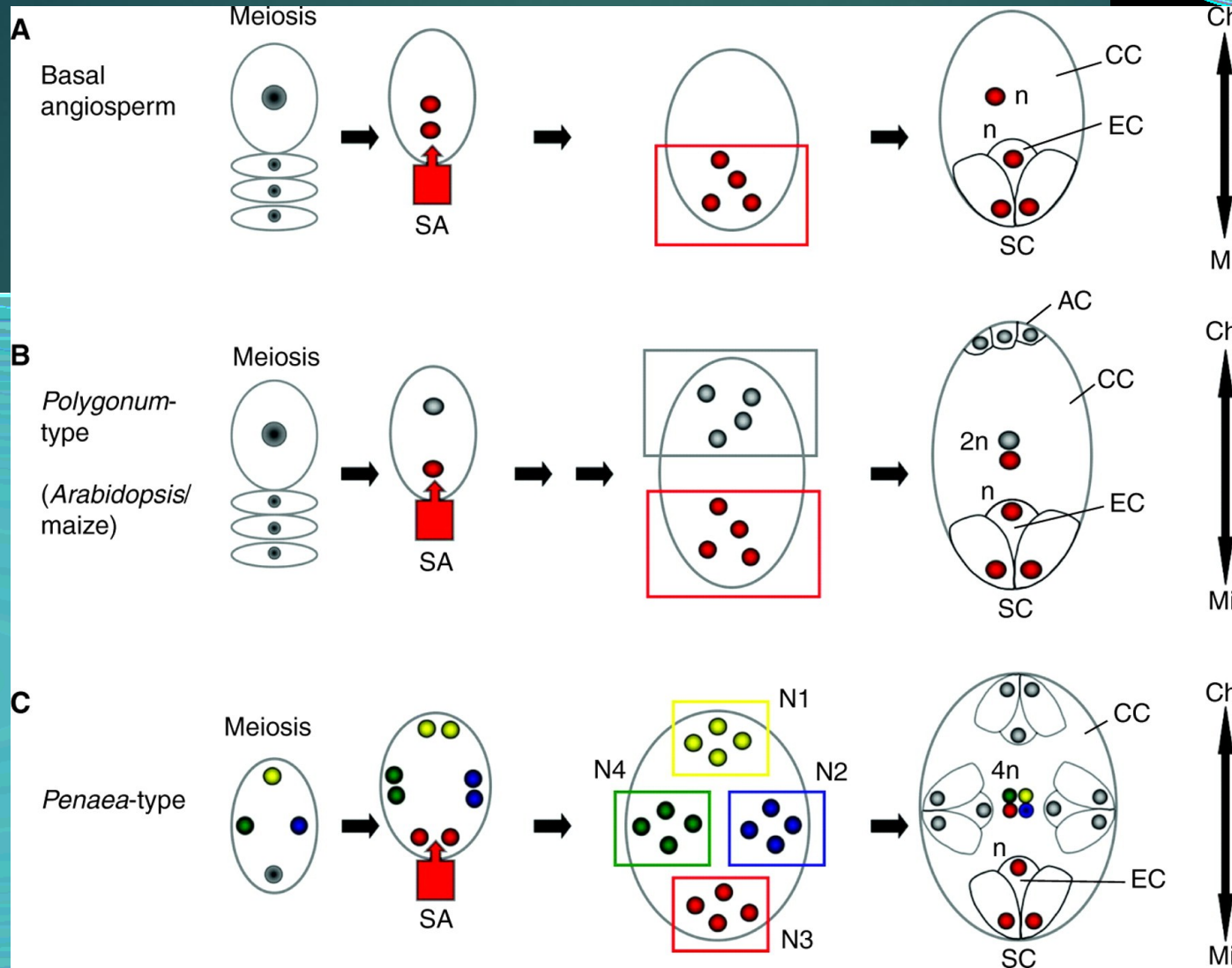
fungující megaspóra

mladý zárodečný vak

zralý zárodečný vak



# Modulární hypotéza vývoje zárodečného vaku kombinovaná s modelem gradientu auxinu



monosporický  
monopolární z.v.

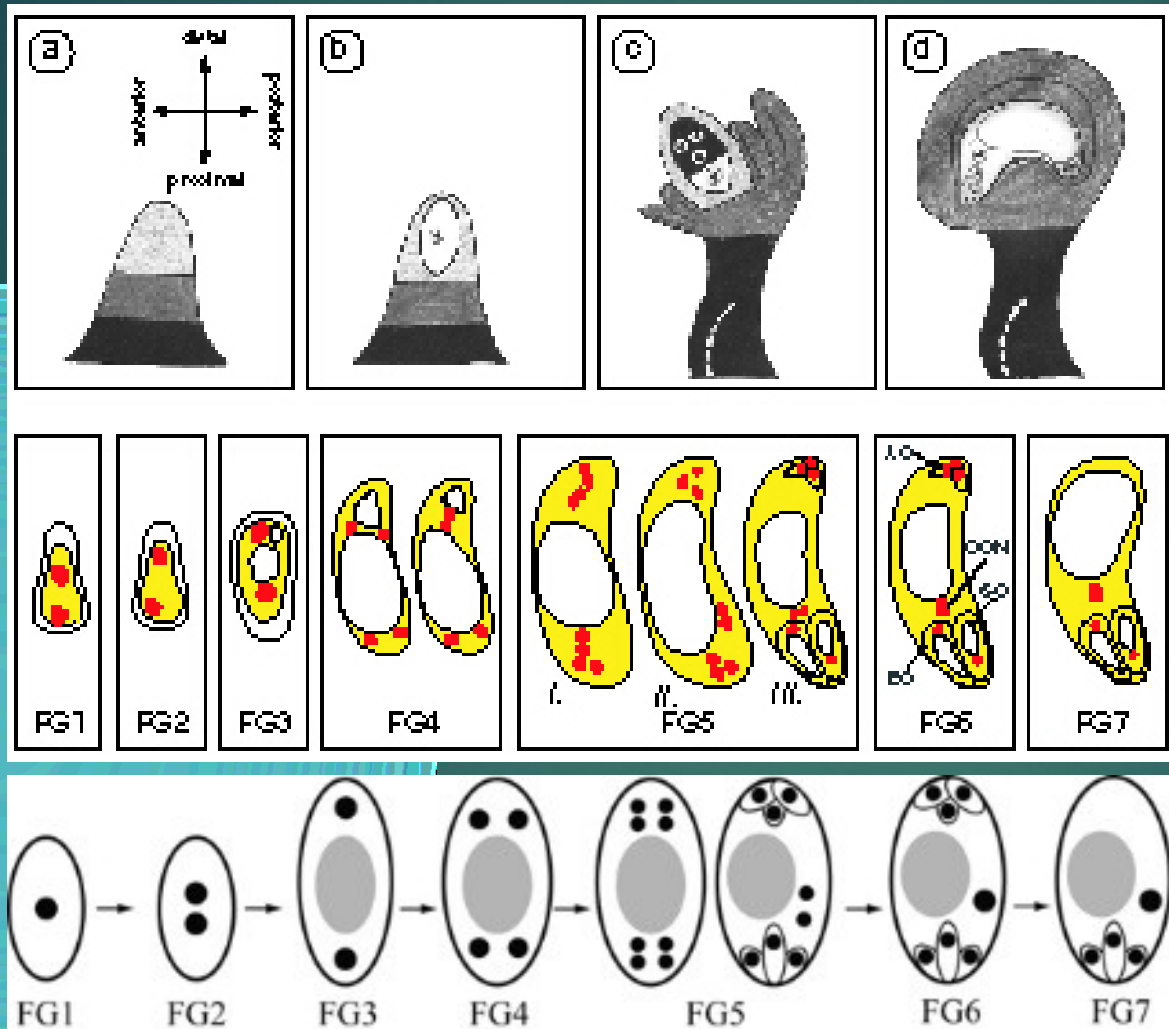
monosporický  
bipolární z.v.

tetrasporický  
tetrapolární z.v.

SA - zdroj auxinu

Sundaresan et Alandete-Saez 2010

# Vývoj vajíčka a zárodečného vaku u *Arabidopsis*



Grossnilaus a  
Schneitz  
1998

Hejátko *et al.*  
2003

vývojová stádia

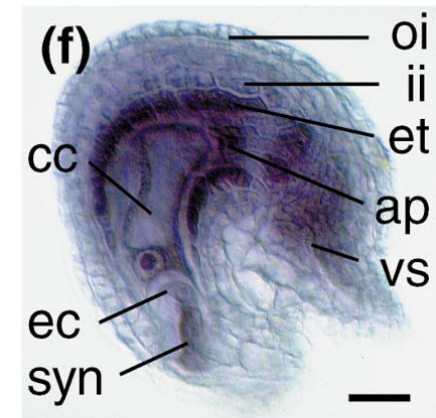
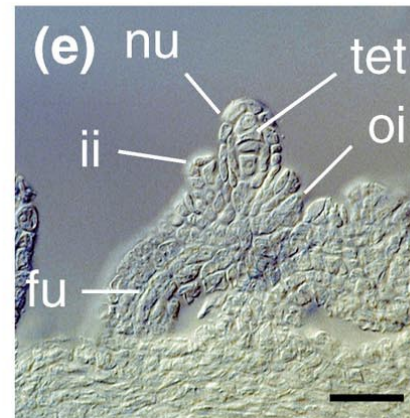
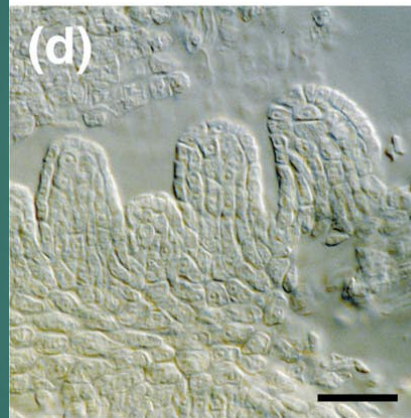
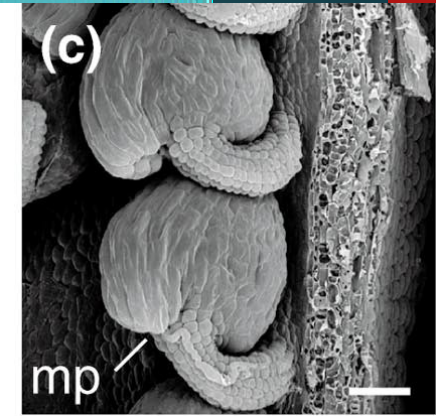
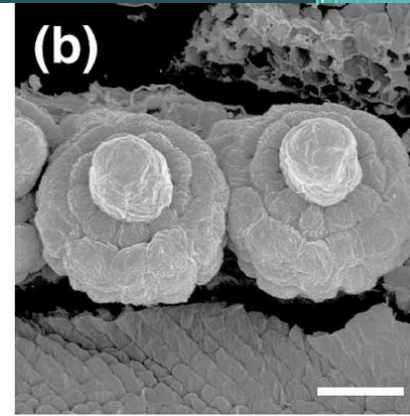
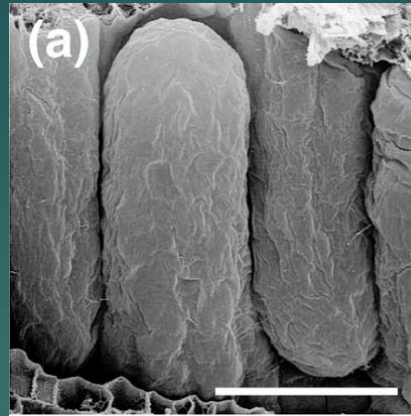


# Vývoj vajíčka *Arabidopsis*

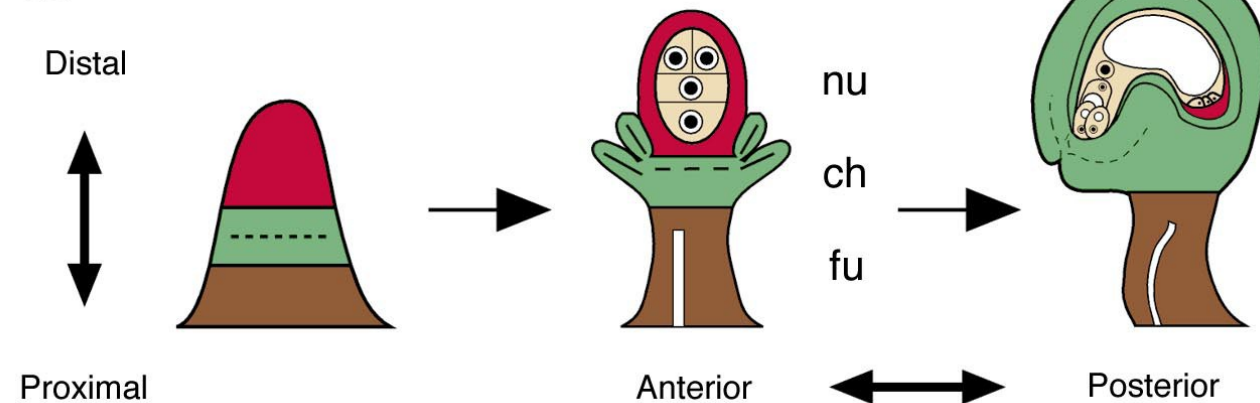
a, d = primordia vajíček  
před diferenciací  
megasporocytu

b, e = stadium tetrády  
a základů integumentů

c - vajíčko s pylovou  
láčkou na funikulu



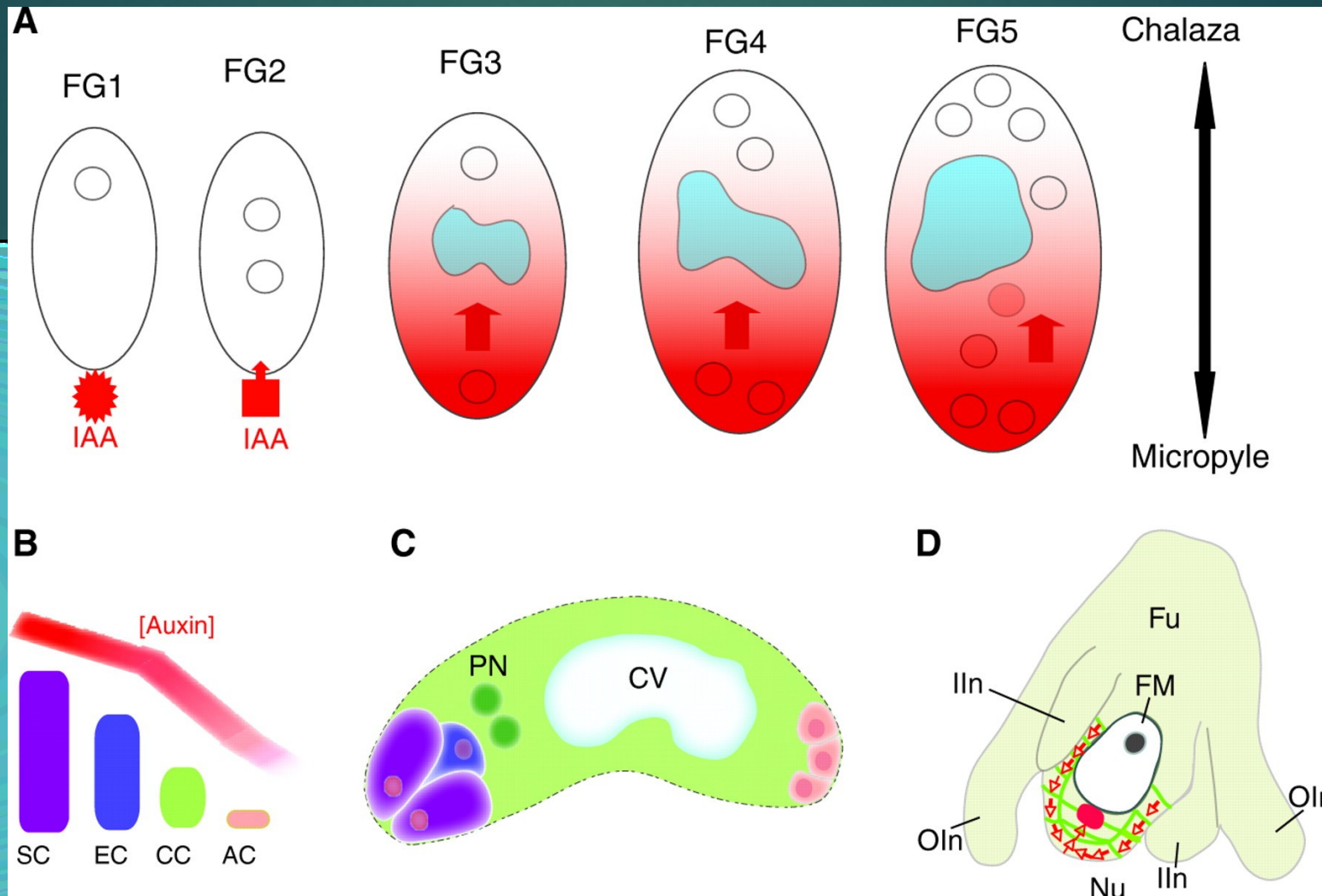
(g)



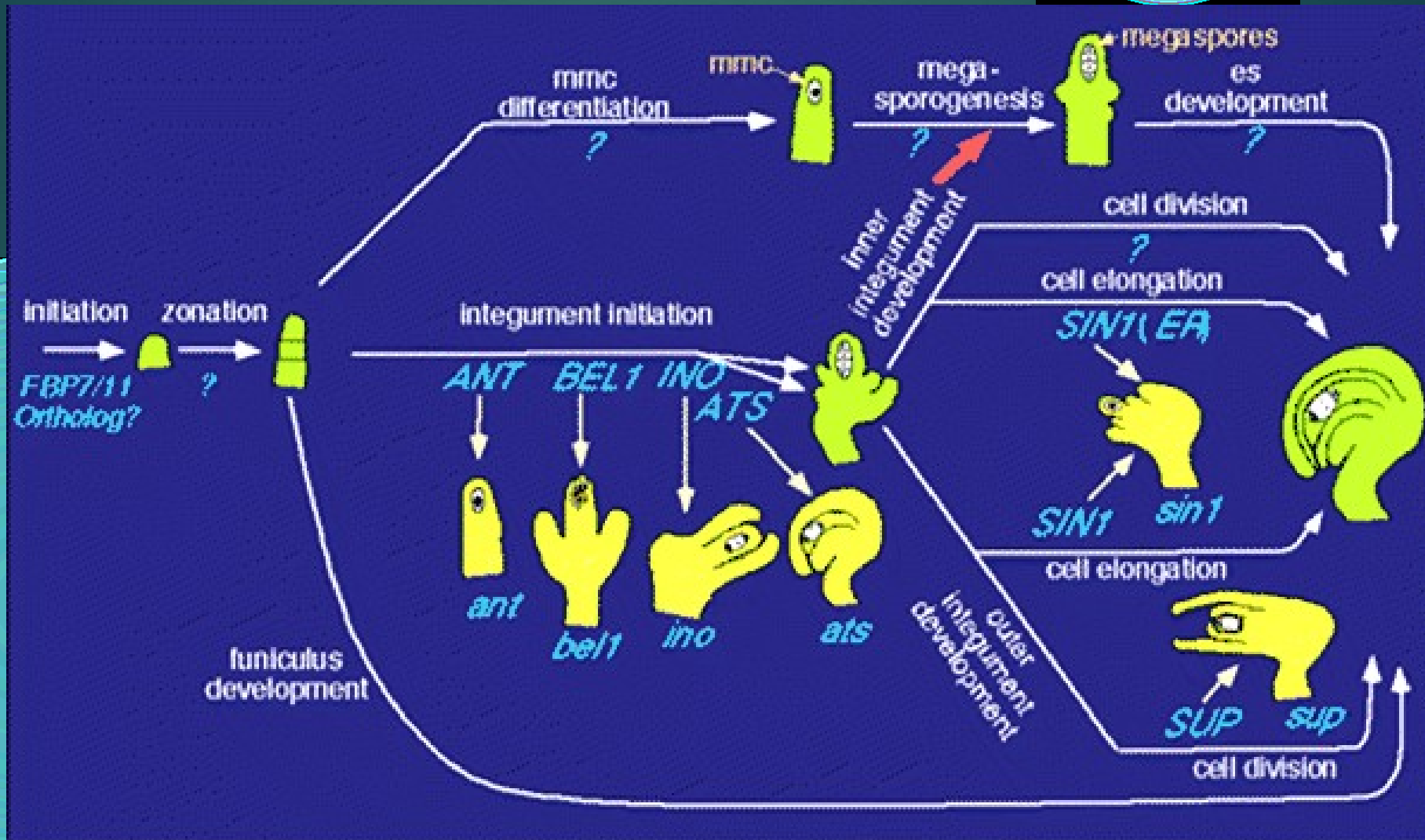
Schneitz *et al.*  
TIPS 1998



# Vývoj vajíčka a zárodečného vaku u *Arabidopsis* a gradient auxinu

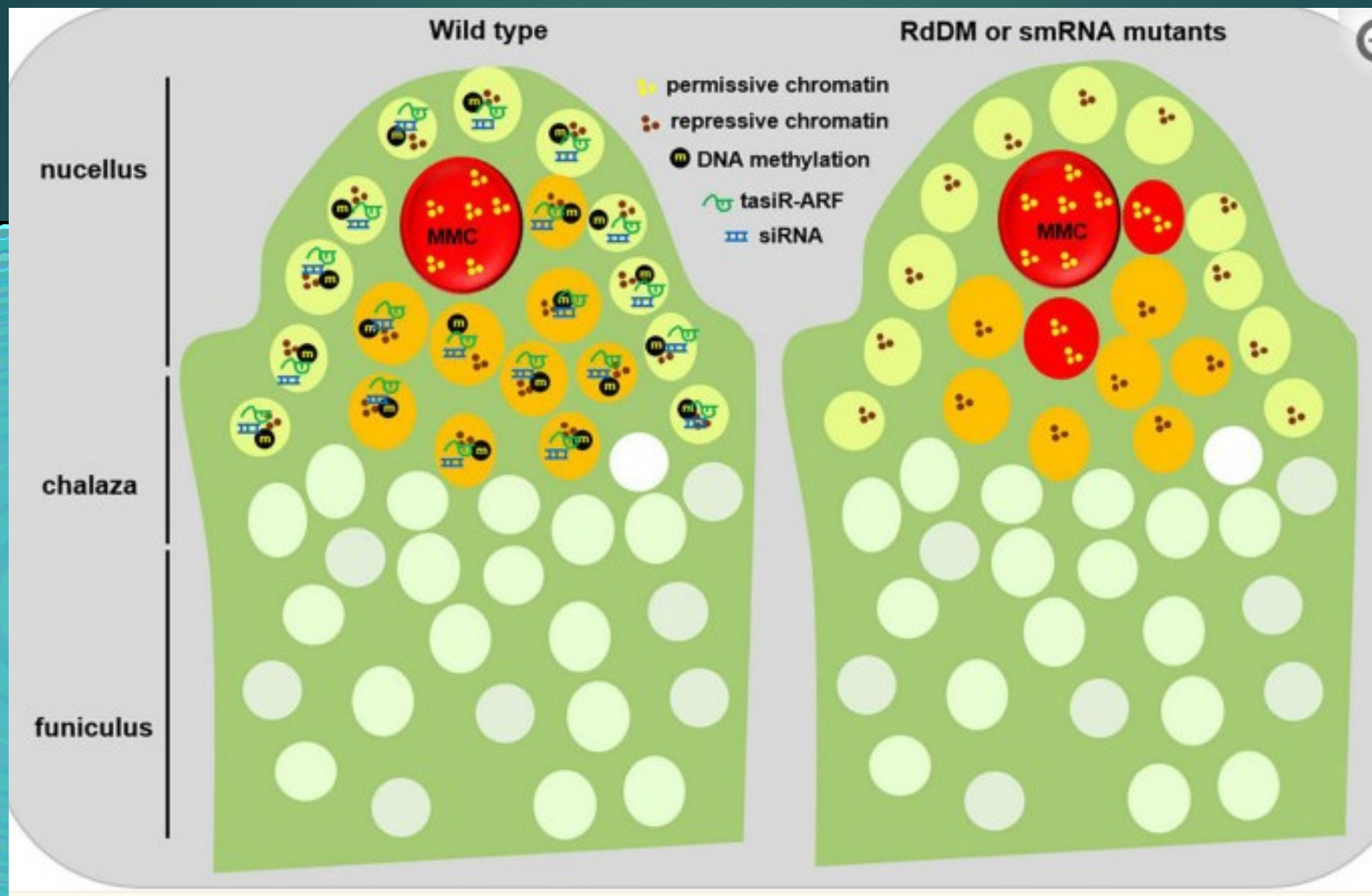


# Regulace vývoje vajíčka *Arabidopsis*



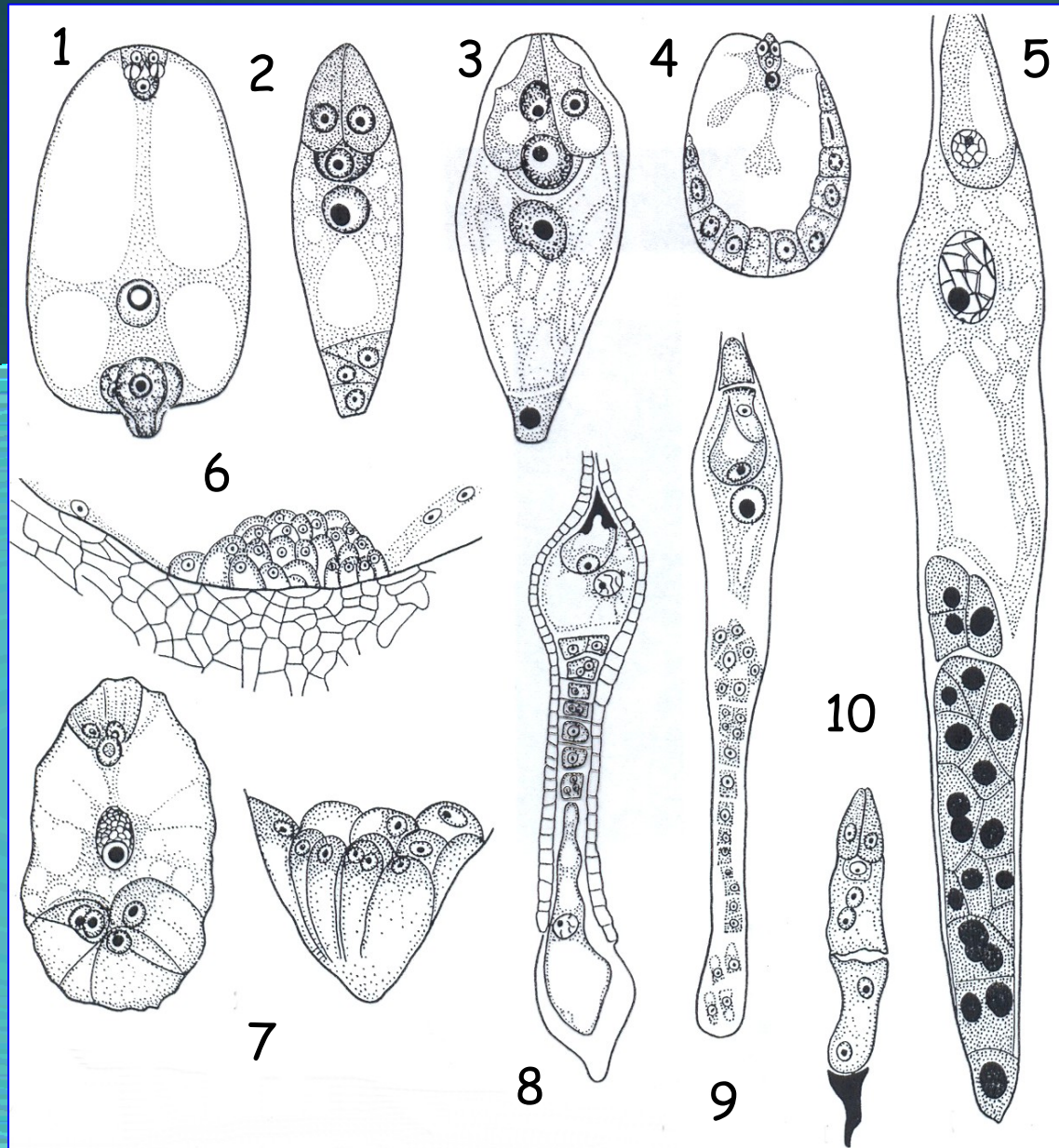
Info: Baker et al. 1997, Skinner et al. 2004, novější: Cucinotta et al. 2014

# Vývoj a regulace MMC





# Variabilita utváření antipod



- 1 *Delphinium*
- 2 *Sedum*
- 3 *Butomopsis*
- 4 *Gentiana*
- 5 *Ligularia*
- 6 *Spargania*
- 7 *Trautweteria*
- 8 *Chrysocoma*
- 9 *Anthemis*
- 10 *Bidens*



# Shrnutí

<https://www.iaspr.org/old/iaspr-pix/lily/>

