

Stanični ciklus

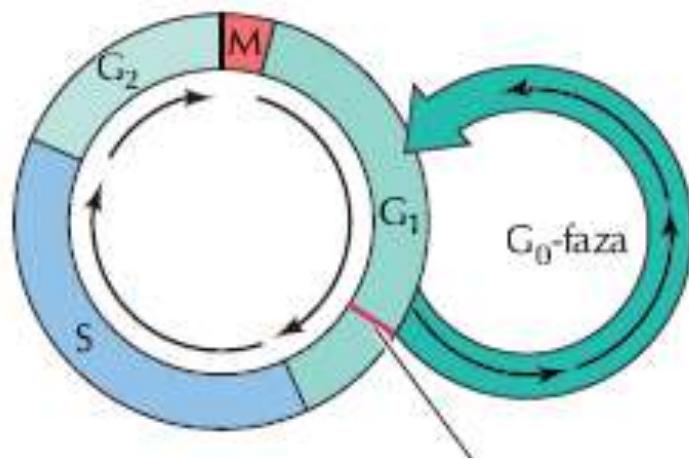
-mitoza i mejoza-

Stanični ciklus

- stanični rast
- replikacija DNK
- raspodjela udvostručenih kromosoma
- dioba stanice

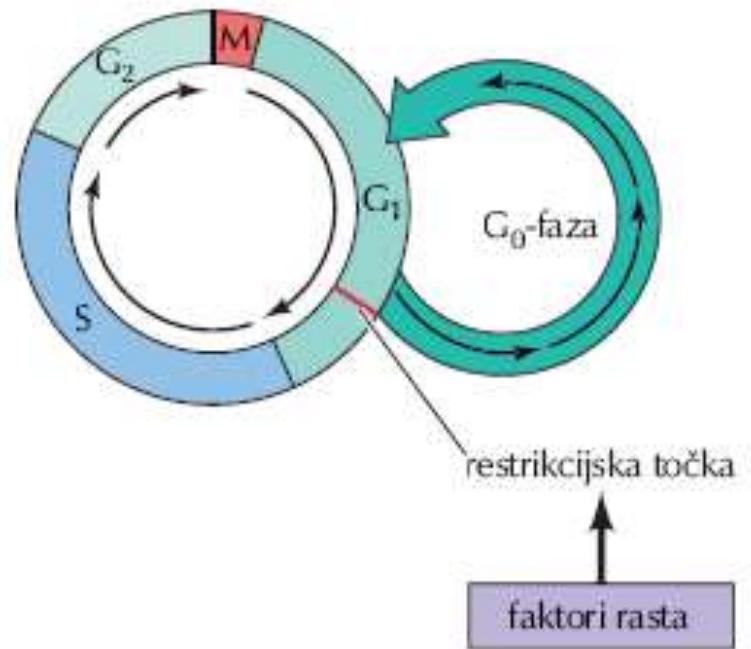
Stanični ciklus

- mitoza (M faza)
- interfaza
 - G_1 faza $\longrightarrow G_0$ faza
 - S faza
 - G_2 faza



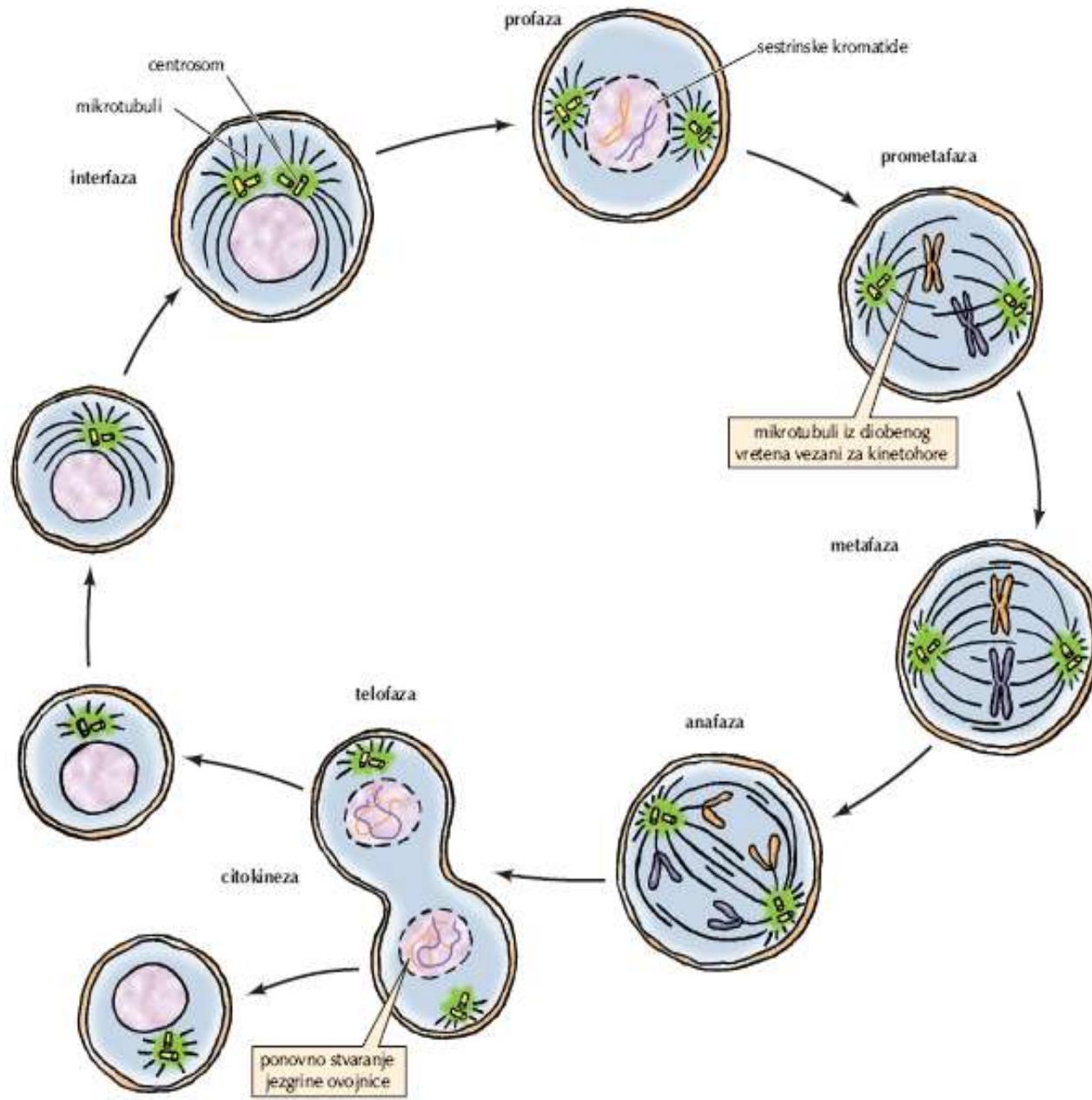
- neuroni – prestanak diobe
- većina drugih stanica – povremena dioba po potrebi

Regulacija staničnog ciklusa viših eukariota



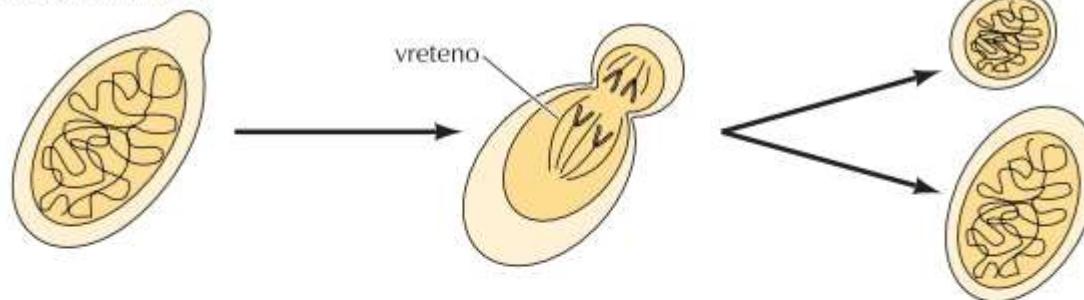
Mitoza (M faza)

- kondenzacija kromosoma
- razgradnja jezgrine ovojnice
- reorganizacija citoskeleta
- formiranje diobenog vretena
- razdvajanje kromosoma
- dioba stanice

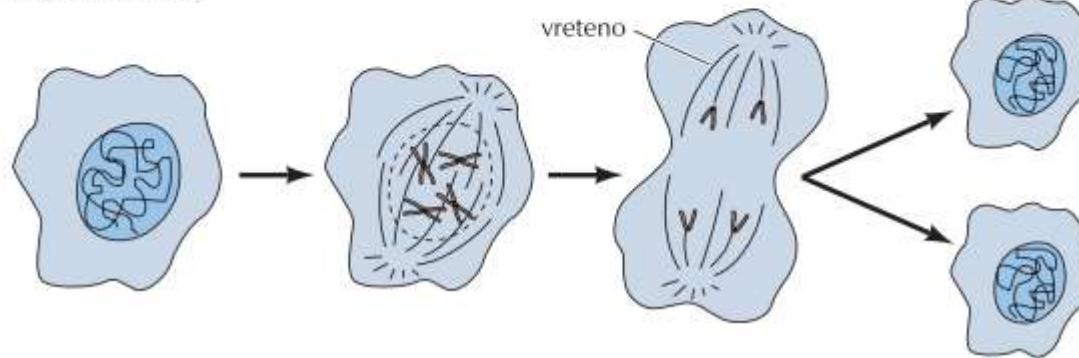


Zatvorena i otvorena mitoza

Zatvorena mitoza

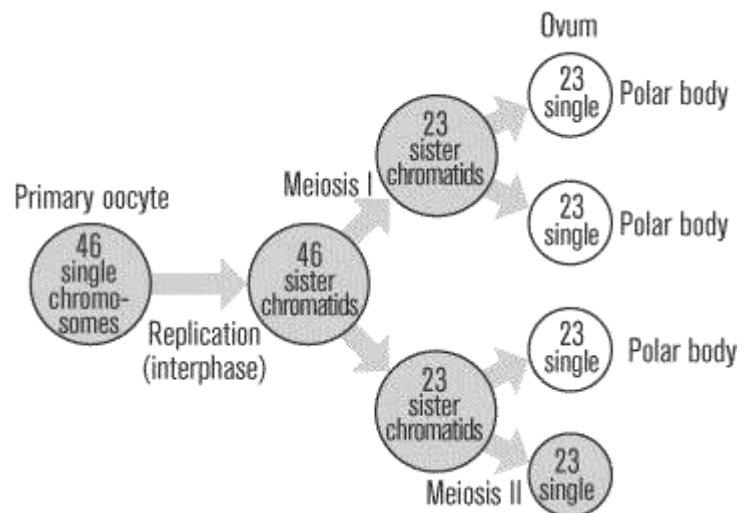
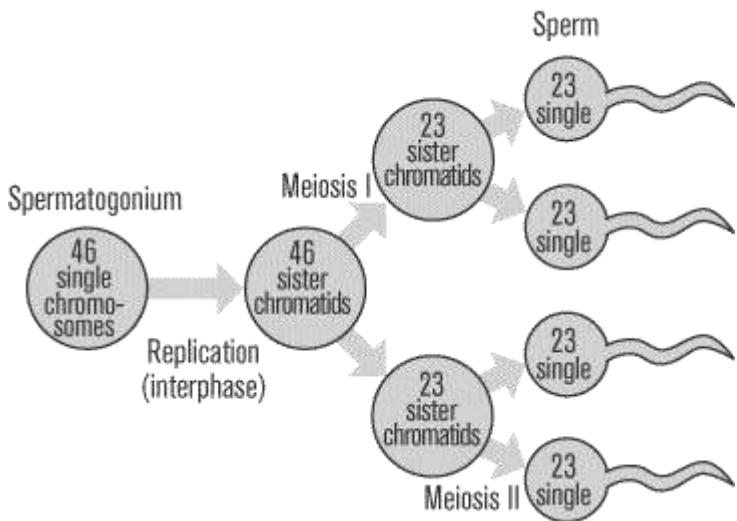


Otvorena mitoza



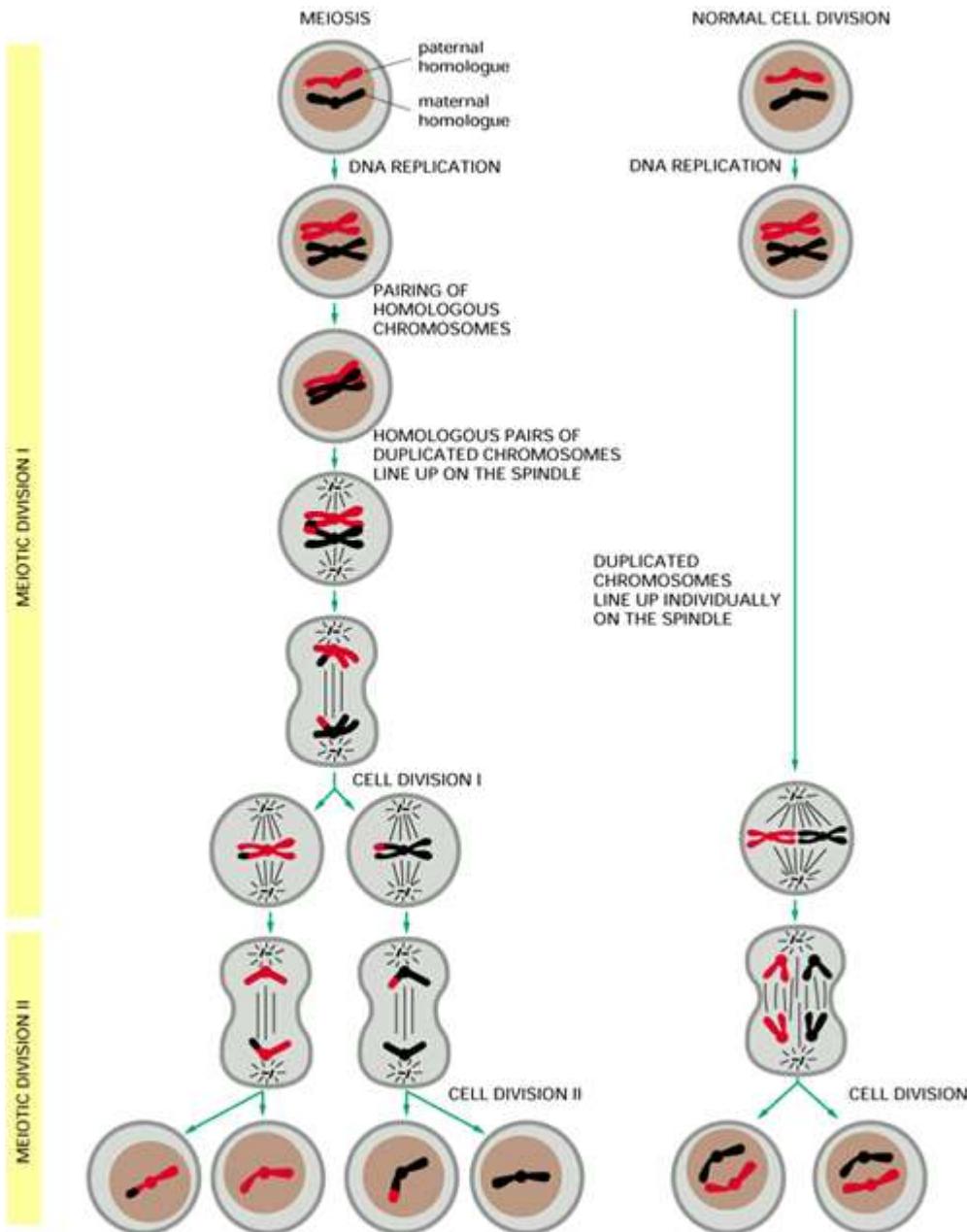
GAMETOGENEZA

- OOGENEZA → jajna stanica
- SPERMATOGENEZA → spermij

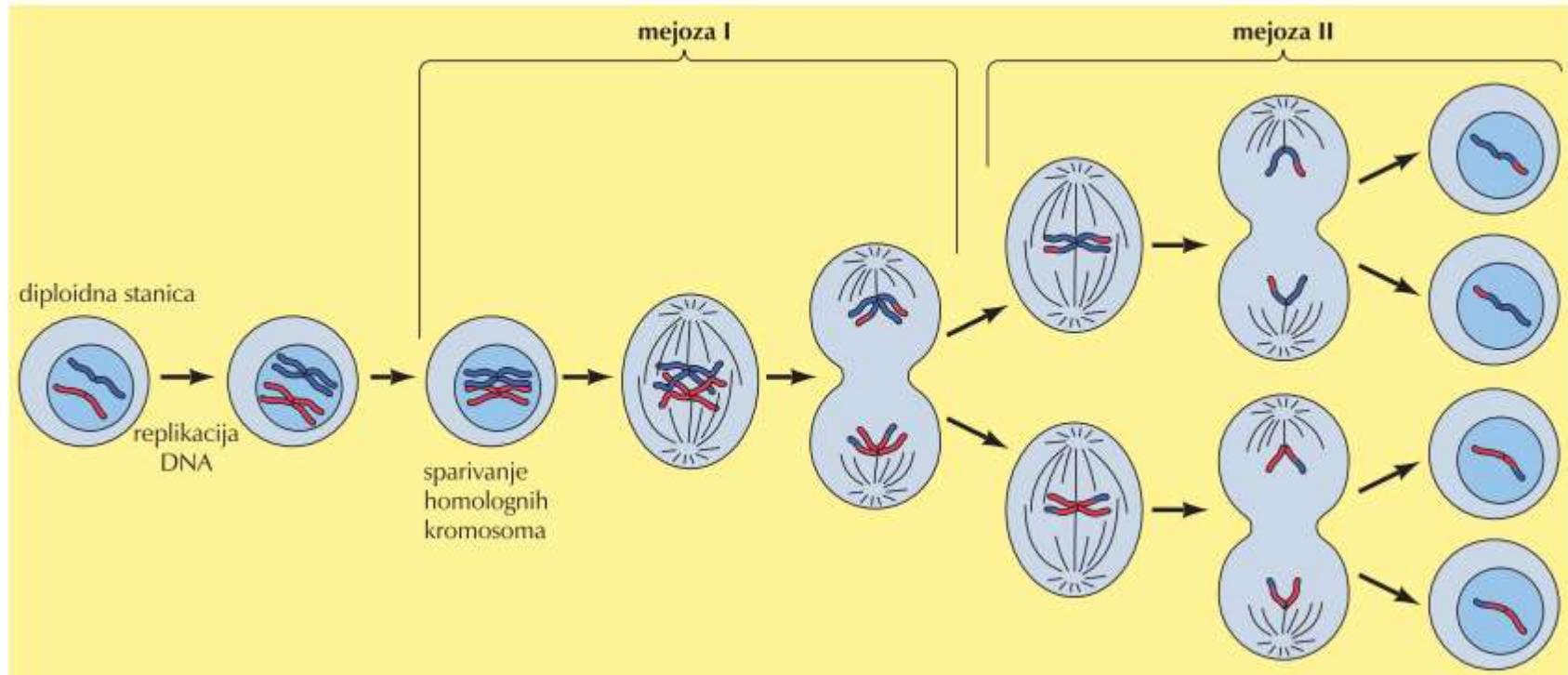


Somatske stanice
diploidan broj kromosoma (46)
22 para autosoma + xx ili xy

Spolne stanice - gamete
haploidan broj kromosoma (23)
22 autosoma + x ili y



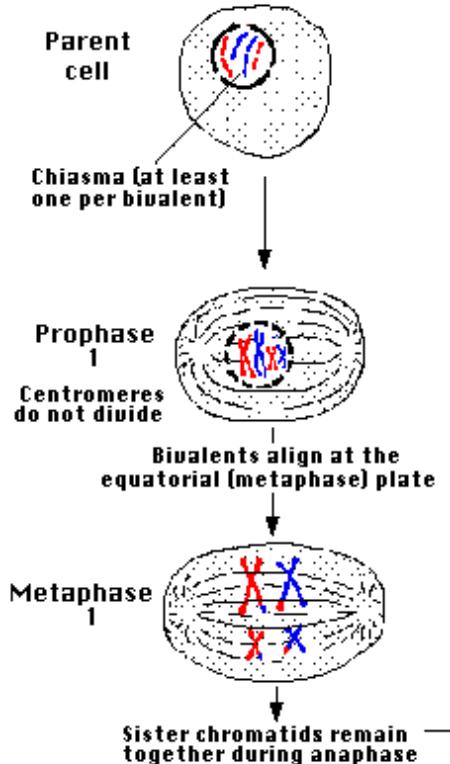
MEJOZA



Od jedne diploidne stanice nastaju četiri haploidne

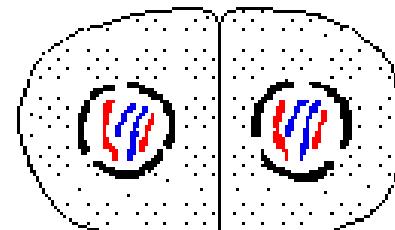
1. mejotska dioba:

- udvostručavanje DNA
sparivanje homolognih kromosoma
(tetrade)
- zamjena odsječaka kromatida
(crossing-over)



Rezultat:

Dvije stanice s po 23
udvostručena kromosoma



MEJOZA

Redukcija broja kromosoma – dvije uzastopne diobe jezgre i stanice, nakon jedne replikacije DNA

Mejoza I

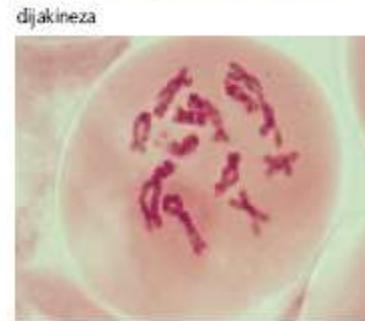
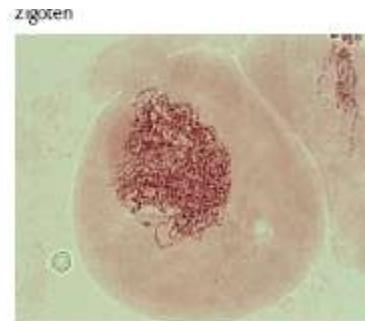
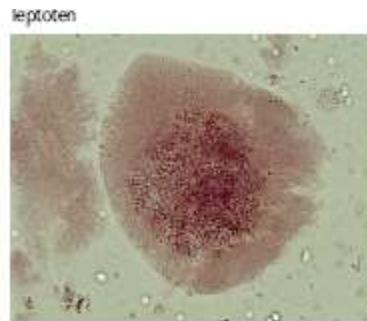
Mejoza II

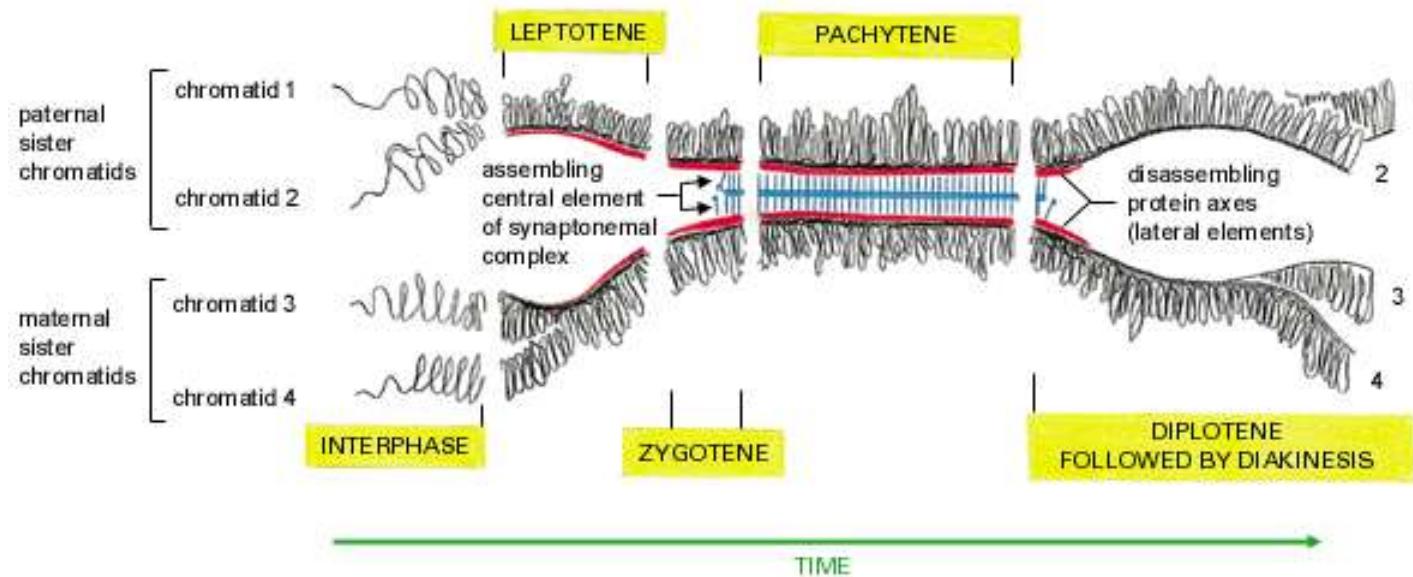
Nakon S-faze ciklusa

Mejoza I

Profaza:

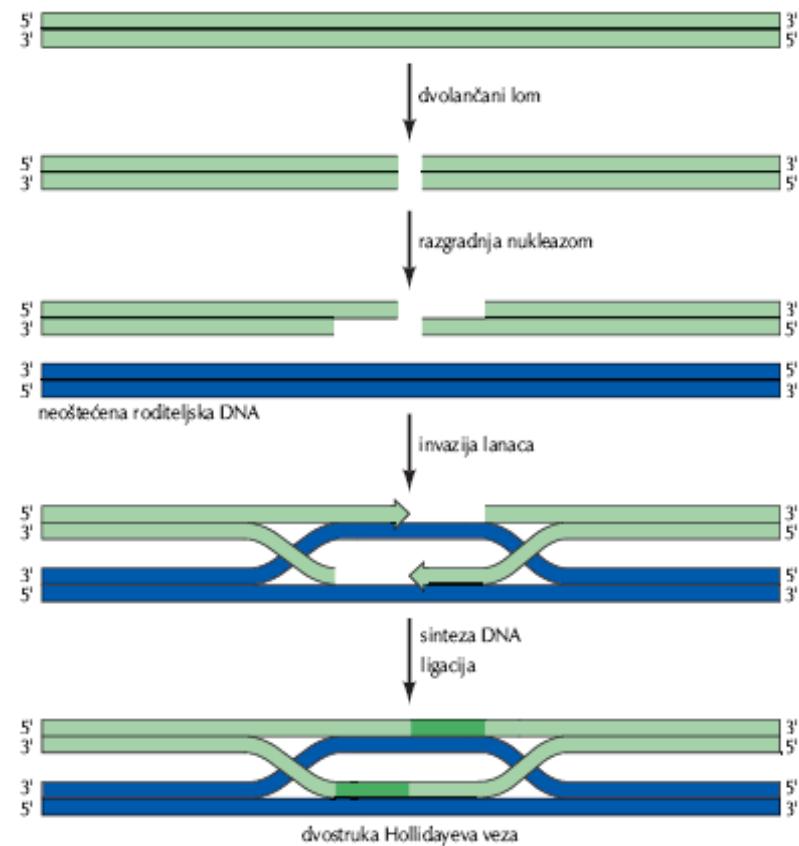
LEPTOTEN
ZIGOTEN
PAHITEN
DIPILOTEN
DIJAKINEZA





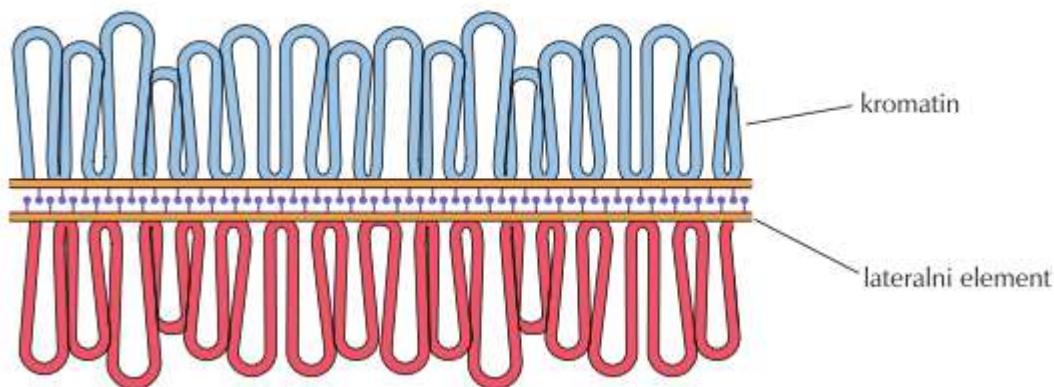
Leptoten

Inicijacija rekombinacije
dvolančanim lomom



Zigoten

Tjesno povezivanje homolognih kromosoma – sinapsa
Nastaje **SINAPTONEMNI KOMPLEKS**



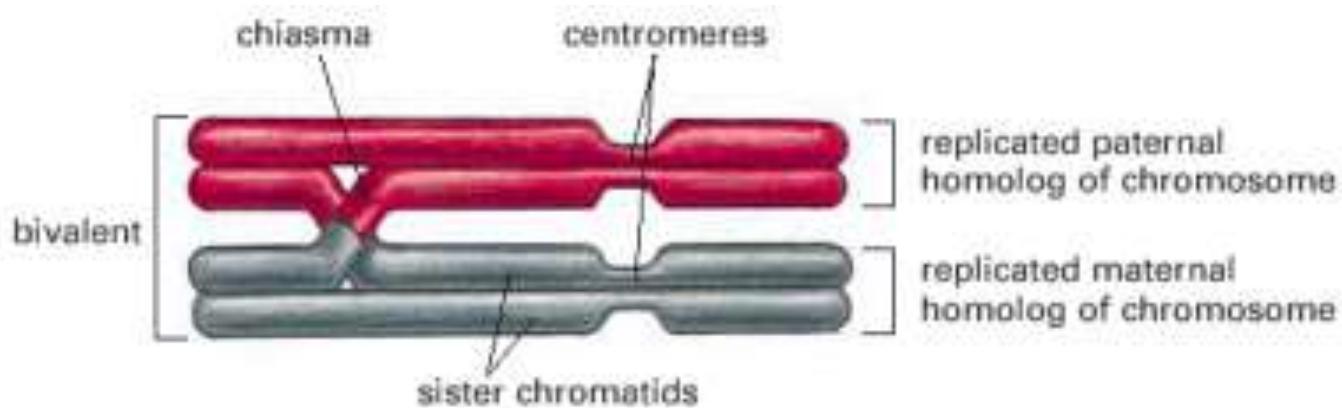
Pahiten

Tjesno povezani kromosomi

Nekoliko dana

Završetak rekombinacije homolognih kromosoma

Kromosomi povezani na mjestu KIJAZME (crossing-over)



Diploten

Nestaje sinaptonemni kompleks

Uzdužno odvajanje homolognih kromosoma

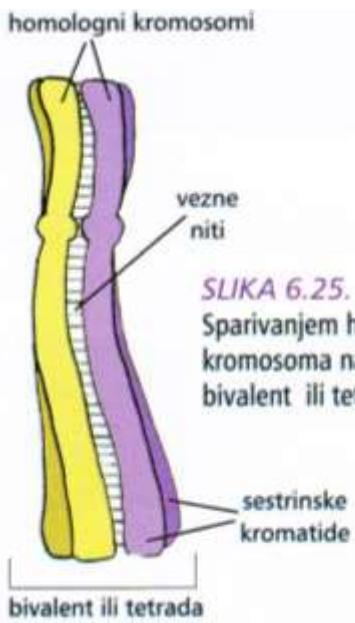
Kromosomi vezani kijazmama

Kromosomski par = BIVALENT (četiri kromatide)

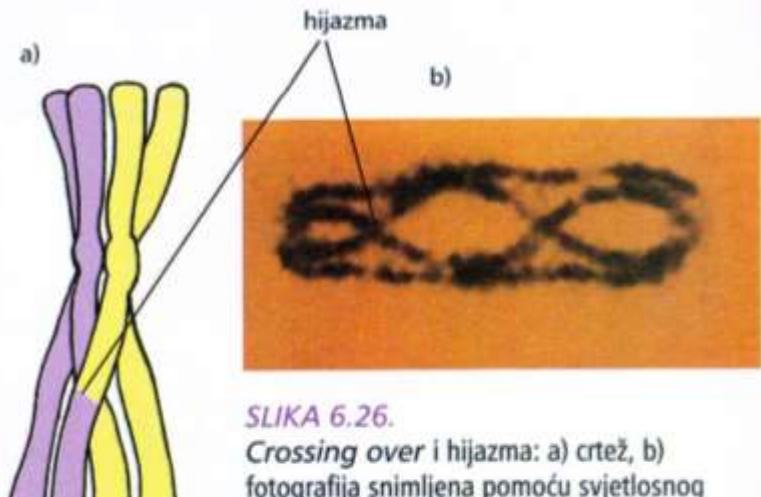
Dijakineza

Prelazak iz profaze u metafazu

Kromosomi potpuno kondenzirani



SLIKA 6.25.
Sparivanjem homolognih
kromosoma nastaje
bivalent ili tetrada



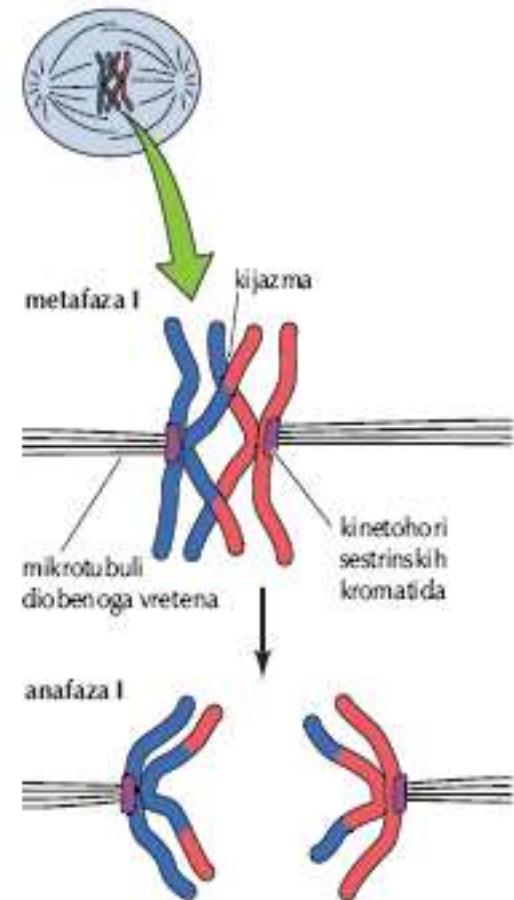
SLIKA 6.26.
Crossing over i hijazma: a) crtež,
b) fotografija snimljena pomoću svjetlosnog
mikroskopa

Metafaza

Vezanje bivalenta za diobeno vreteno

Kinetohori sestrinskih kromatida
orjentirani u istom smjeru

Kinetohori homolognih kromosoma
orjentirani prema suprotnim polovima



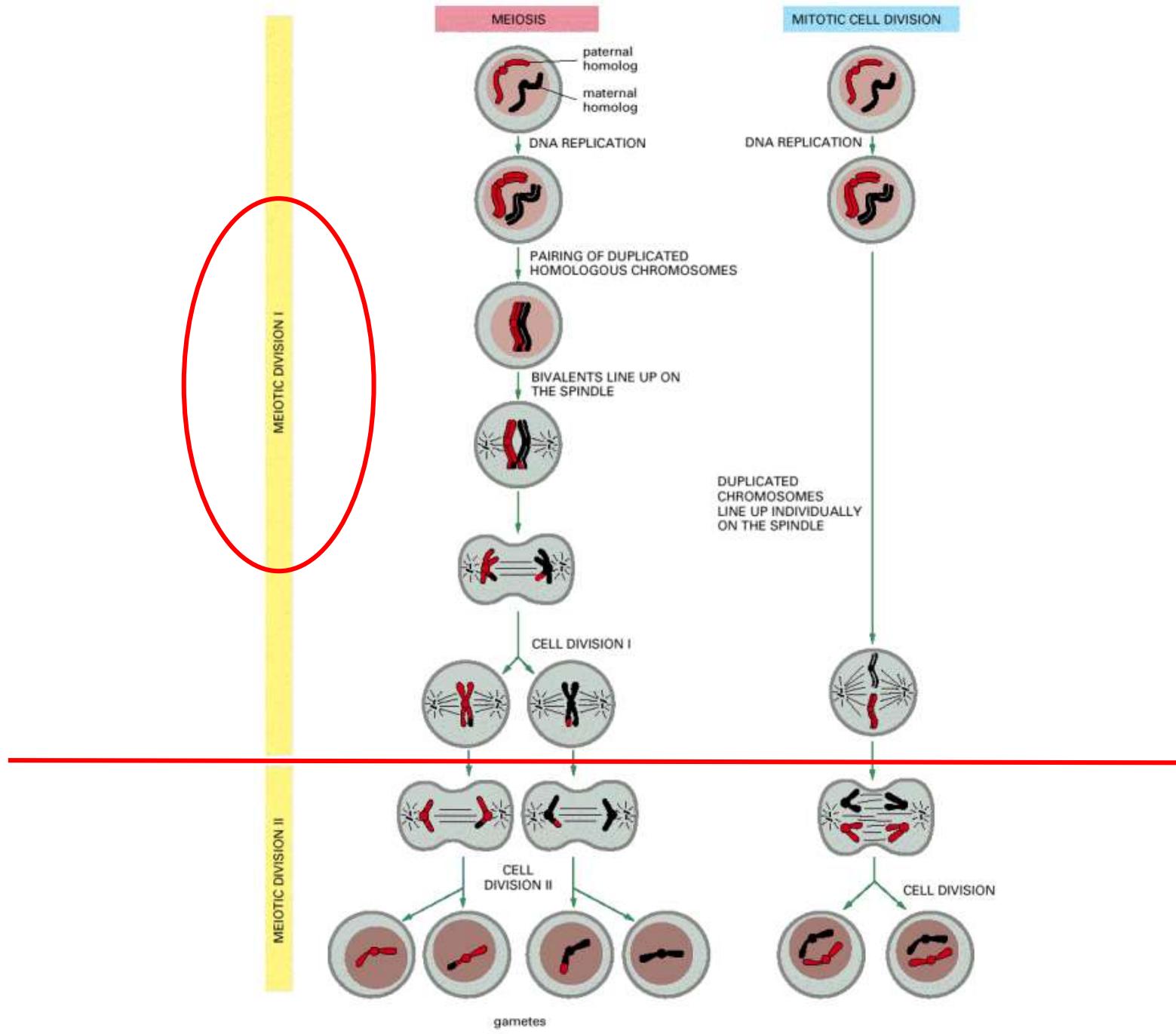
Anafaza

Razrješavanje kijazmi

Razdvajanje homolognih kromosoma

Sestrinske kromatide ostaju vezane u centromerama

Svaka stanica kćer ima jedan od homolognog para kromosoma



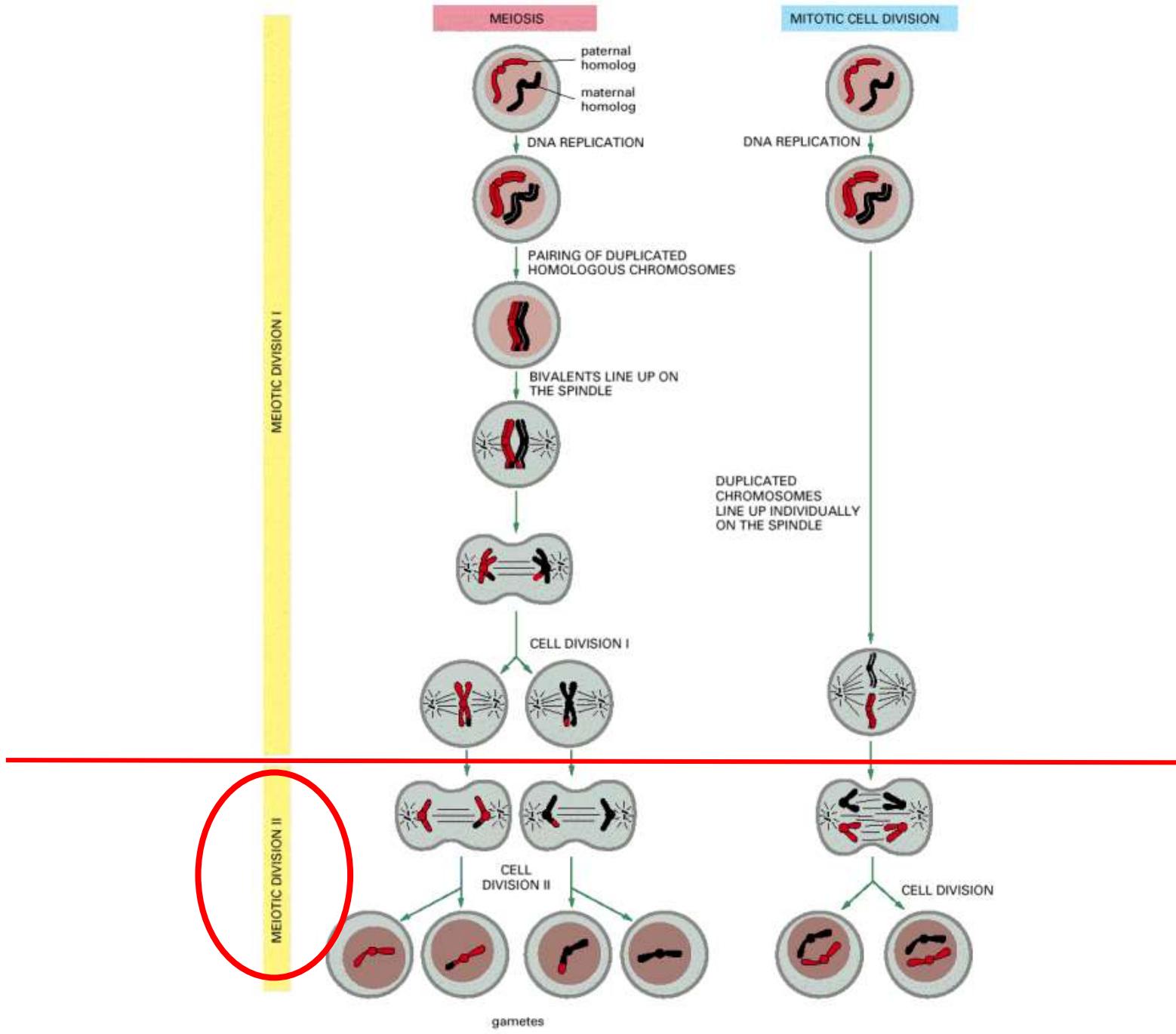
Mejoza II - slična mitozi

Odmah nakon citokineze mejoze I
Prije dekondenzacije kromosoma

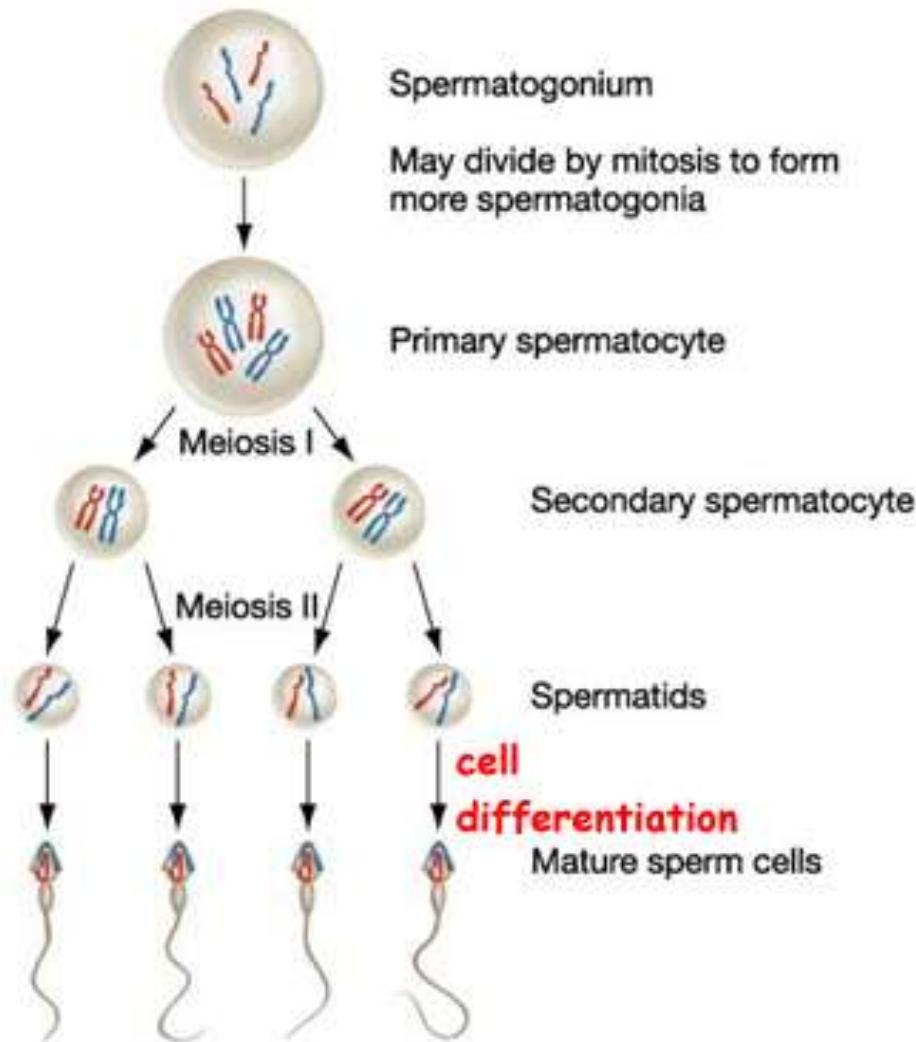
Metafaza – vezivanje kinetohora sestrinskih kromatida na diobeno vreteno

Anafaza – odvajanje kromatida i putovanje na polove stanice

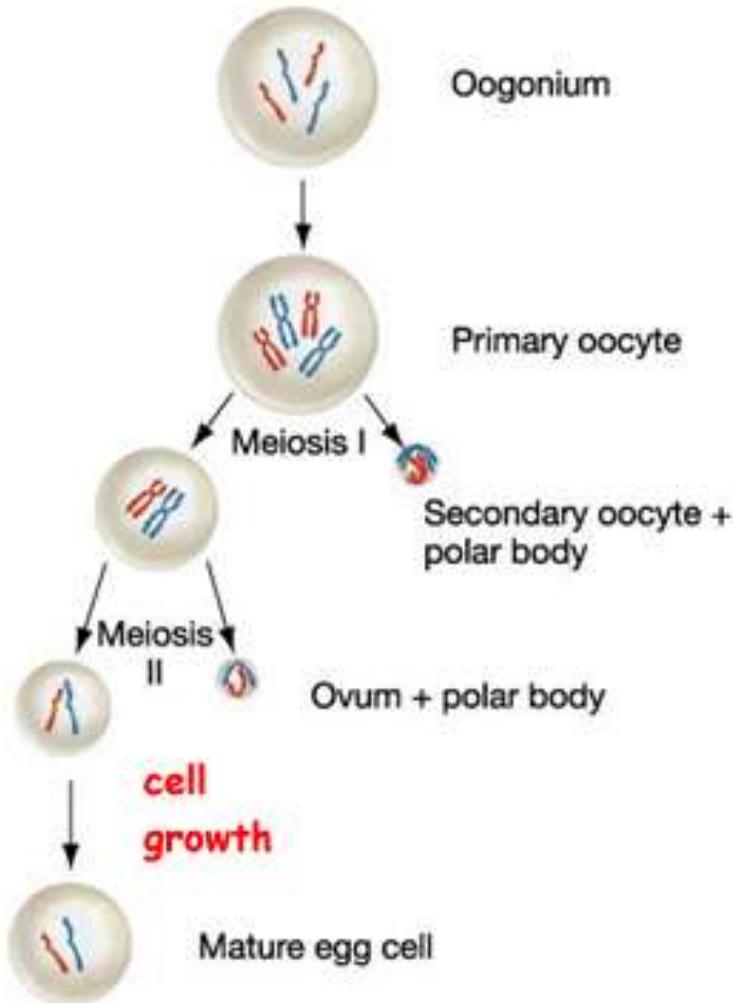
Citokineza

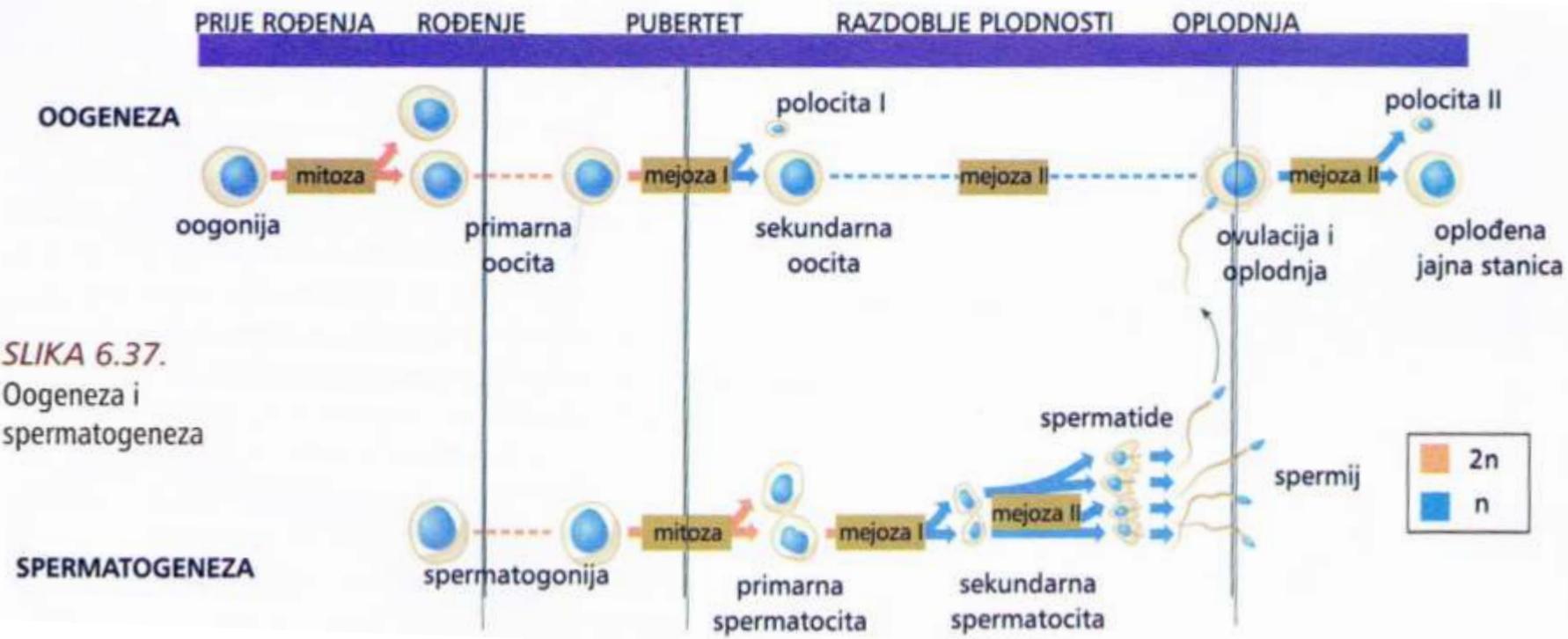


Spermatogenesis

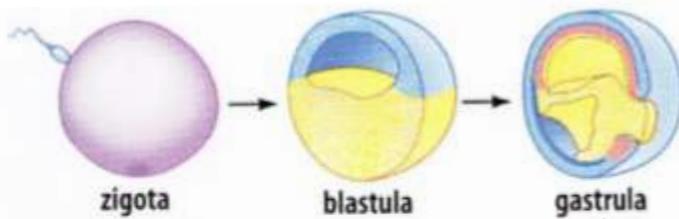


Oogenesis

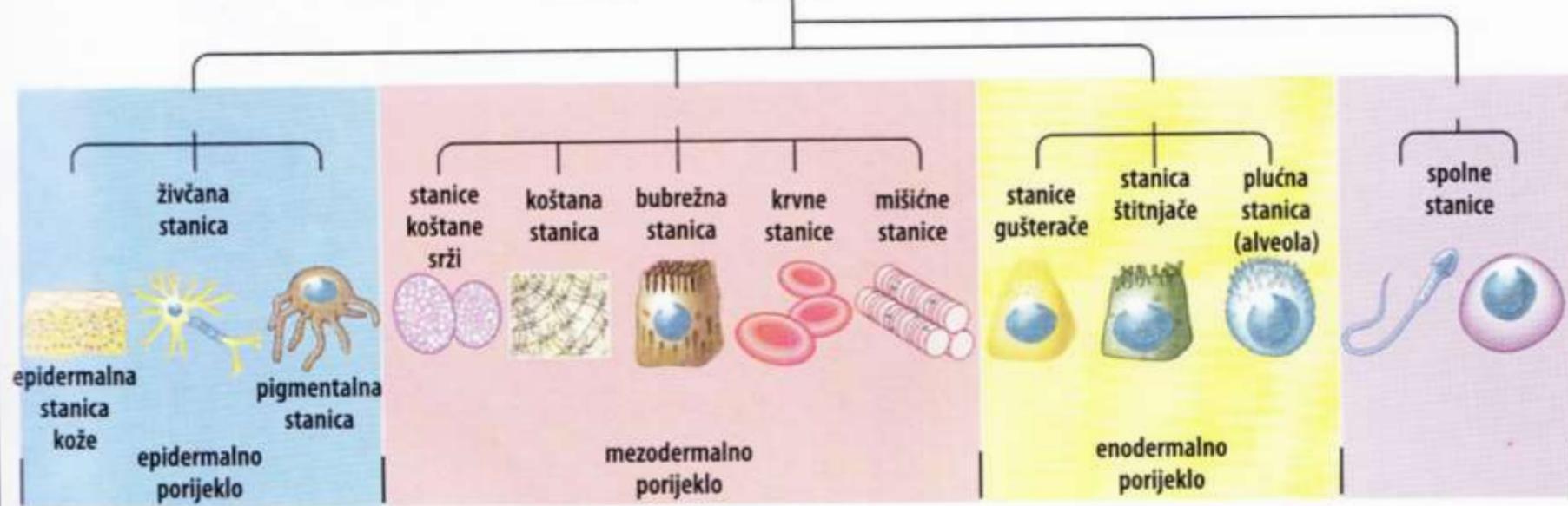




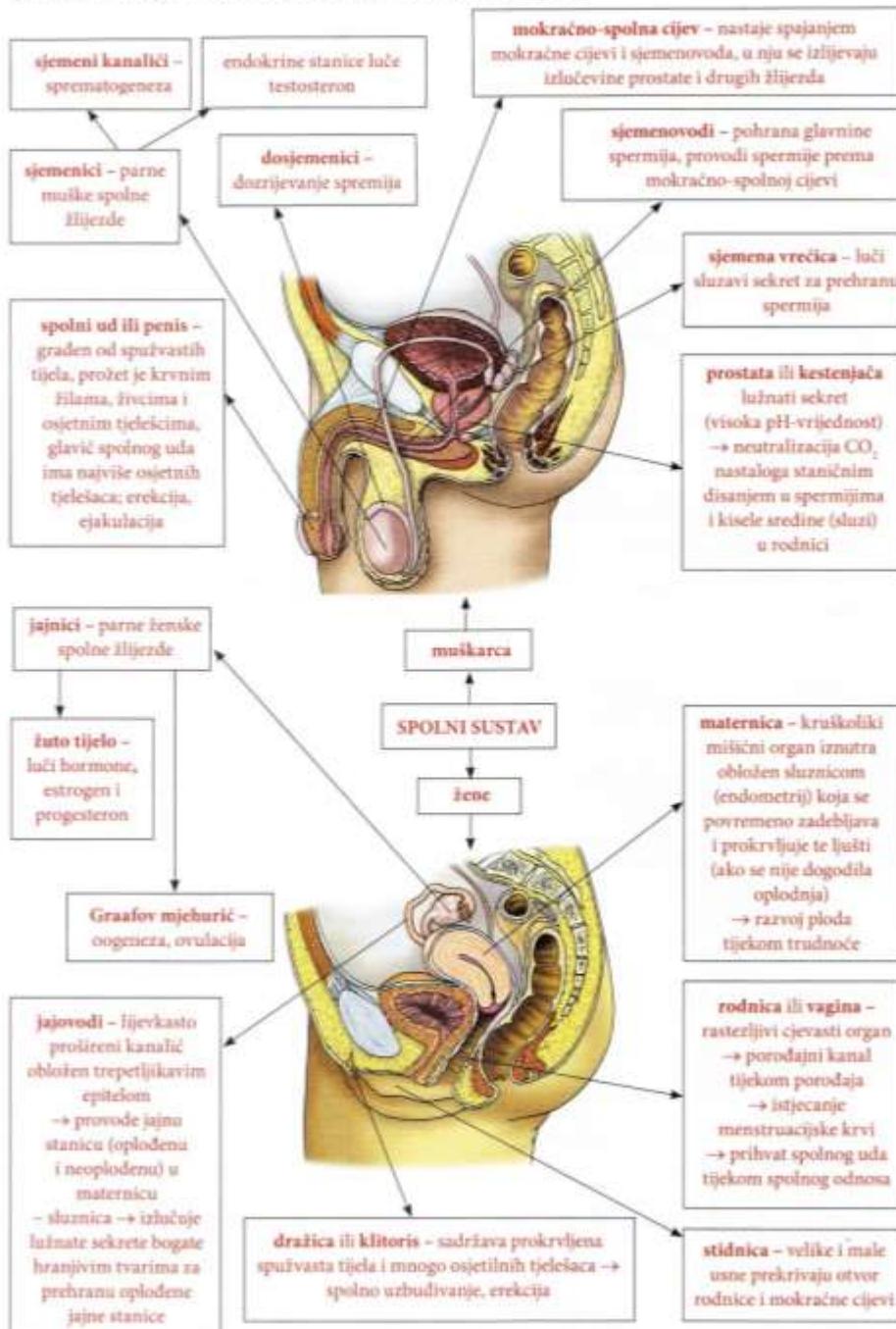
SLIKA 6.37.
Oogeneza i
spermatogeneza



SLIKA 1.5.2. Različite vrste stanica



OBRAZOVNI ISHOD: objasniti smještaj u tijelu, građu, ulogu i način rada spolnoga sustava



Menstruacijski ciklus

