Programa de Bachillerato
Universidad de Chile

Curso: Biología

Clase : Meiosis

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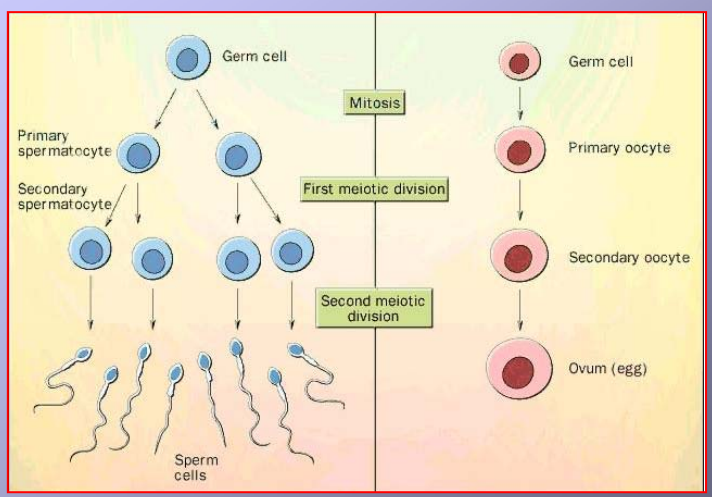
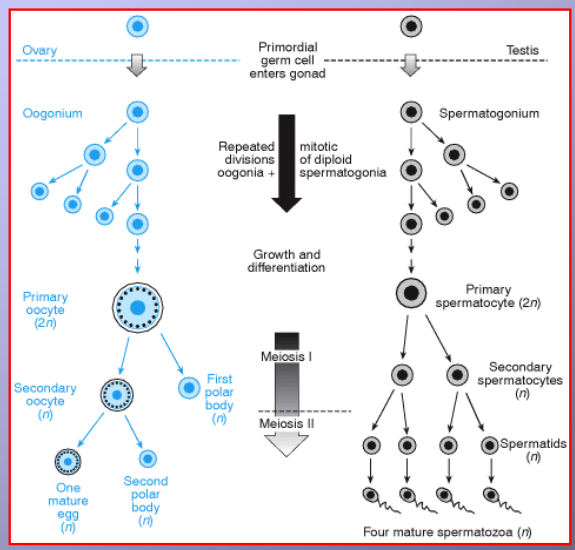


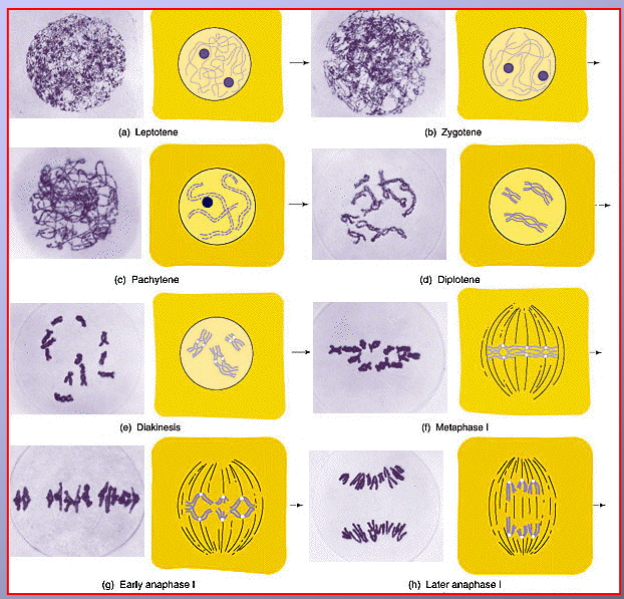


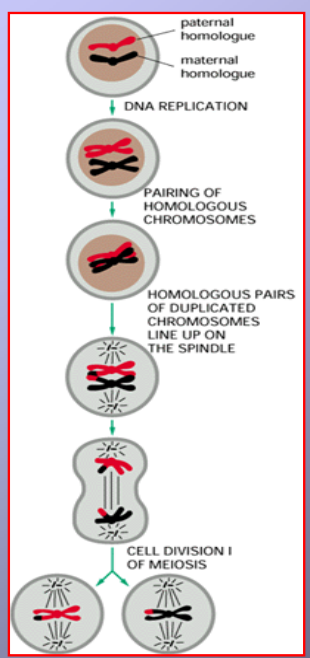
ETAPAS DE LA MEIOSIS

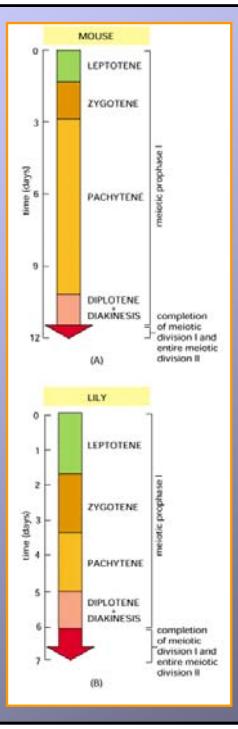
1ra Div. Meiótica - **Profase I**
- **Leptoteno**
- **Zigoteno**
- **Paquiteno**
- **Diploteno**
- **Diacinesis**

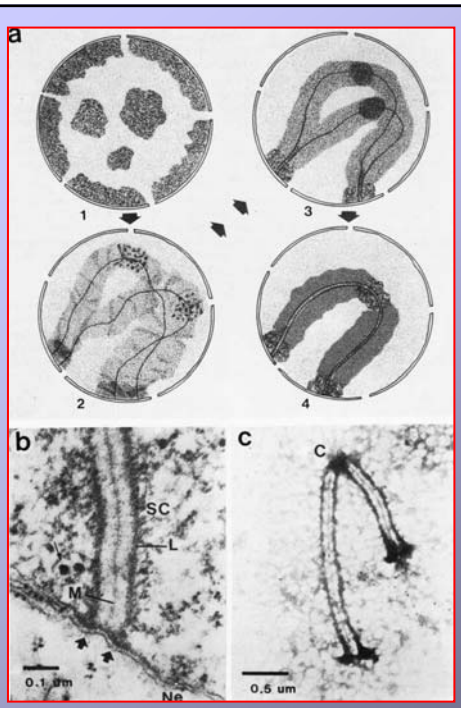
- **Metafase I**
- **Anafase I**
- **Telofase I**

2da Div. Meiótica
- **Profase II**
- **Metafase II**
- **Anafase II**
- **Telofase II**

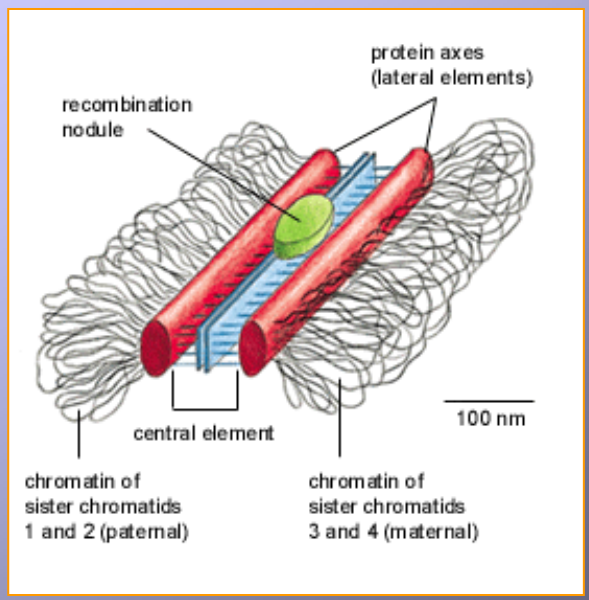

(a) Leptotene
(b) Zygotene
(c) Pachytene
(d) Diplotene
(e) Diakinesis
(f) Metaphase I
(g) Early anaphase I
(h) Later anaphase I

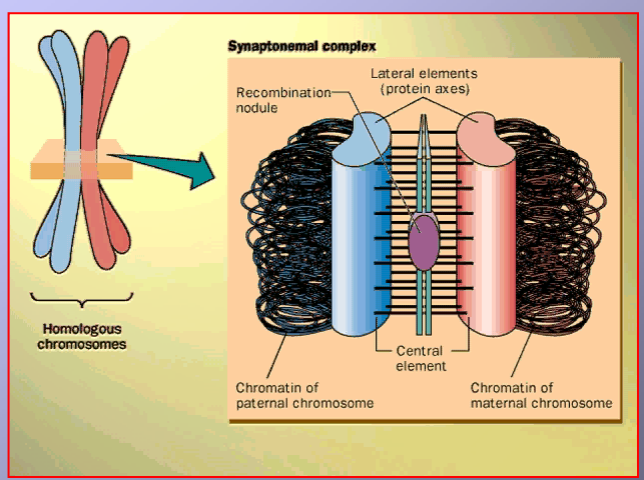

paternal homologue
maternal homologue
DNA REPLICATION
PAIRING OF HOMOLOGOUS CHROMOSOMES
HOMOLOGOUS PAIRS OF DUPLICATED CHROMOSOMES LINE UP ON THE SPINDLE
CELL DIVISION I OF MEIOSIS

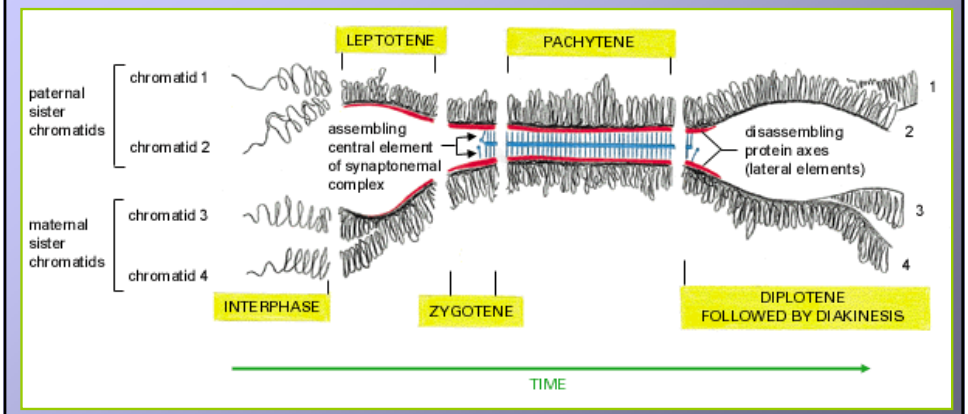




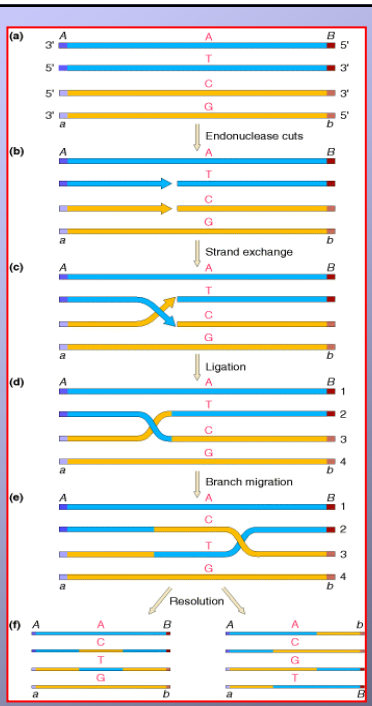
Tomado de Fernández-Donoso y Berríos, 1985.

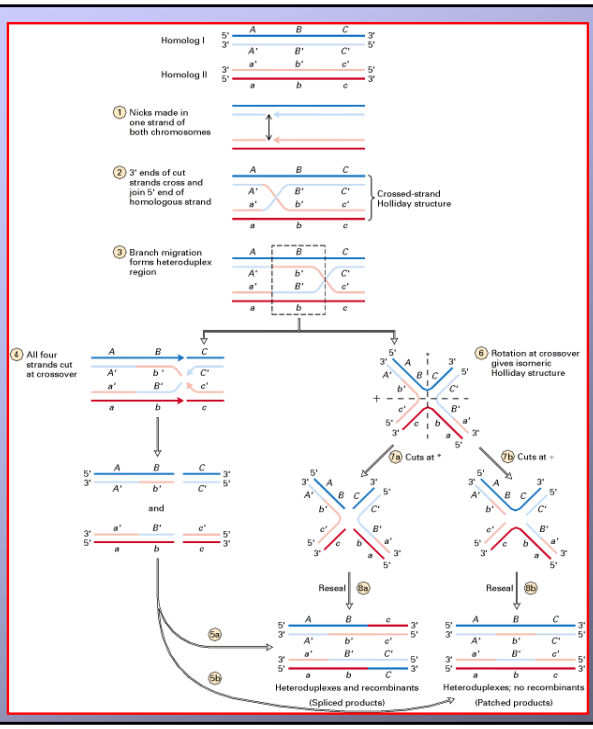

protein axes
(lateral elements)
recombination
nodule
central element
100 nm
chromatin of
sister chromatids
1 and 2 (paternal)
chromatin of
sister chromatids
3 and 4 (maternal)

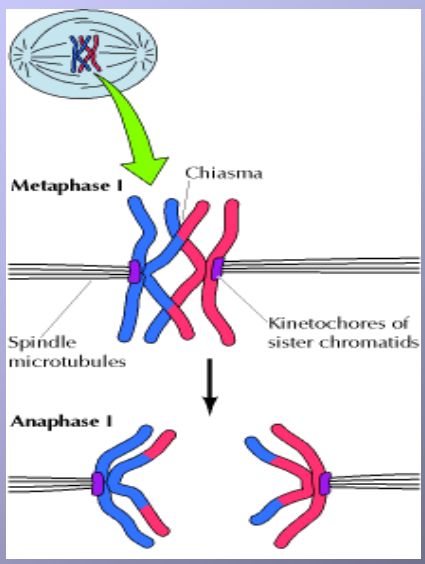

Homologous
chromosomes
Synaptonemal complex
Recombination
nodule
Lateral elements
(protein axes)
Central
element
Chromatin of
paternal chromosome
Chromatin of
maternal chromosome



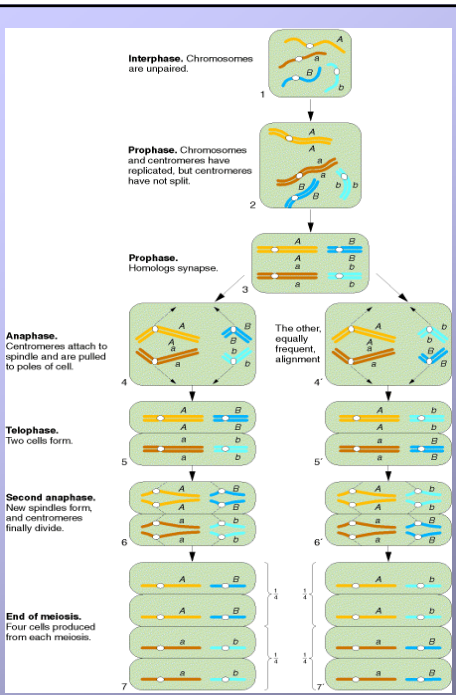
	Meiotic chromosomes	Meiotic products	
Meioses with no crossover between the genes	A B A B a b a b	A B A B a b a b	Parental Parental Parental Parental
Meioses with a crossover between the genes	A B A B a b a b	A B A b a B a b	Parental Recombinant Recombinant Parental


(a)
(b)
Endonuclease cuts
(c)
Strand exchange
(d)
Ligation
(e)
Branch migration
Resolution
(f)


Homolog I
Homolog II
1 Nicks made in one strand of both chromosomes
2 3′ ends of cut strands cross and join 5′ end of homologous strand
Crossed-strand Holliday structure
3 Branch migration forms heteroduplex region
4 All four strands cut at crossover
and
6 Rotation at crossover gives isomeric Holliday structure
7a Cuts at *
7b Cuts at +
Reseal
8a
8b
5a
5b
Heteroduplexes and recombinants
(Spliced products)
Heteroduplexes; no recombinants
(Patched products)

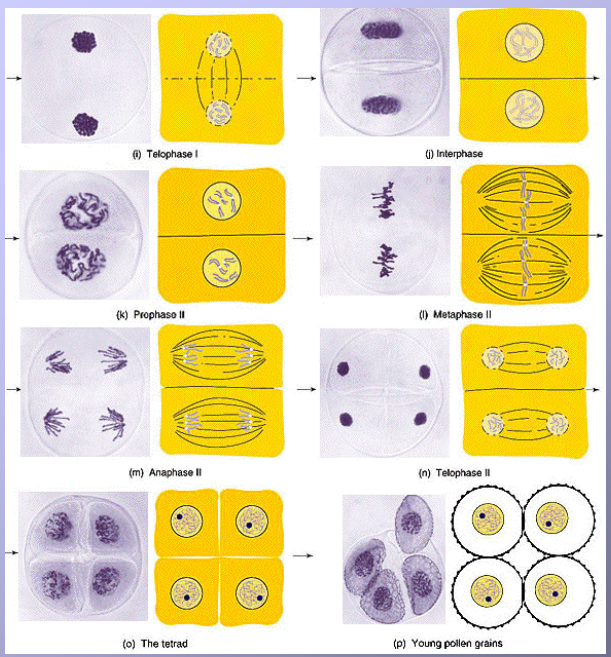


Segregación de los cromosomas homólogos durante la Anafase I de la meiosis.

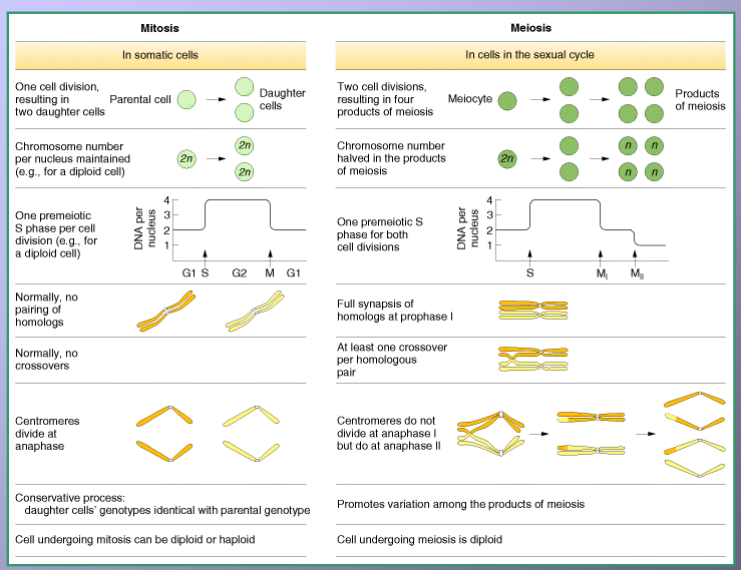


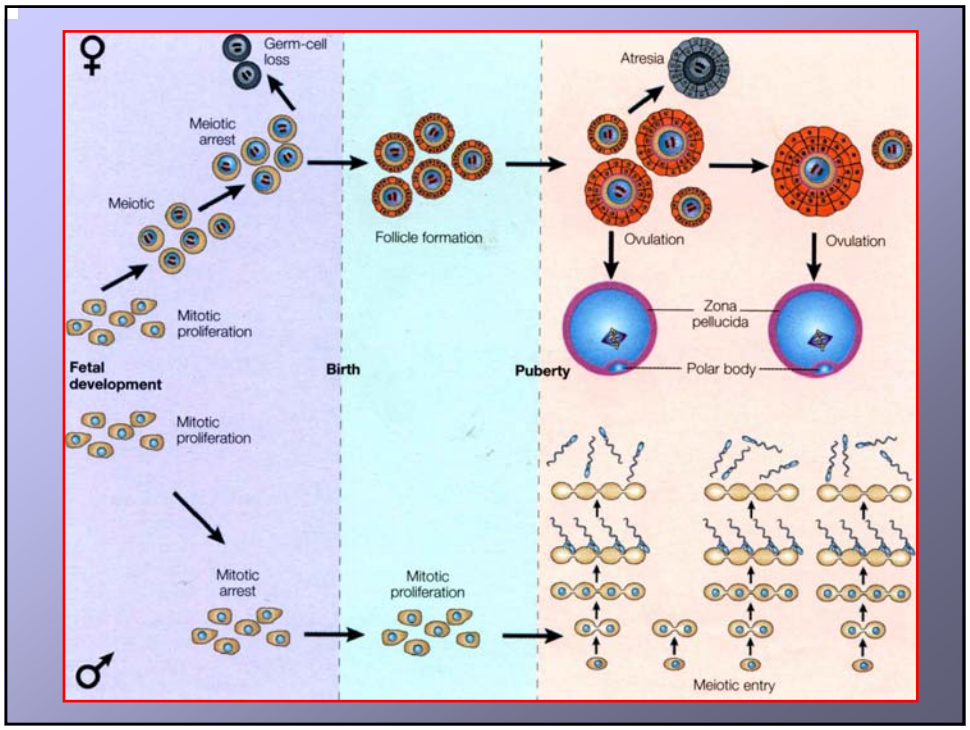
PERMUTACIÓN CROMÓSOMICA: meiosis en una célula diploide de genotipo Aa Bb, mostrando como la segregación de los cromosomas homólogos y la ubicación al azar de éstos en el plano ecuatorial de la célula, origina cuatro tipos de gametos genéticamente distintos (AB, ab, Ab, y aB).

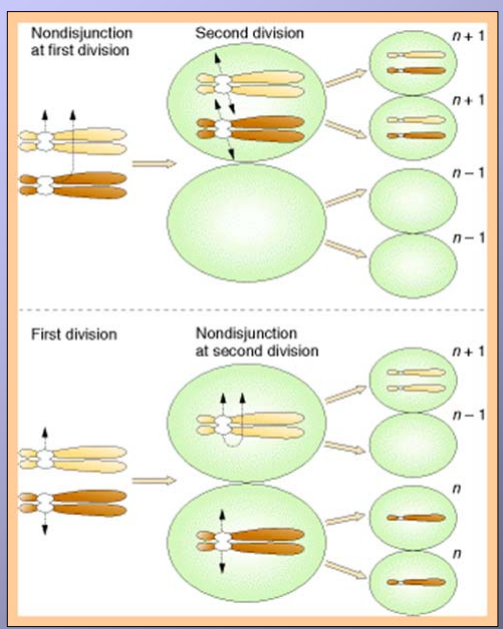
($2^n = 2^2 = 4$)



Meiosis II en una planta superior. Para cada etapa se muestra a la izquierda una fotografía de las células germinales masculinas y a la derecha un esquema de la etapa meiótica respectiva. La meiosis concluye con la formación de cuatro células haploides, que en esta planta constituyen los granos de polen.




Germ-cell loss
Meiotic arrest
Meiotic
Mitotic proliferation
Fetal development
Birth
Follicle formation
Atresia
Ovulation
Ovulation
Zona pellucida
Polar body
Puberty
Mitotic proliferation
Mitotic arrest
Mitotic proliferation
Meiotic entry


Nondisjunction at first division
Second division
n + 1
n + 1
n − 1
n − 1
First division
Nondisjunction at second division
n + 1
n − 1
n
n