


Bio 115 Cells & Evolution of Life

Genetics and Reproduction

Meiosis



University of Idaho

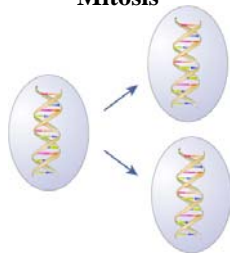
Start Audio Lecture!

1

Bio 115 Cells & Evolution of Life

Evolution and Cell Division

Mitosis



Mitosis results in 2 genetically identical daughter cells.

Important in
-growth
-asexual reproduction

Drawback: lack of genetic variation

2

Bio 115 Cells & Evolution of Life

Meiosis vs. Mitosis

<u>Meiosis</u>	vs.	<u>Mitosis</u>
Two rounds of cell division ⇒ 4 daughter cells		one round of cell division ⇒ 2 daughter cells
Daughter cells with half the amount of chromosomes as parent cell		Daughter cells with same amount of chromosomes as parent cell
Crossing over results in genetic variation		No crossing over

3

Stages of Meiosis

Meiosis I

- prophase I
- metaphase I
- anaphase I
- telophase I
- cytokinesis

**i
n
t
e
r
k
i
n
e
s
i
s**

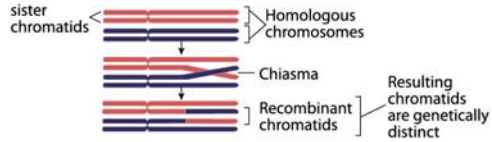
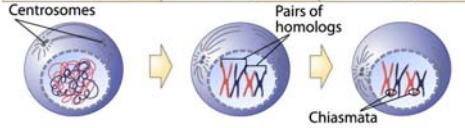
Meiosis II

- prophase II
- metaphase II
- anaphase II
- telophase II
- cytokinesis

4

Prophase I: Crossing Over

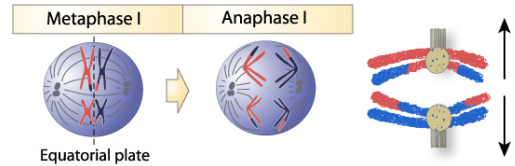
Middle Prophase I Later Prophase I Late Prophase I



5

Homologous Chromosomes Separate During Meiosis I

During anaphase I, **homologous chromosomes** separate and move to opposite ends of the cell. **Sister chromatids** remain attached to each other.



6

Interkinesis: Preparations for Meiosis II

Telophase and cytokinesis of meiosis I



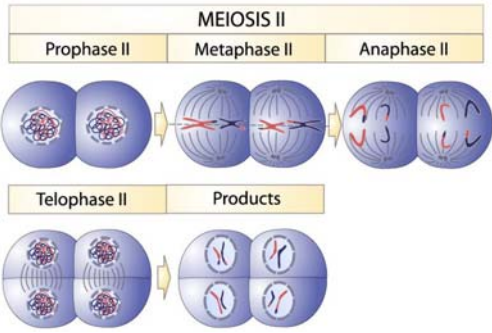
Interkinesis (some species)
⇒ Synthesize more cell membrane, enzymes, etc.
No DNA replication!



Meiosis II

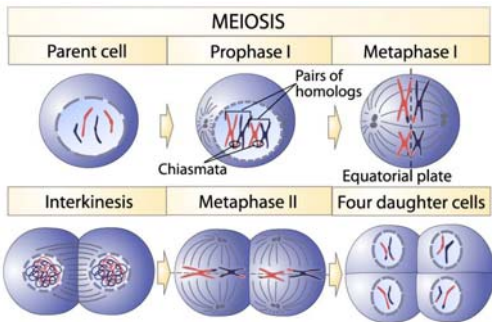
7

Meiosis II: A Mitotic Division



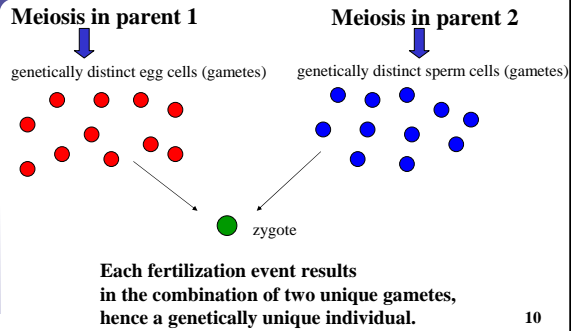
8

Meiosis Review



9

Meiosis and Sexual Reproduction



Maintaining Ploidy Level

