

Cell Division

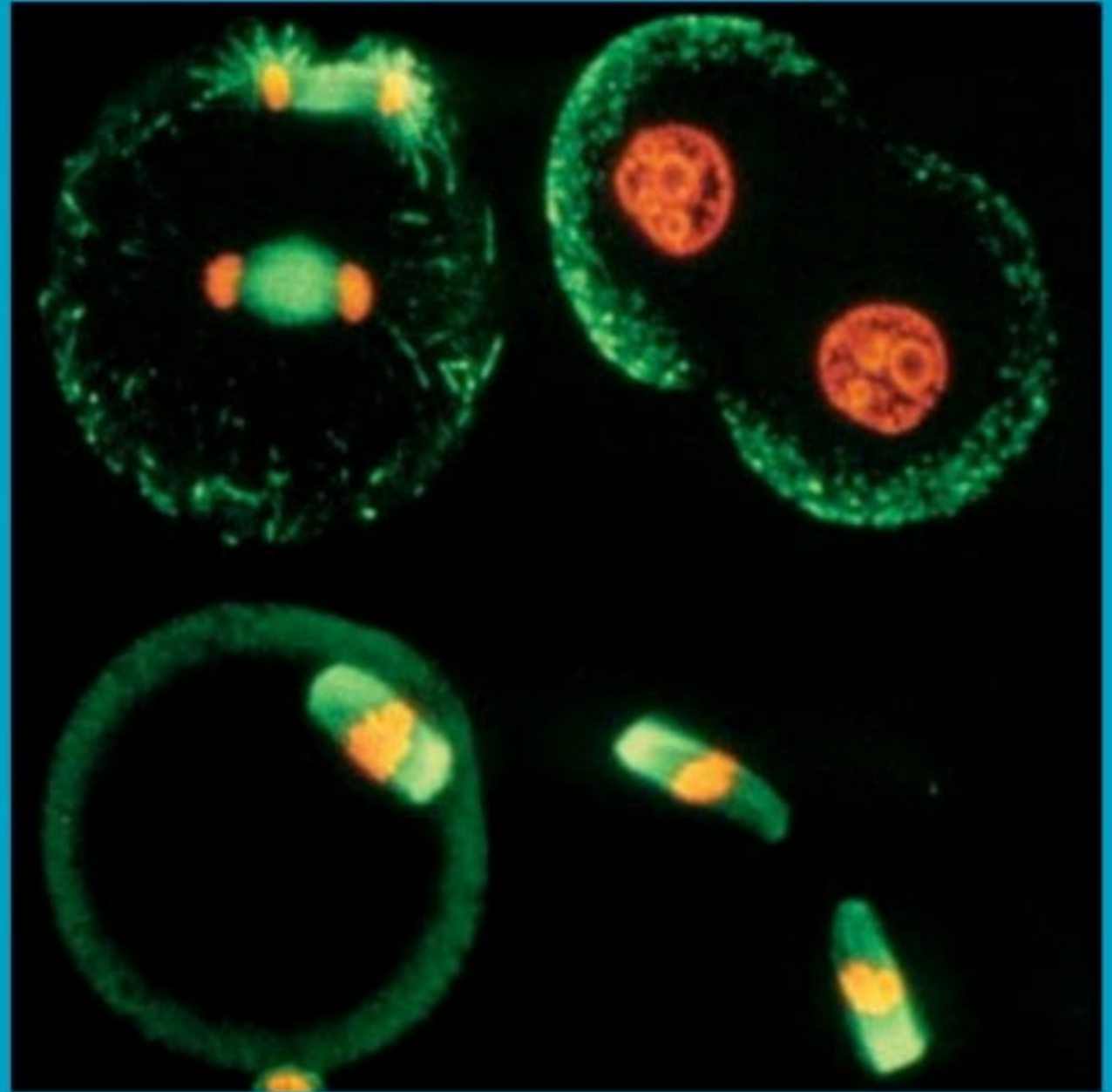
A fluorescence micrograph of a cell during division. The cell is roughly circular and contains a complex network of fibers. A central region is brightly colored in purple and blue, surrounded by a ring of red and orange. The outer periphery is primarily green and yellow. The background is dark, making the colorful structures stand out.

Mitosis & Meiosis

You are a living organism, made of cells.

In order to keep living, your cells must stay alive.

In order for cells to keep living, they must divide and multiply





Meiosis

Why We Are Who We Are

Meiosis

Takes place in the Gametes of an organism

People have a Chromosome count of 46

When an egg joins a sperm the count must stay at 46 to remain human

So, the egg can only have 23 chromosomes, and the sperm can only have 23 chromosomes

But, the integrity of the organism must be maintained

How does this happen?



During Meiosis gamete (sex) cells undergo a “double division”, maintaining the DNA, but reducing the chromosomal count to 23



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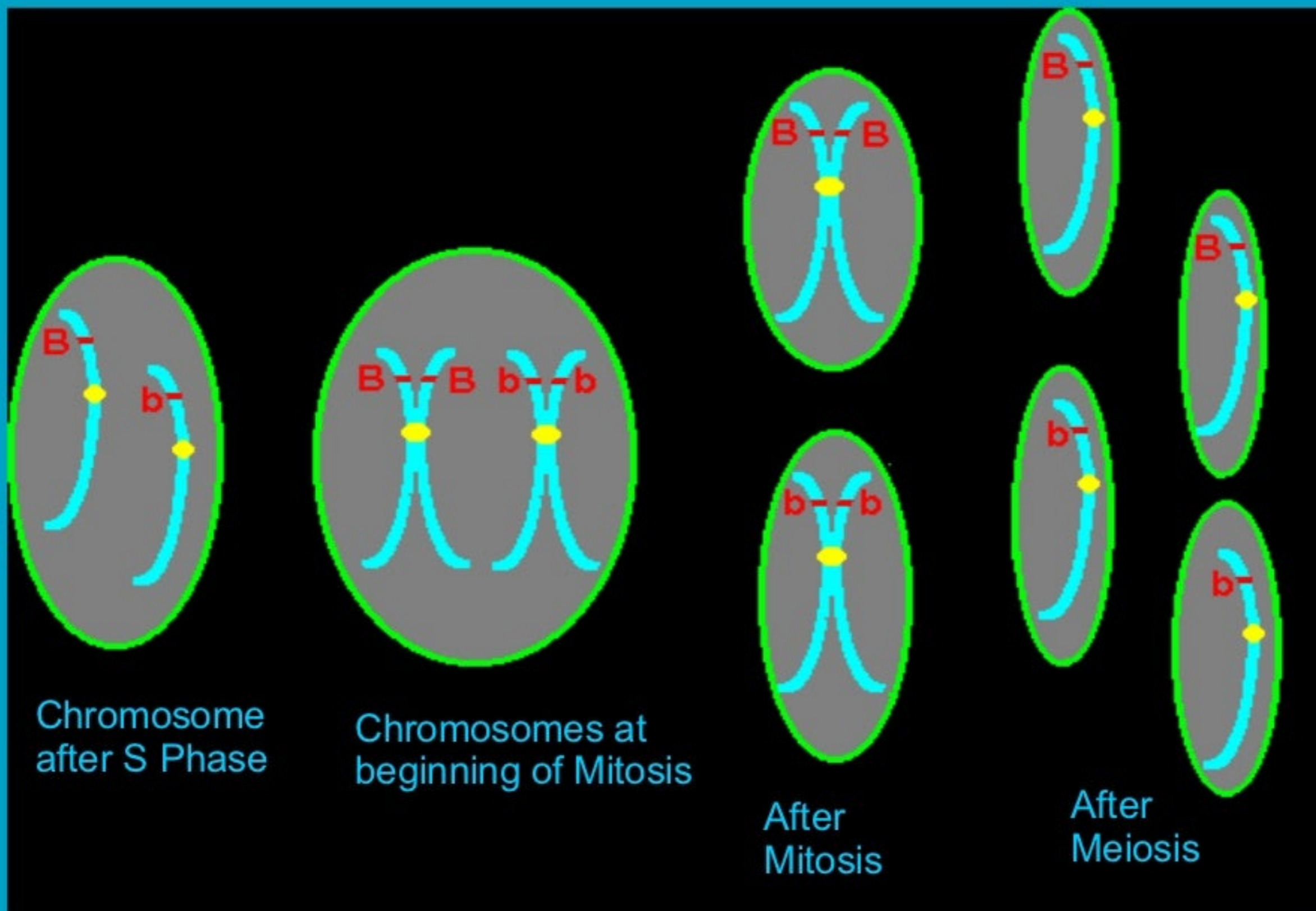
Sperm (23)

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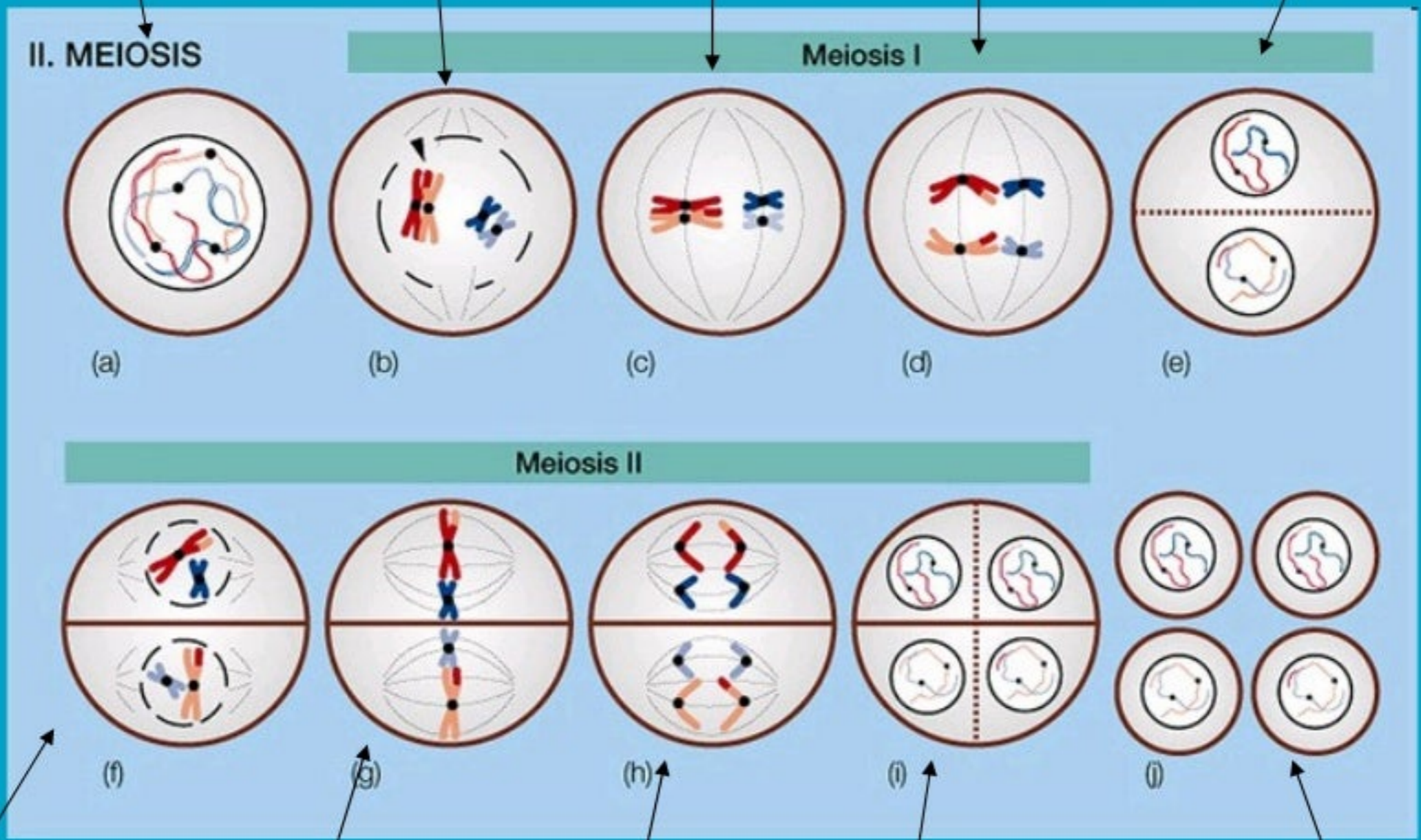
Egg (23)

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Fertilized Cell (46)



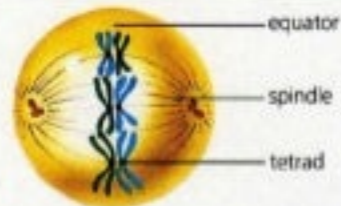
Original Gamete Metaphase Anaphase Telophase Cytokinesis



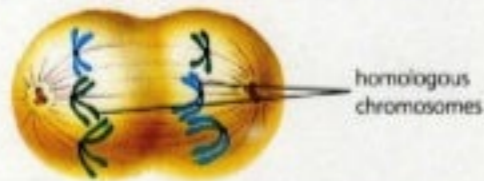
2 Daughter Cells Metaphase 2 Anaphase 2 Telophase 2 Cytokinesis – 4 Gametes



Prophase of First Meiotic Division



Metaphase of First Meiotic Division



Anaphase of First Meiotic Division



Telophase of First Meiotic Division



Prophase of Second Meiotic Division



Metaphase of Second Meiotic Division



Anaphase of Second Meiotic Division

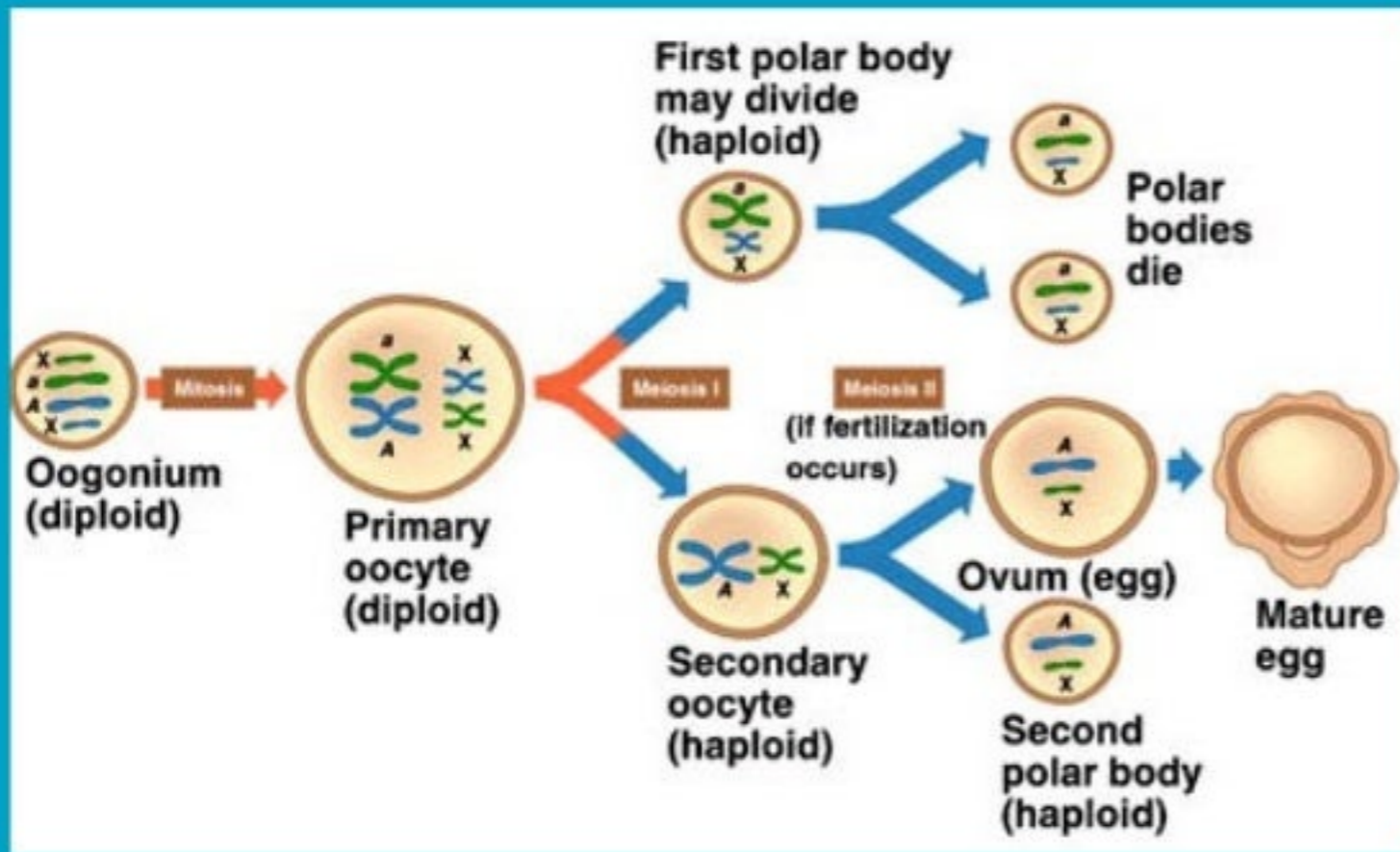


Telophase of Second Meiotic Division

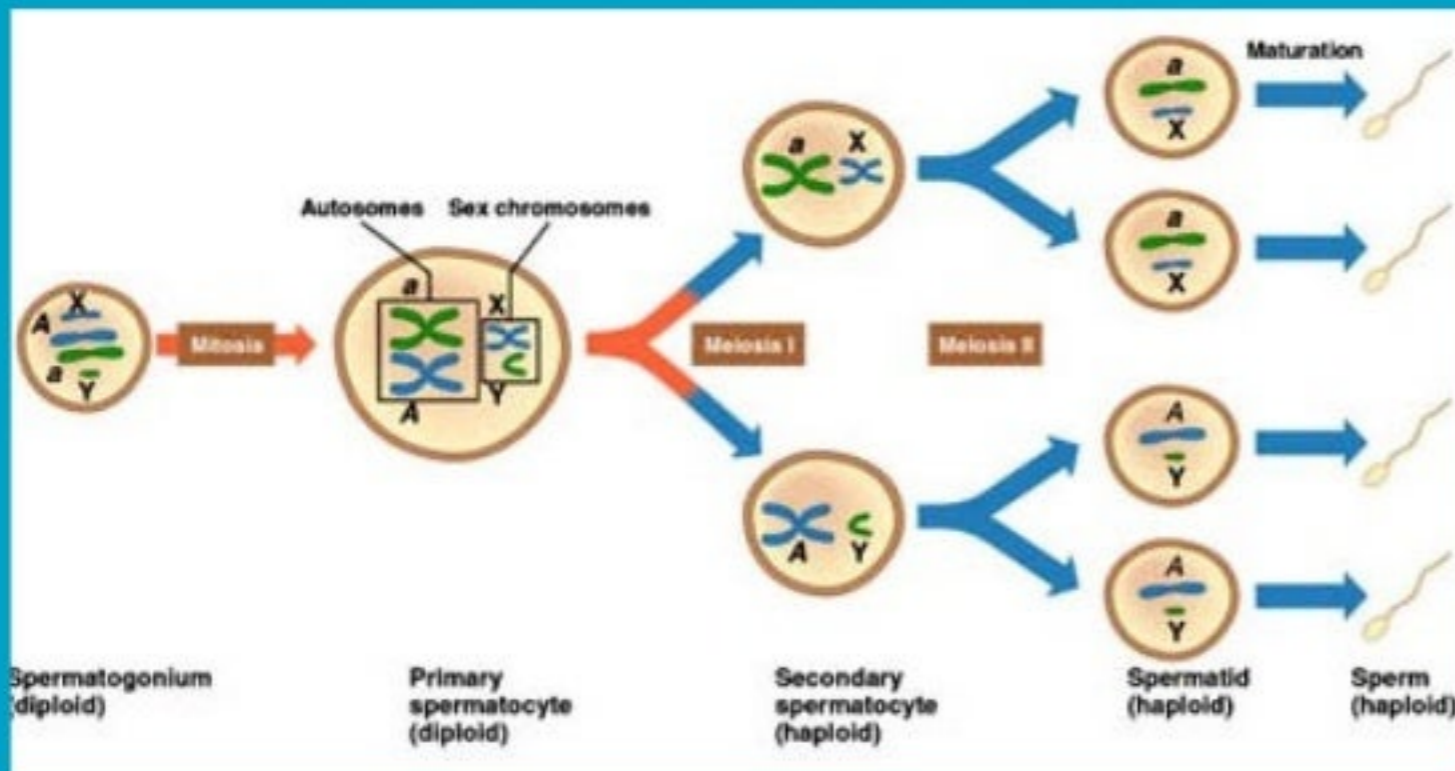
At the end of Meiosis the individual Gamete cell has divided from one cell to four.

Males produce 4 viable sperm.

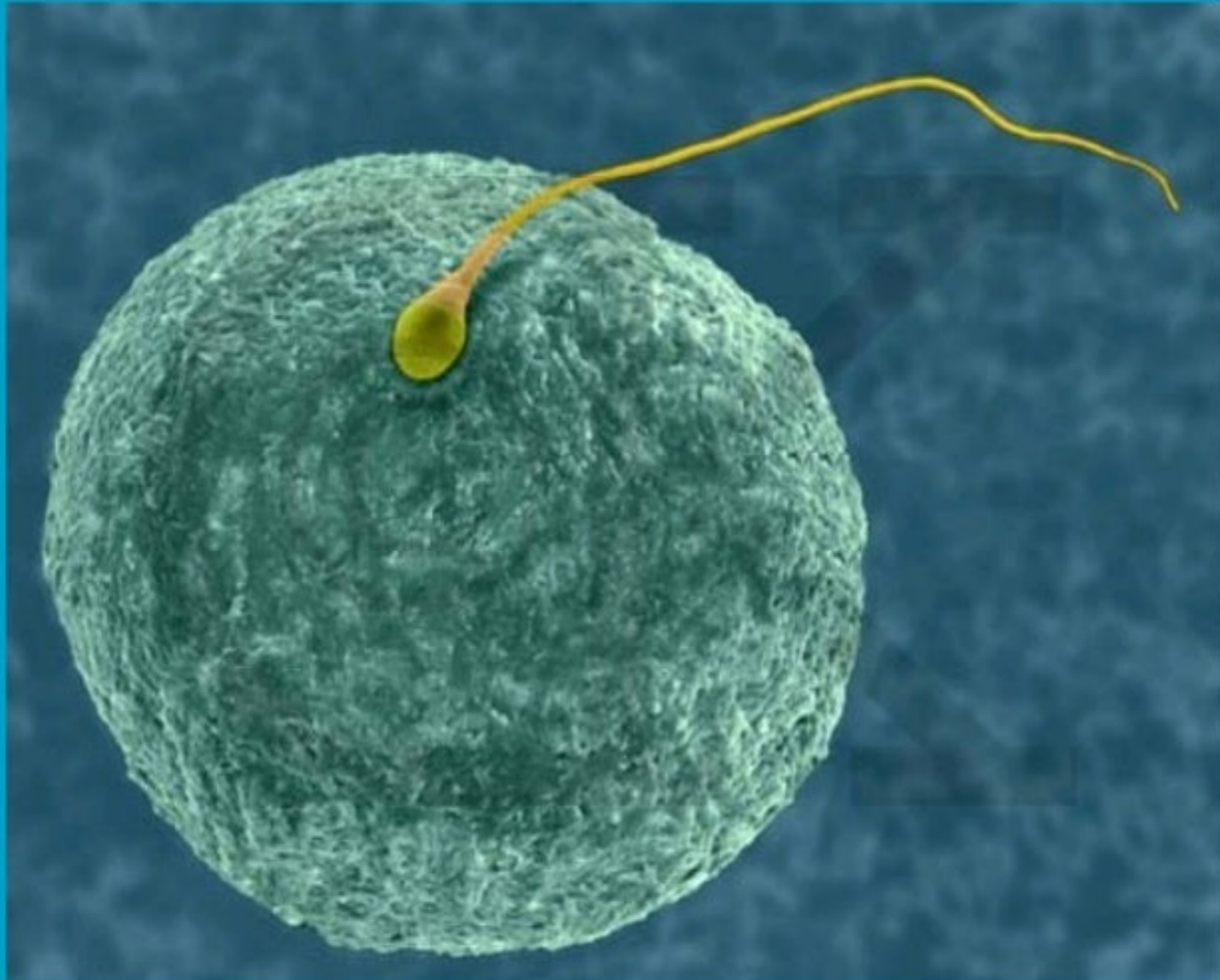
Females produce 1 viable egg and 3 non functioning polar bodies.



OOGENESIS



SPERMATOGENESIS



Meiosis ensures that all living organisms will maintain both Genetic Diversity and Genetic Integrity