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Based on NCERT patterns

DNA Replication

DNA is the genetic material in the majority of the organisms. Structurally, it is a double-stranded helical structure which can replicate.

DNA replication is the process by which the DNA makes multiple copies of itself. It was originally proposed by Watson and Crick. DNA replication proceeds as follows:

- Primarily during this process, two DNA strands will open and separate.
- As the strands are separated, the enzymes start synthesizing the complementary sequence in each of the strands. That is, each parental strand will act as a template for the newly synthesized daughter strands.

Draw the structure of DNA Replication

Since the new DNA strands thus formed have one strand of the parent DNA and the other is newly synthesized, the process is called semiconservative DNA replication.

Draw the structure of DNA replication fork .

Which mode of replication did the Messelson and Stahl's experiment support?

Messelson and Stahl's experiment supported the semi-conservative mode of replication. The DNA was first replicated in 14N medium which produced a band of 14N and 15N hybrid DNA. This eliminated the conservative mode of replication.

What are the different modes of replication of DNA?

The different modes of replication of DNA are:

- Semiconservative
- Dispersive
- Conservative

How are semiconservative and conservative modes of replication different?

Semi-conservative mode of replication produces two copies, each containing one original strand and one new strand. On the contrary, conservative replication produces two new strands and would leave two original template DNA strands in a double helix.

What is the result of DNA replication?

The result of DNA replication is one original strand and one new strand of nucleotides.

What happens if DNA replication goes wrong?

If DNA replication goes wrong, mutation occurs. However, if any mismatch happens, it can be corrected during proof reading by DNA Polymerase.