DNA Replication

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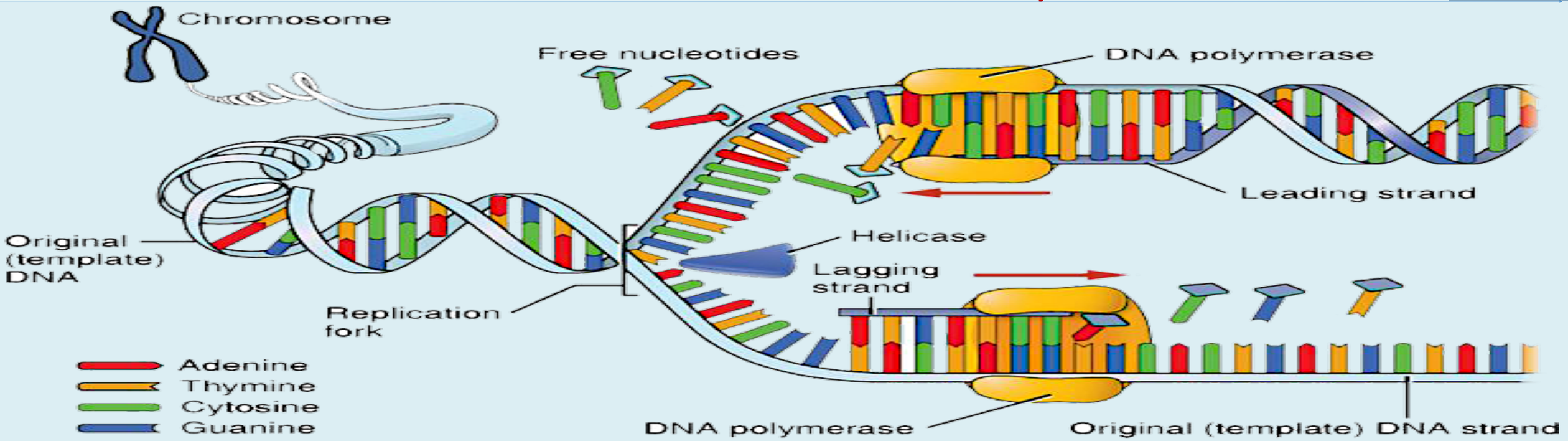


Introduction

DNA replication is the ultimate director for cells and and it codes for trait. It is the biological process of producing two identical replicas of DNA from one original DNA molecule.

Fork Formation

Before DNA can be replicated, the double stranded molecule must be “unzipped” into two single strands. This is performed by a DNA helicase enzyme which disrupts the hydrogen bonding between base pairs to separate the strands into a Y shape known as the replication fork.

Primer Binding

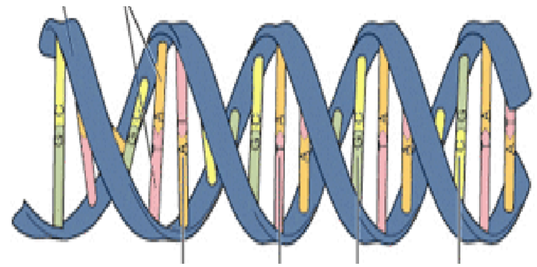
The leading strand is the simplest to replicate. Once the DNA strands have been separated, a short piece of RNA called a primer binds to the 3' end of the strand. The primer always binds as the starting point for replication. Primers are generated by the enzyme DNA primase.

Elongation

Enzymes known as DNA polymerases are responsible creating the new strand by a process called elongation.

Termination

Once both the continuous and discontinuous strands are formed exonuclease enzyme removes all RNA primers from the original strands. The parent strand and its complementary DNA strand coils into the familiar double helix shape.



Conclusion

DNA replication is the production of identical DNA helices from a single double-stranded DNA molecule. Each molecule consists of a strand from the original molecule and a newly formed strand. Prior to replication, the DNA uncoils and strands separate. A replication fork is formed which serves as a template for replication.

Reference

- Champe, P.C., Harvey, R.A. & Ferrier, D.R. (2008) Biochemistry. (4th ed.), Lippincott Williams & Wilkins.
- https://www.thoughtco.com/dna-replication-3981005.