

Basic rules of DNA replication

- 1 . Replication is always semiconservative .
- 2 . Replication begins at the sequences called origins .
- 3 . DNA synthesis is initiated by short fragments of RNA call primers .
- 4 . The elongation of DNA strands is always in the 5' to 3' direction .
- 5 . DNA replication can be uni or bidirectional .
- 6 . Replication is continuous on the leading strand and discontinuous on the lagging strand .
- 7 . New nucleotide strands are complementary and antiparallel to their template strands .
- 8 . Replication takes place at very high rates and is astonishingly accurate due to the processes of nucleotide selection , proof reading and repair mechanisms .

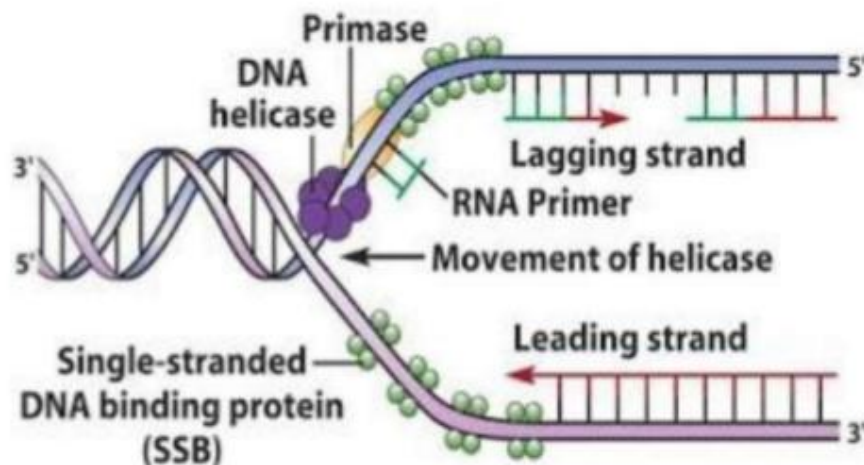


Figure 13-12a Cell and Molecular Biology, 4/e (© 2005 John Wiley & Sons)

Process of DNA Replication

step 1 :- Replication fork formation

- before DNA can be replicated the double stranded molecule must be unzipped into two single strands .
- DNA has four base called adenine , thymine , cytosine and guanine that form pairs between the two strands .
- in order to unwind DNA these interaction between base pairs must be broken .
- these is performed by an enzyme known as DNA helicase .
- DNA helicase separate the strands into Y shape known as the replication fork .