

MECHANISM OF DNA REPLICATION (PART -4)



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ELONGATION



- As the strands are separated, the polymerase enzymes start synthesizing the complementary sequence in each of the strands.
- The parental strands will act as a template for newly synthesizing daughter strands.

ELONGATION

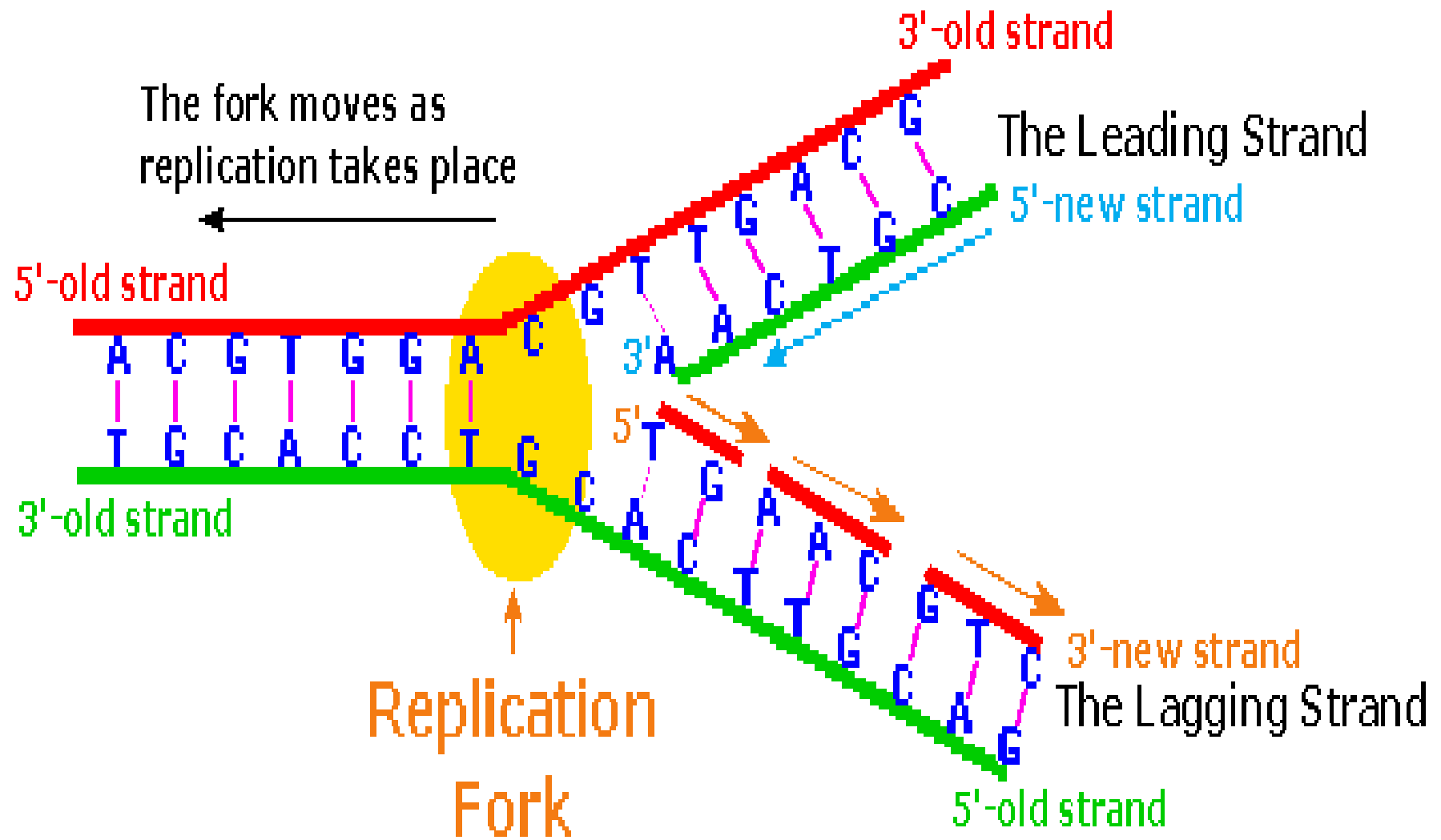


- It is to be noted that elongation is unidirectional i.e. DNA is always polymerized only in the 5' to 3' direction.
- Therefore, in one strand (the template 3'→5') it is continuous, hence called continuous replication

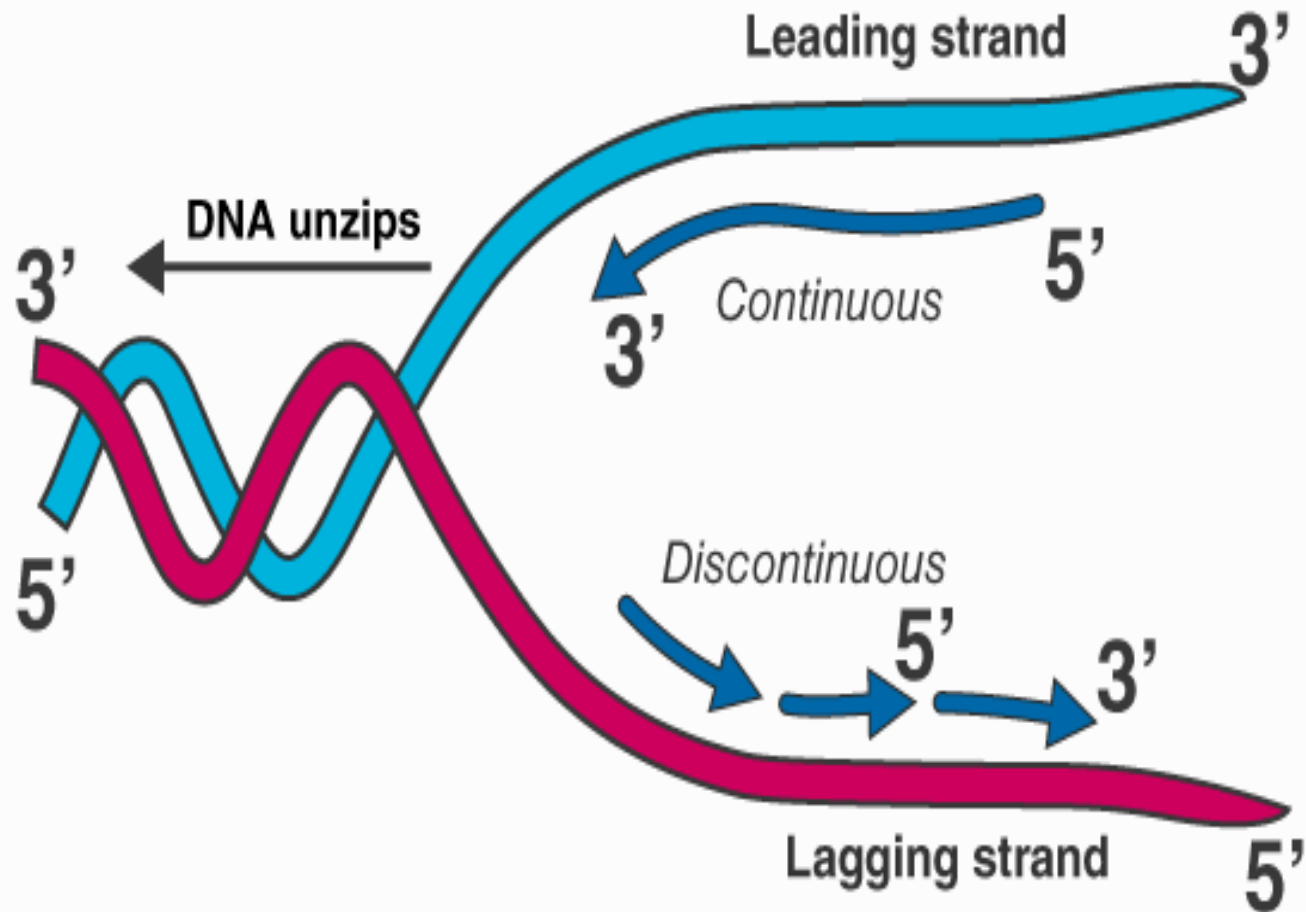
ELONGATION



- while on the other strand (the template 5'→3') it is discontinuous replication.
- They occur as fragments called Okazaki fragments.
- The enzyme called DNA ligase joins them later.



DNA REPLICATION FORK

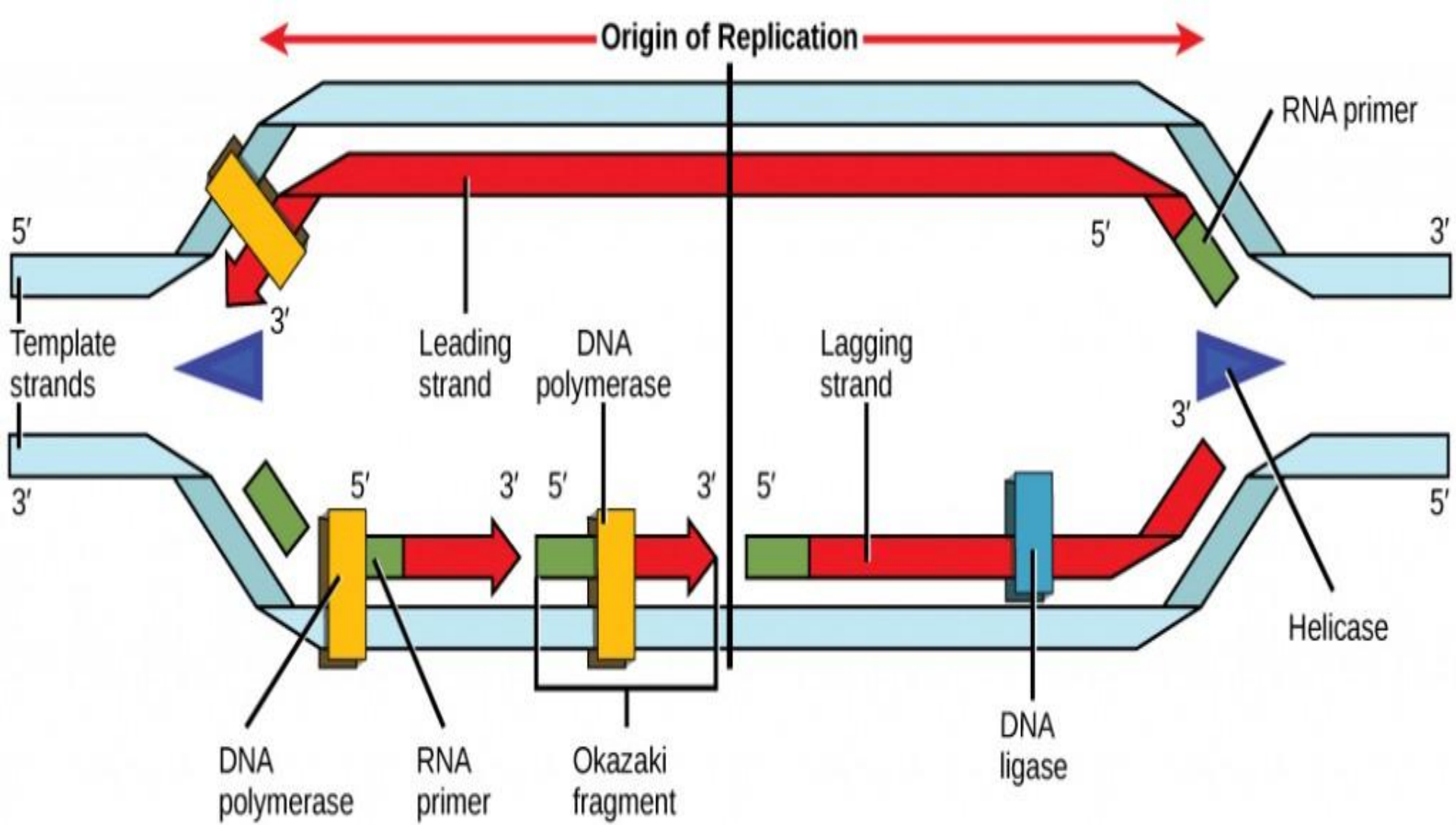


➤ *A replication fork is formed by the opening of the origin of replication, and helicase separates the DNA strands.*

➤ *An RNA primer is synthesized, and is elongated by the DNA polymerase.*

➤ *On the leading strand, DNA is synthesized continuously, whereas on the lagging strand, DNA is synthesized in short stretches.*

➤ *The DNA fragments are joined by DNA ligase*



THANK YOU