

# Replication of DNA

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# Objective

- 1- Define Replicons
- 2- Restate initiation of Replicons

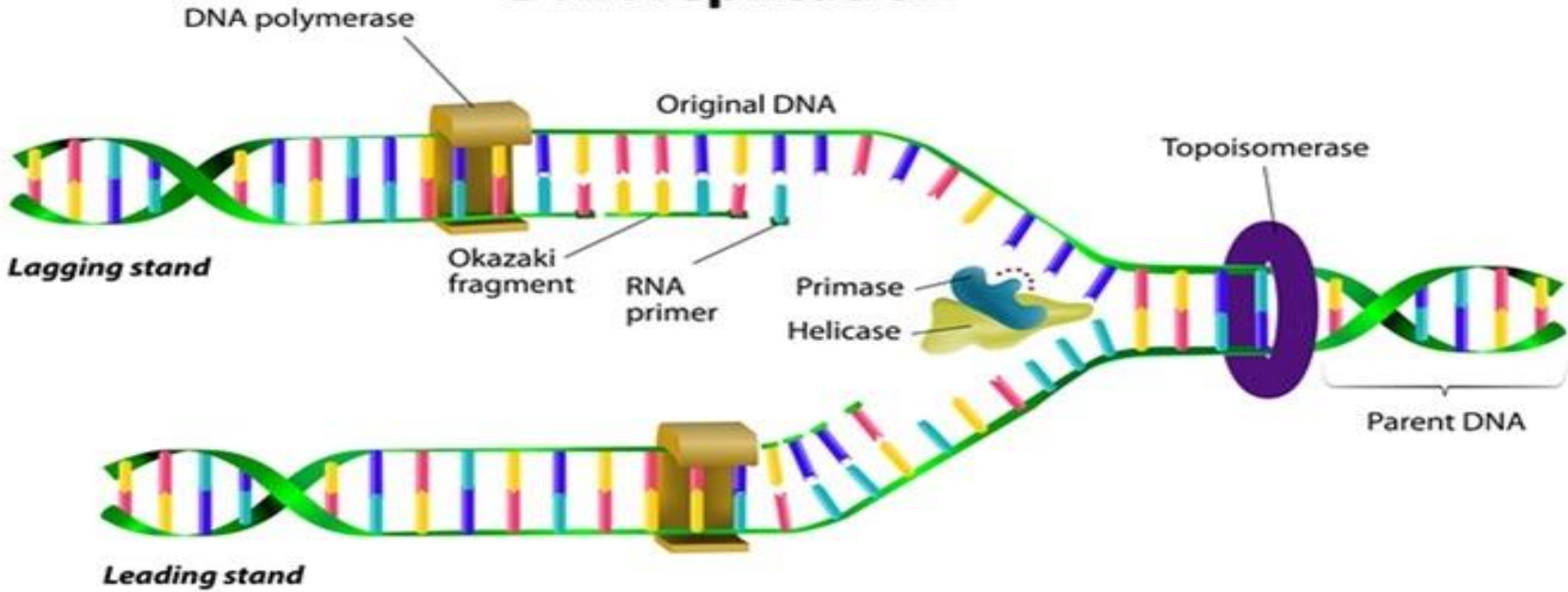


# Define Replicons

The stretch of DNA from the origin of replication to the two termini of replication (where adjacent replication forks fuse) on each side of the origin is called a replicon or replication unit.



# DNA replication





# Restate initiation of replication

The initiation of replication involves two temporally separate steps:

- 1. replicator selection, in which ORC binds to each replicator in the stage and recruits other proteins to form prereplicative complexes (pre-RCs).
- 2. Unwinding of the DNA does not occur yet, in contrast to the case in bacteria when an initiator binds to a replicator. Rather, the pre-RCs are activated when the cell progresses from to S, and then they initiate replication.



# Restate initiation of replicons .... cont'd

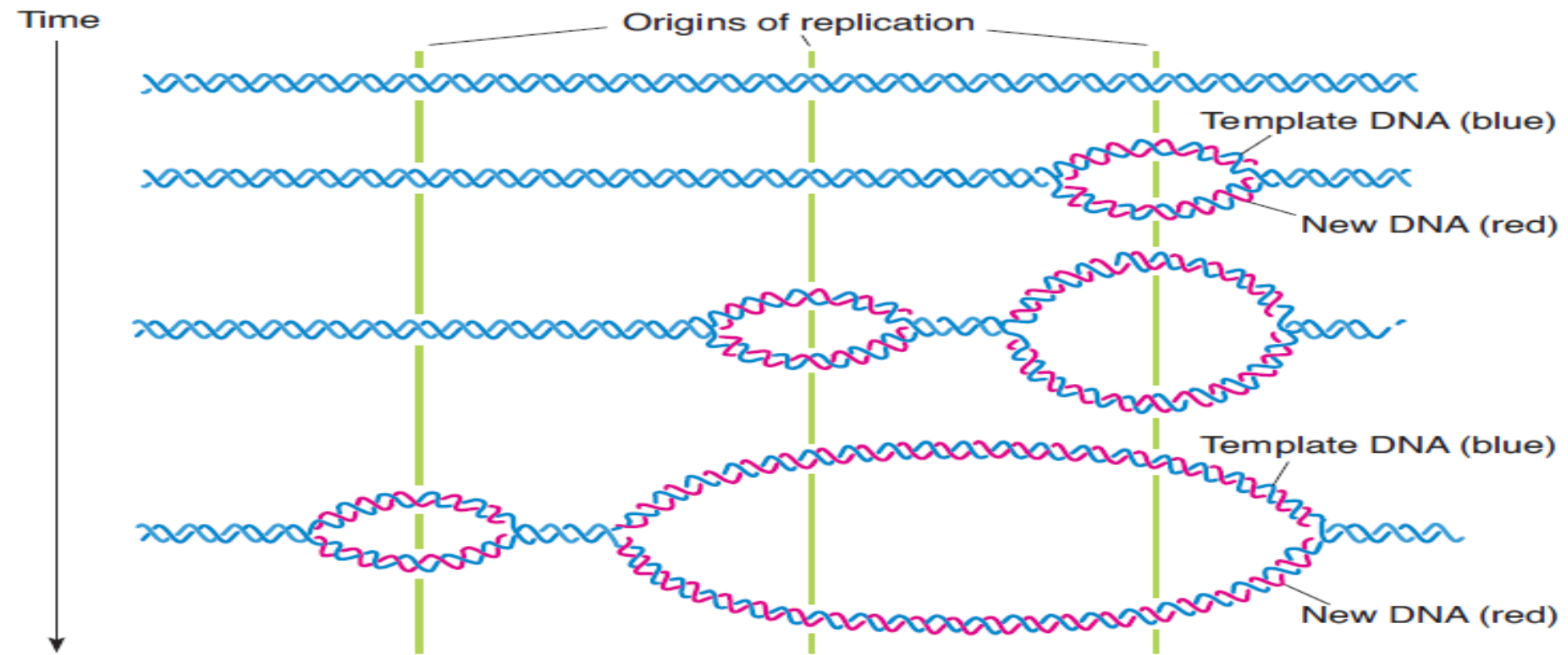
- 3. Limiting replication initiation to the S stage is controlled by proteins called licensing factors. Licensing factors are synthesized only in and then move to the nucleus, where they are the first proteins that bind to ORCs to form pre-RCs.



# Restate initiation of replicons ... cont'd

- 4. Other proteins are now recruited, and the entire complex begins to untwist the double-stranded DNA.
- At this point the licensing factors are released from the complexes and inactivated.







# Reference

Russell / iGenetics : a molecular approach / San Francisco / Benjamin Cummings / Chapter 3



**Thank  
You 😊**

