

**Today:**

- Famous experiments about DNA and genes**
- DNA replication**
- DNA mutations**

**Monday:**

- Exam up through the topics covered in the past two weeks, inclusive of concepts presented in review questions!**

**Tuesday workshop:**

- Techniques in molecular biology. (Southern, Westerns, Northern, DNA footprinting, PCR, etc. . . )**

# Frederick Griffith – Transformation Experiment

## Bacterial strains can be altered by the presence of another strain.

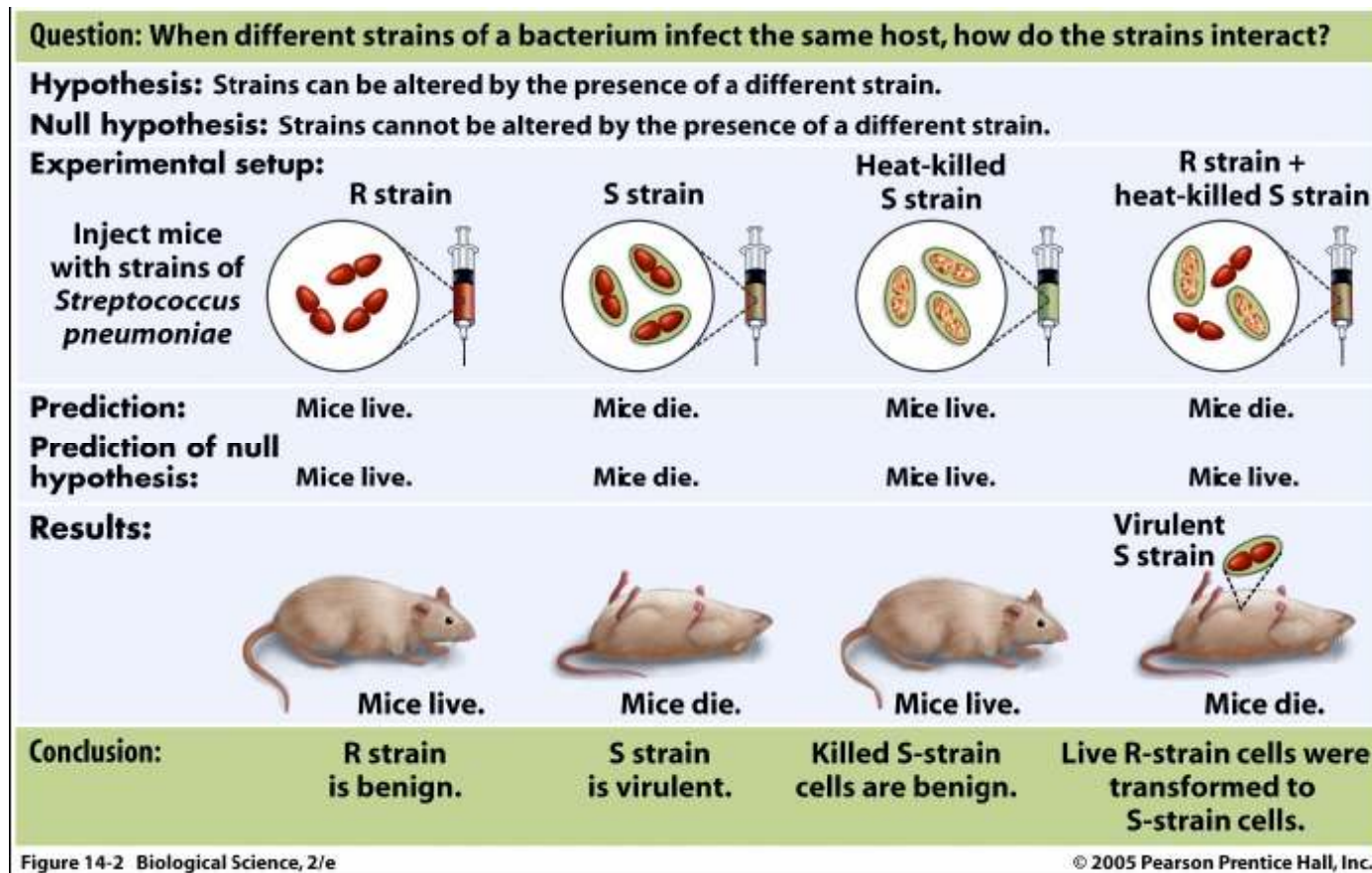


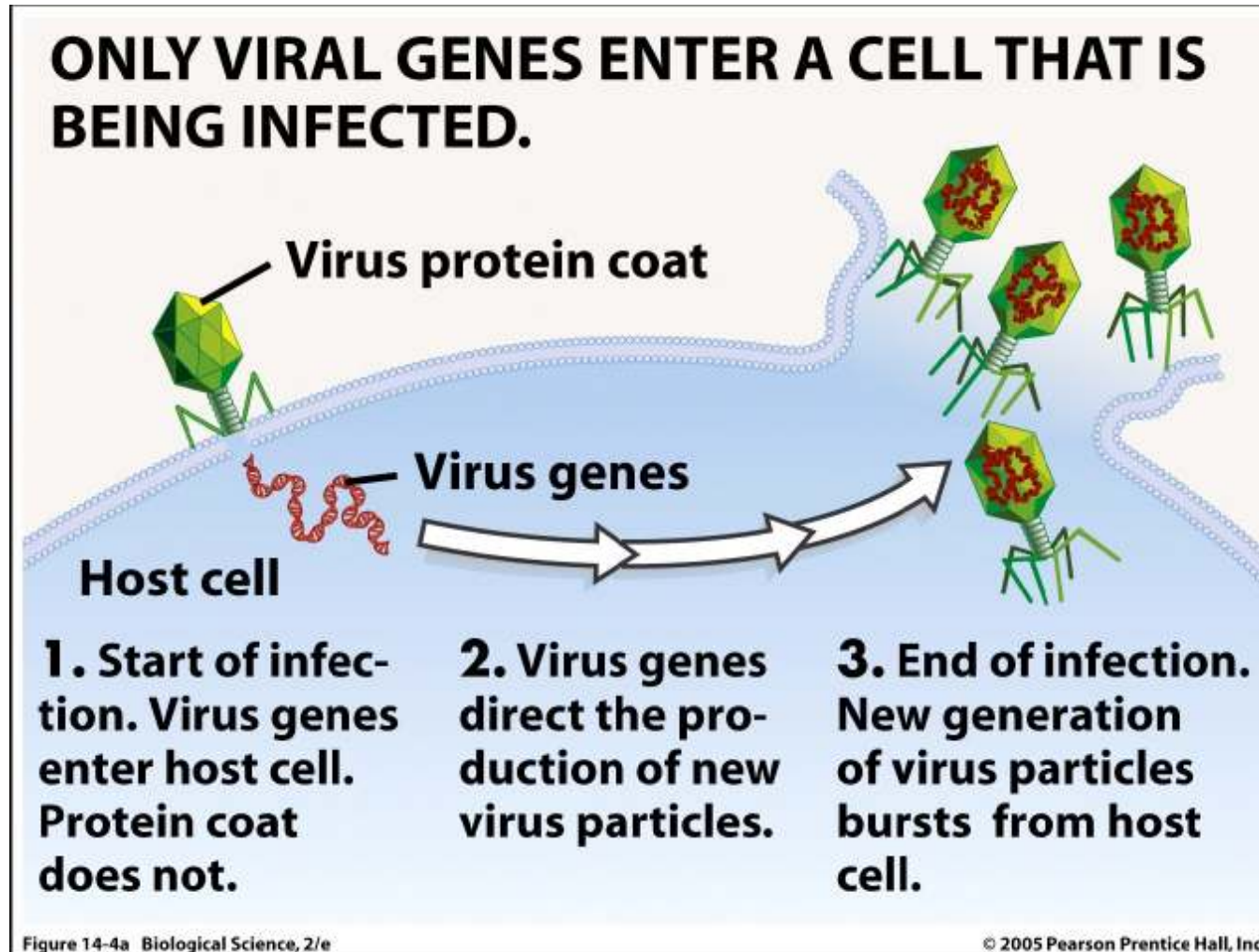
Figure 14-2 Biological Science, 2/e

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**Strain S altered (transformed) strain R.**

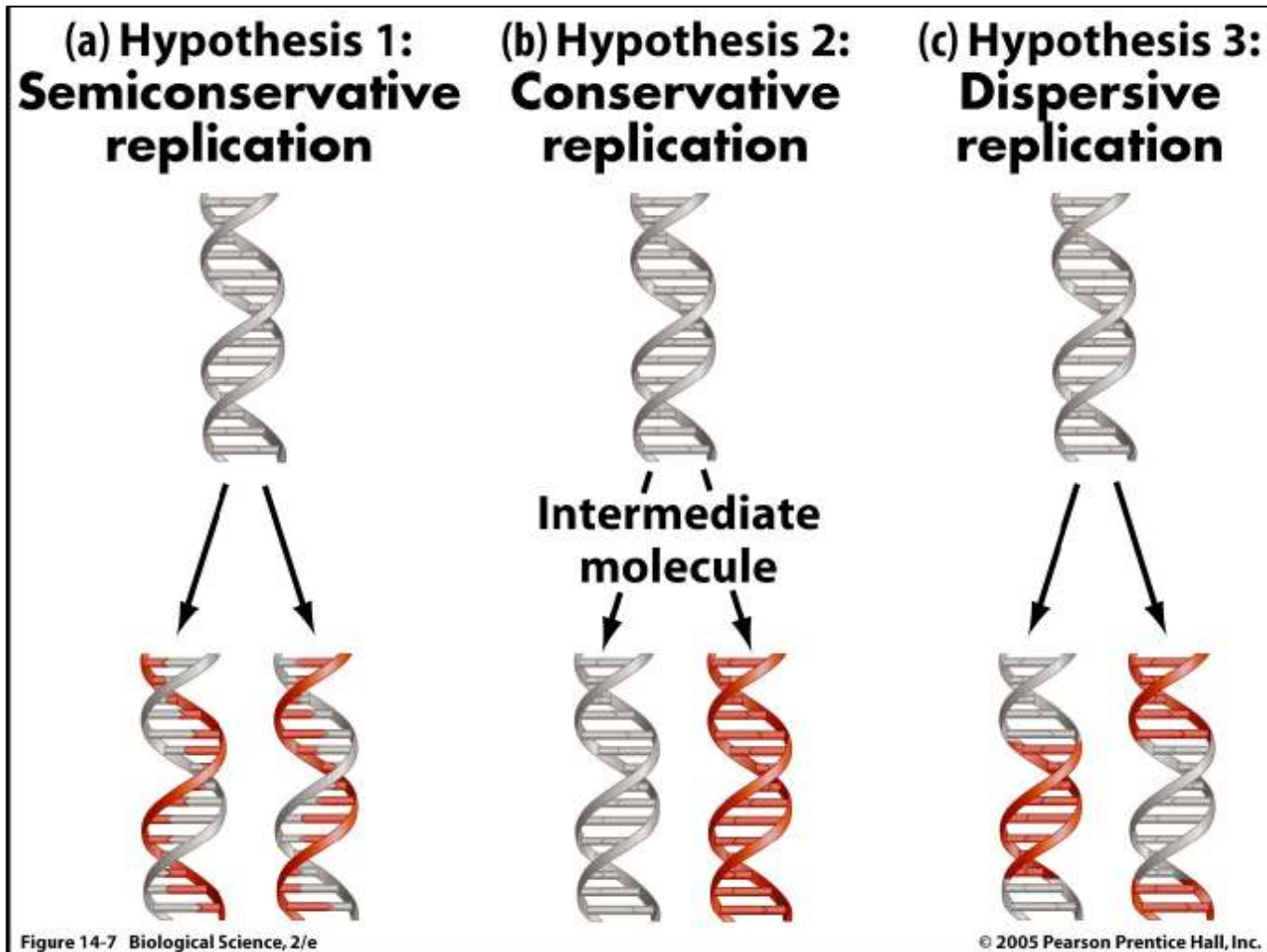
# Hershey-Chase

## What are genes made of – protein or DNA?



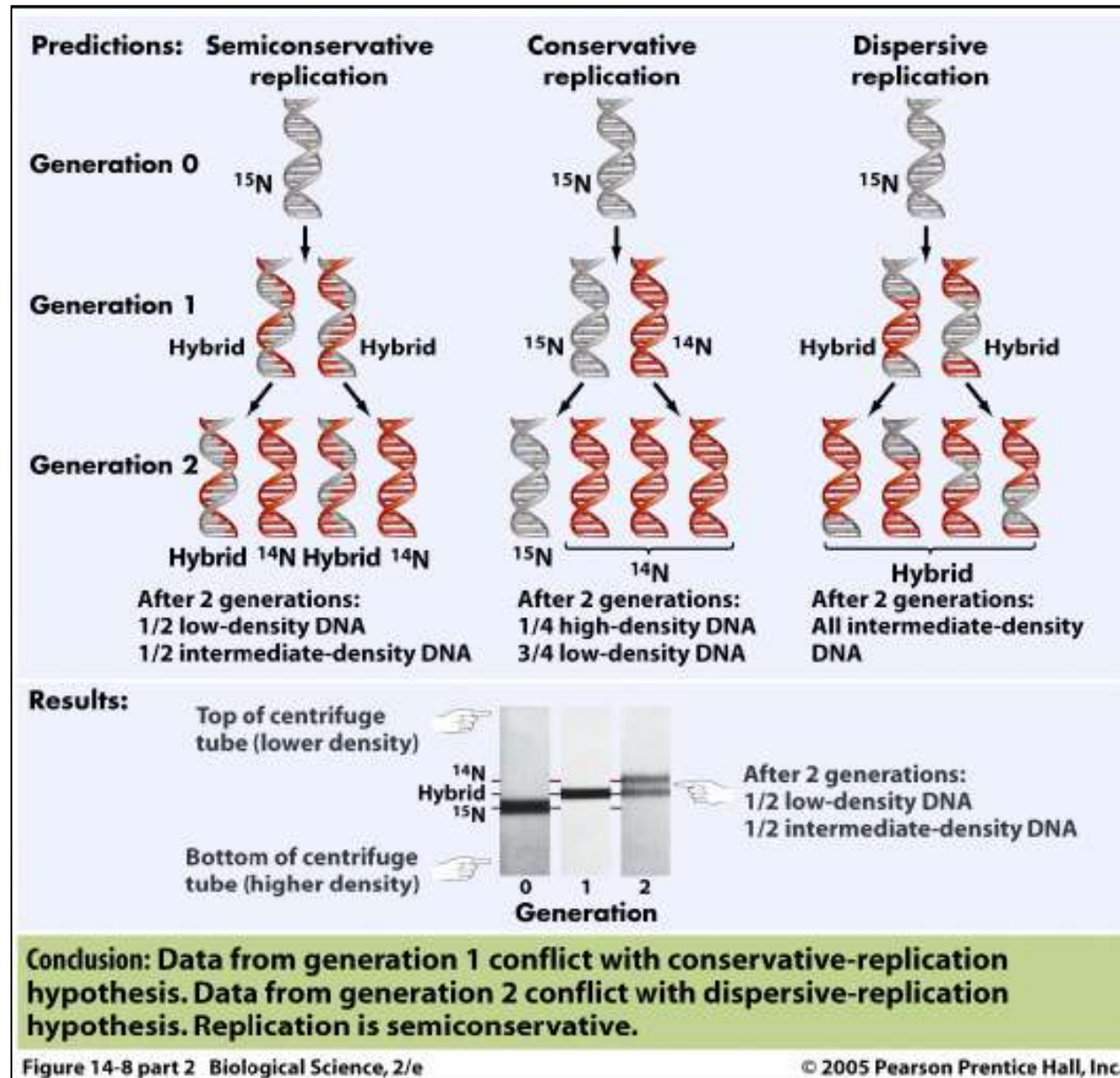
**DNA contains genes!**

**Meselson-Stahl – How does DNA replicate?**  
**One of three ways must be true.**

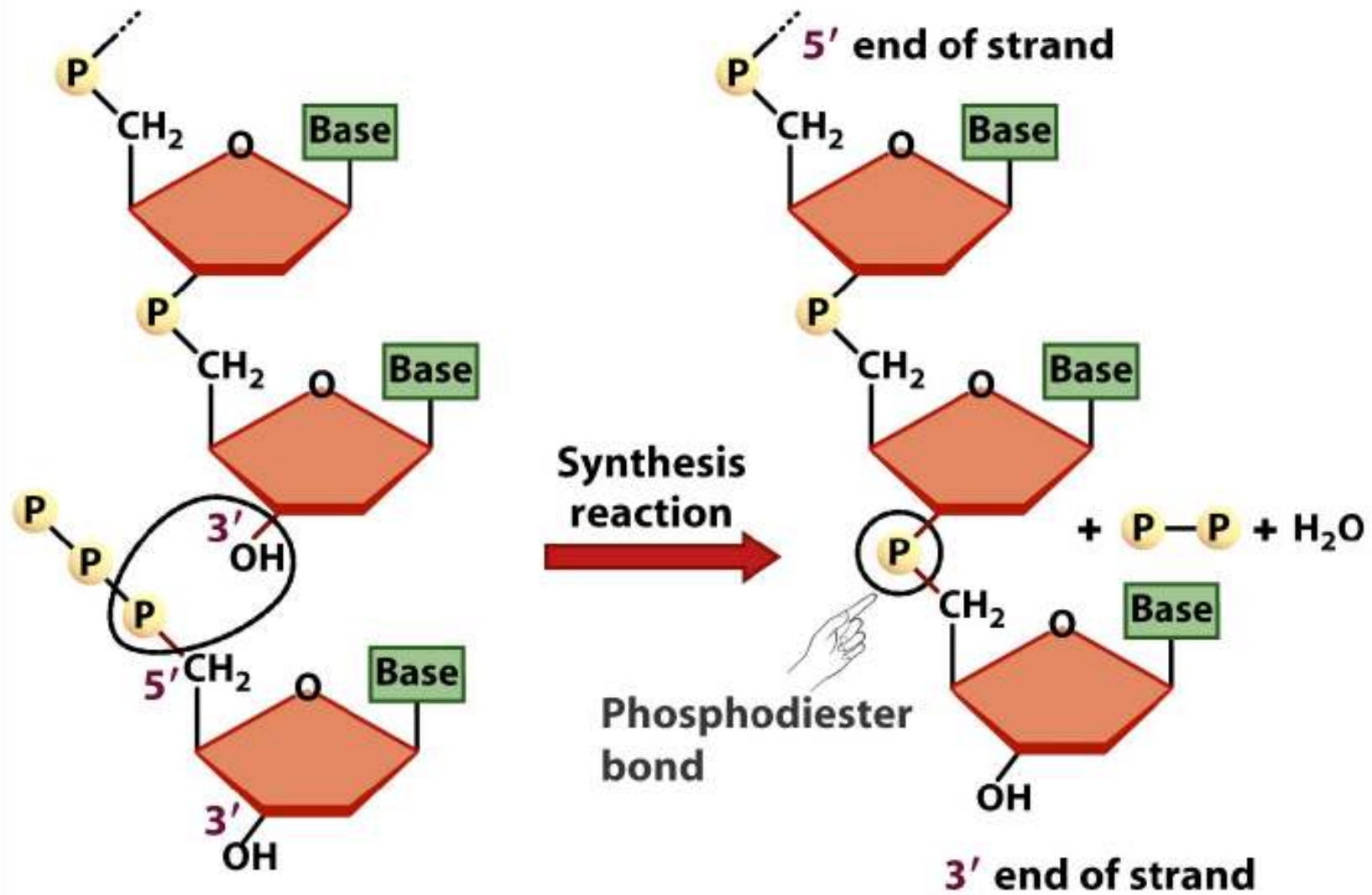




# DNA replication is semiconservative!

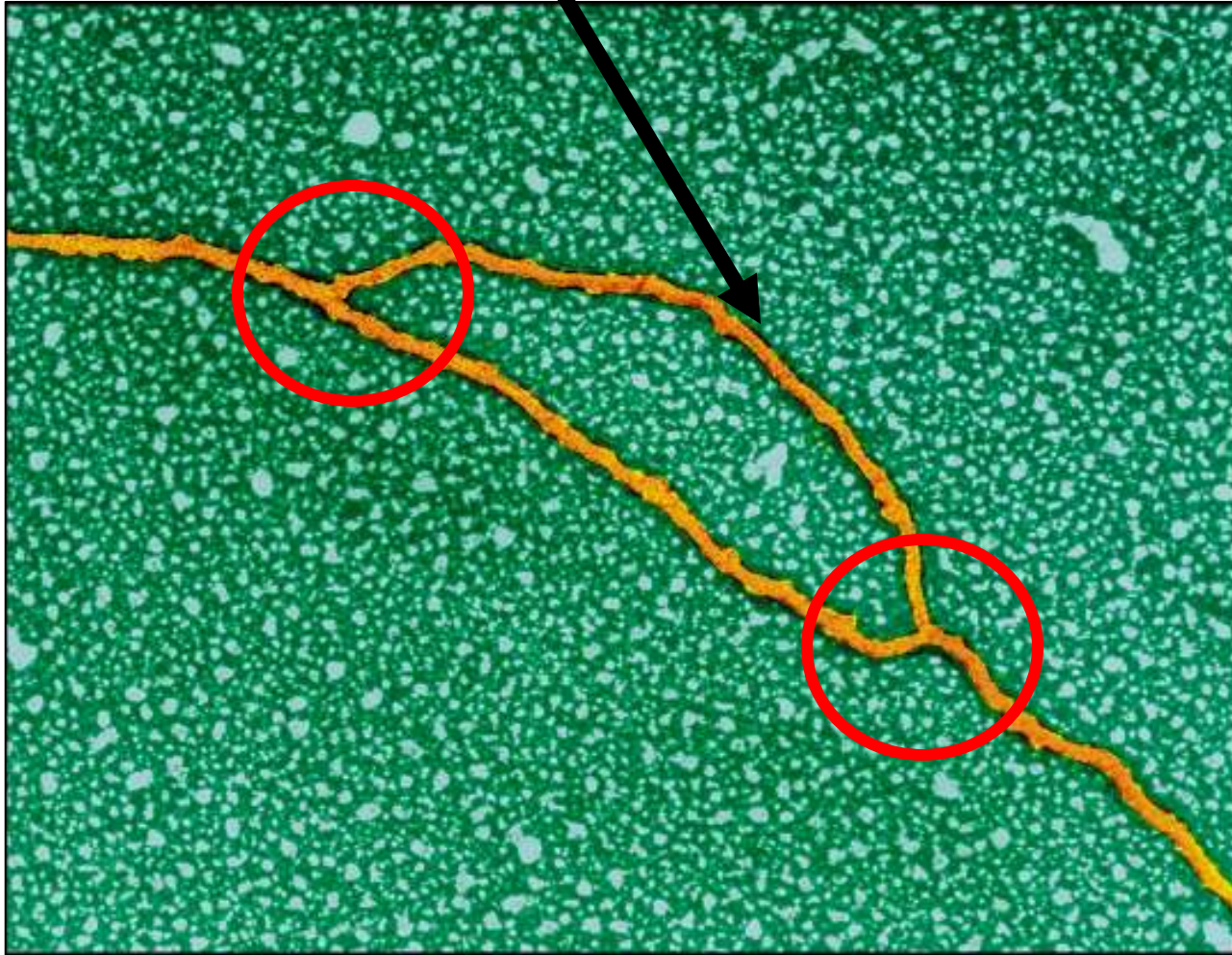


# DNA synthesis reaction





Origins of replication and **replication forks**



# Opening, unwinding, and priming the DNA

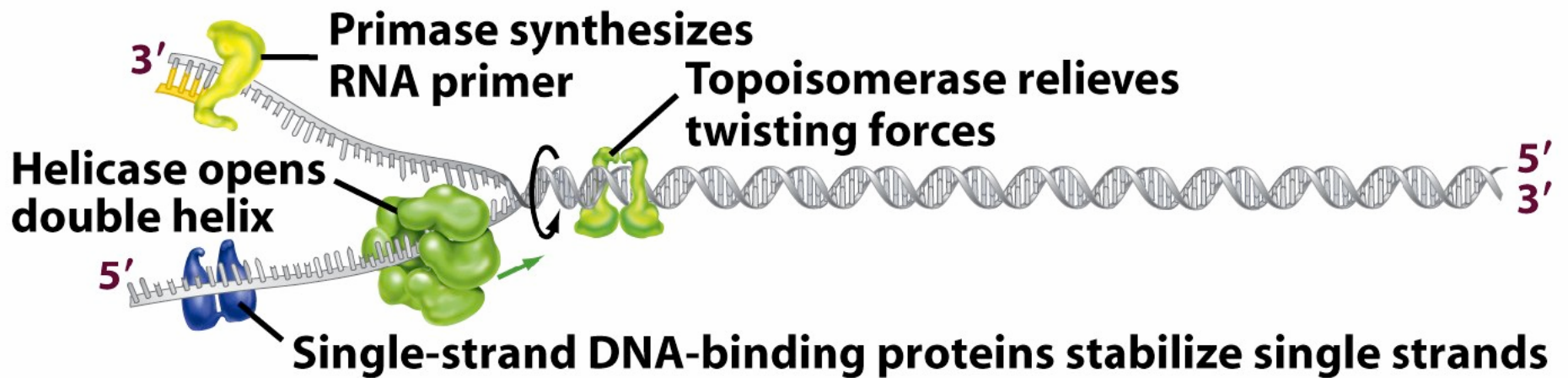


Figure 14-12a Biological Science, 2/e

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# Synthesis of leading strand

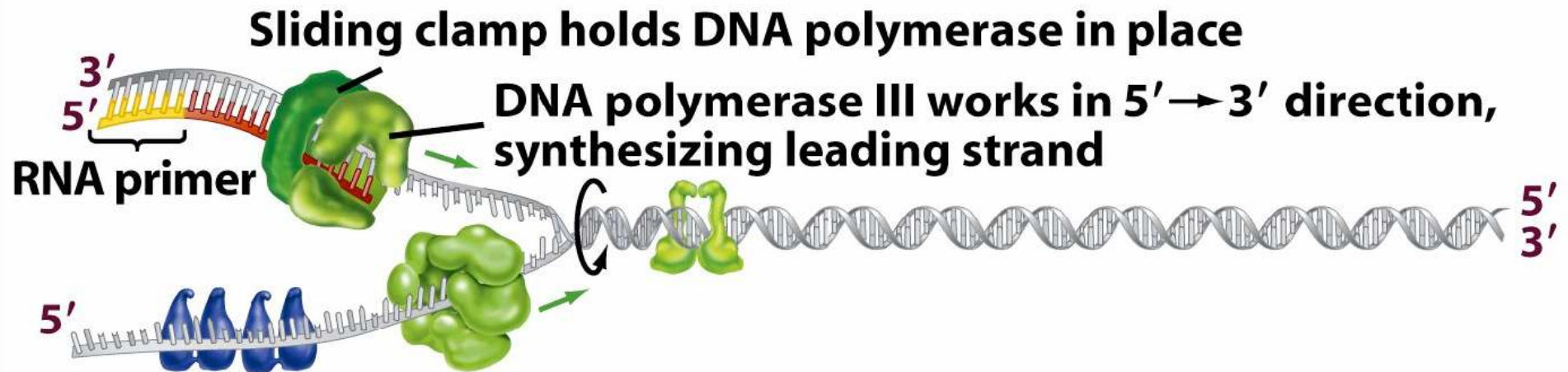


Figure 14-12b Biological Science, 2/e

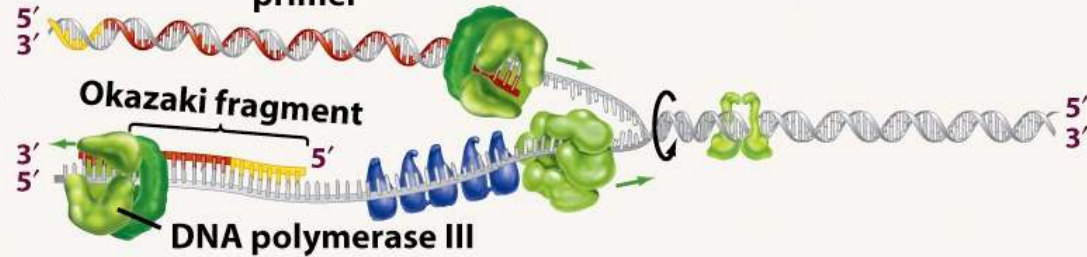
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## SYNTHESIS OF LAGGING STRAND

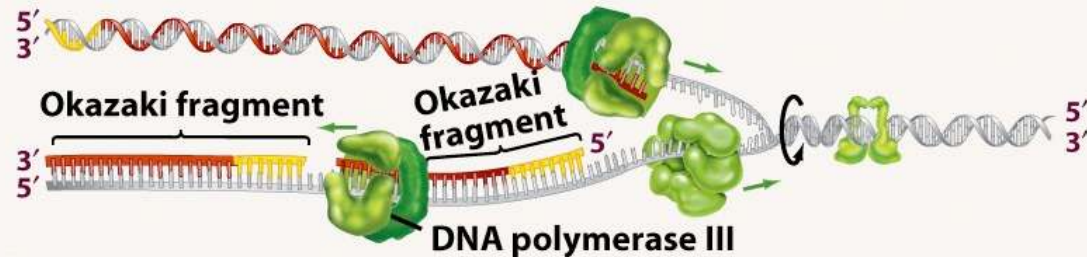
**1. Primase synthesizes RNA primer.**



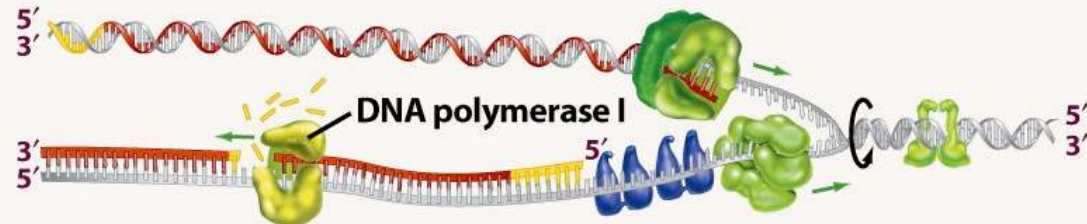
**2. DNA polymerase III works in 5'→3' direction, synthesizing lagging strand.**



**3. DNA polymerase III synthesizes another fragment.**



**4. DNA polymerase I removes ribonucleotides of primer, replaces them with deoxyribonucleotides in 5'→3' direction.**



**5. DNA ligase closes gap in sugar-phosphate backbone.**

