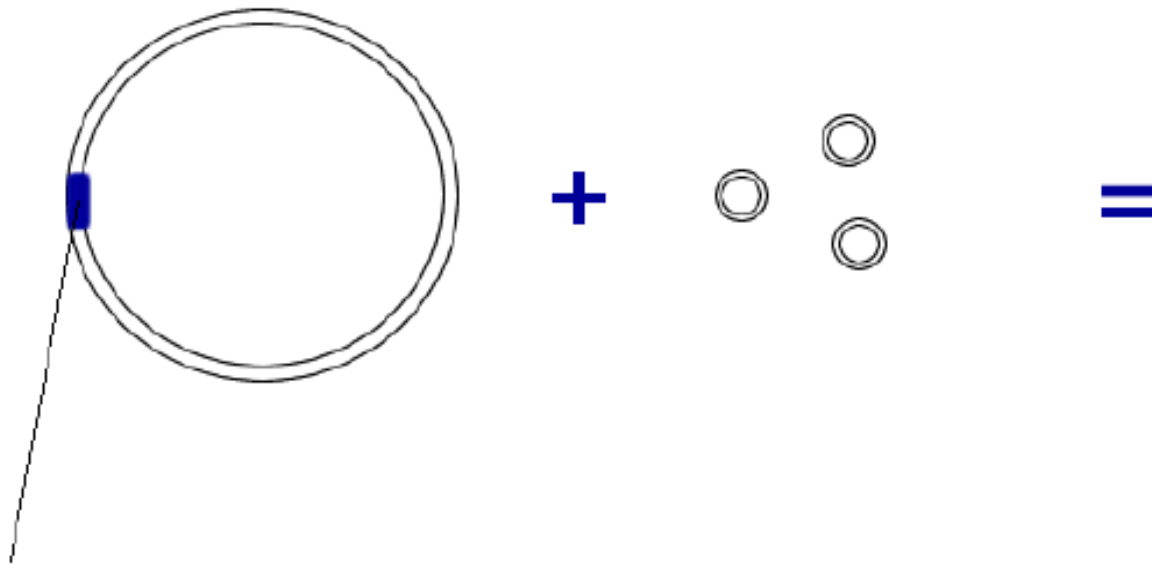


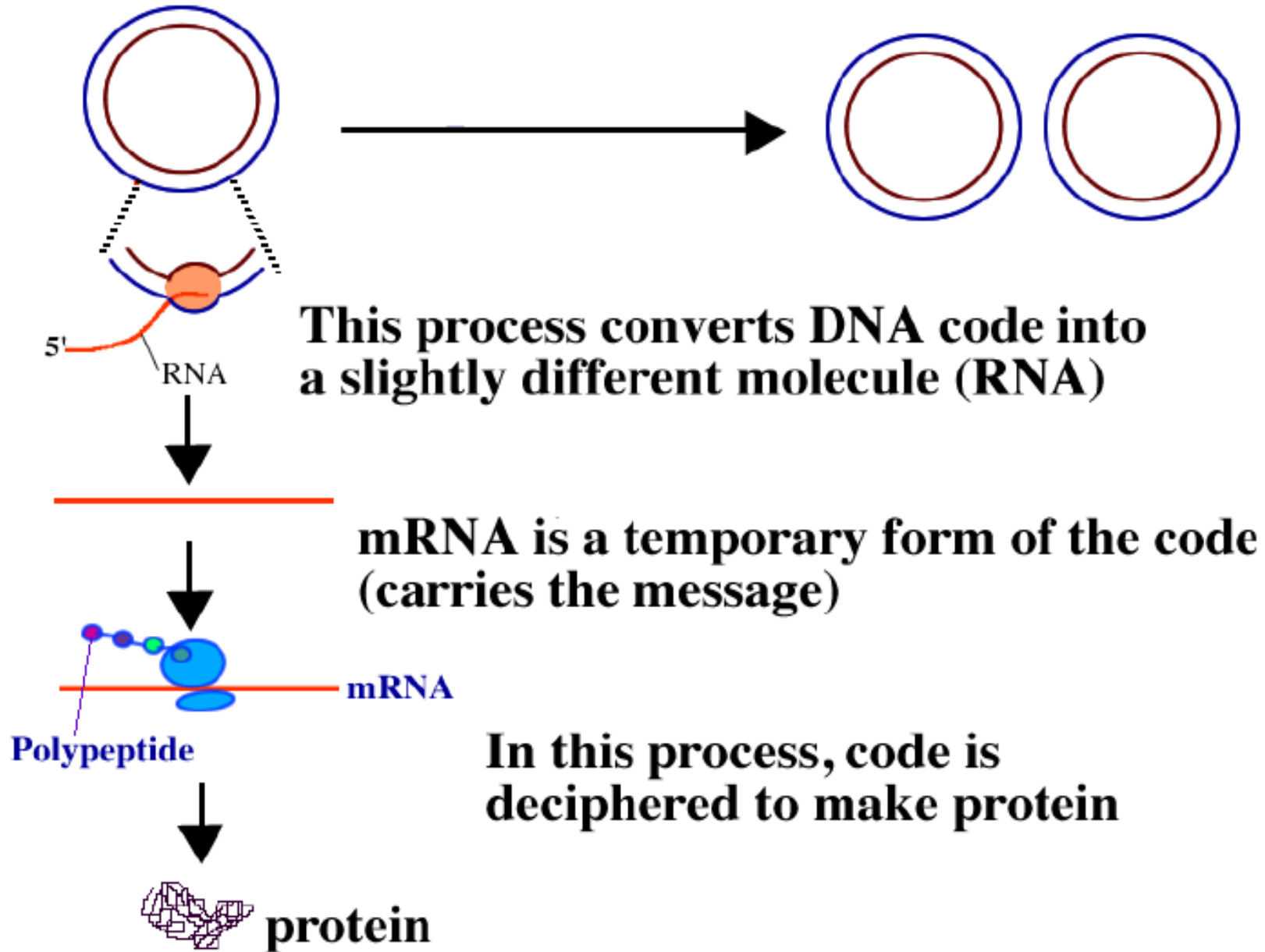
Lectures 12-14: Gene Expression

I. Terminology

A. The bacterial genome



B. The central dogma of gene transfer



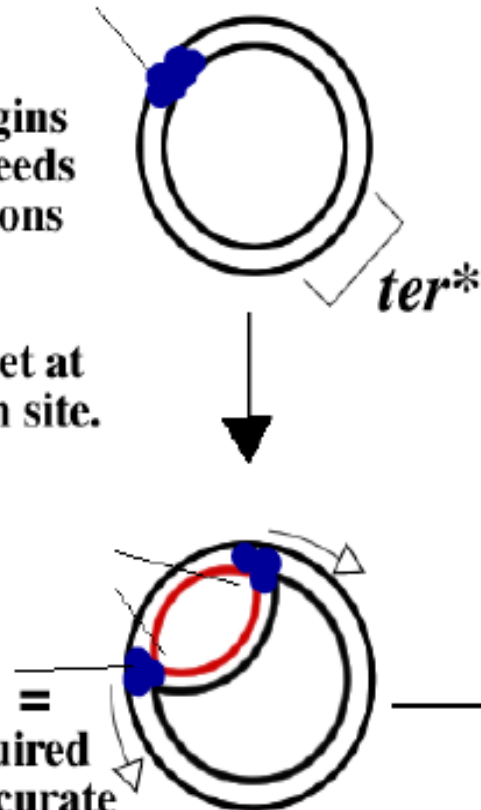
II. DNA Replication

E. coli chromosome

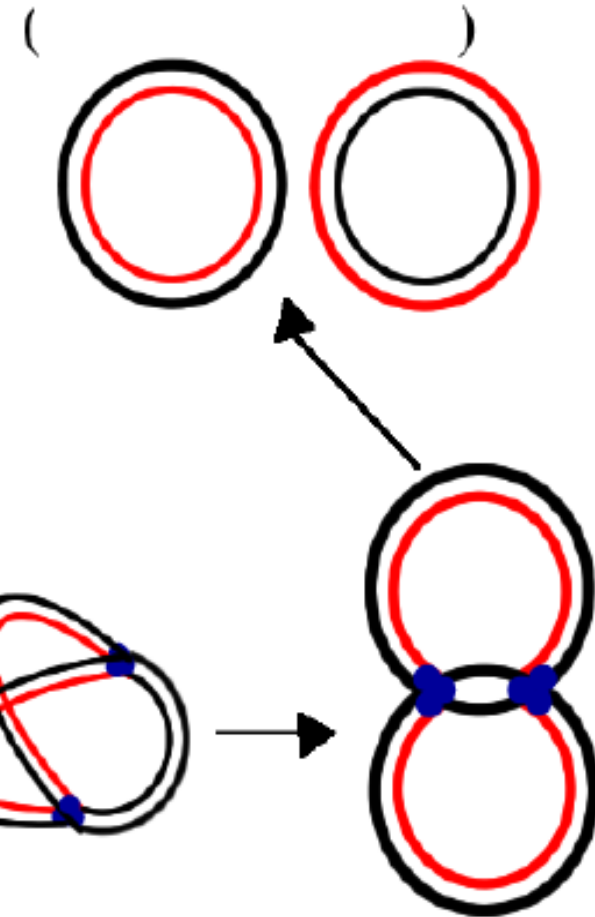
replication begins here and proceeds in both directions

until the two replisomes meet at the terminaton site.

proteins required for rapid, accurate replication.



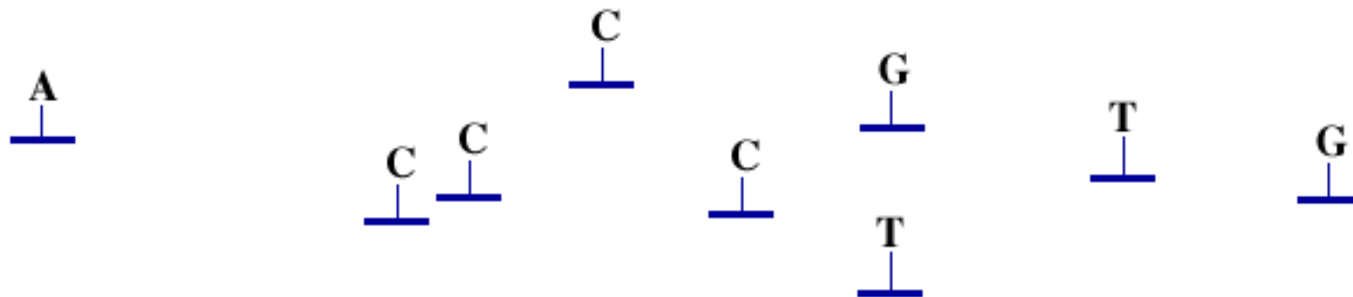
Each of the two molecules generated contain one of the two original strands



*Termination occurs at the **terminaton site** which is opposite the origin. This region contains sequences that are binding sites for a protein called **TerA**. This protein stops the progress of the replication forks.

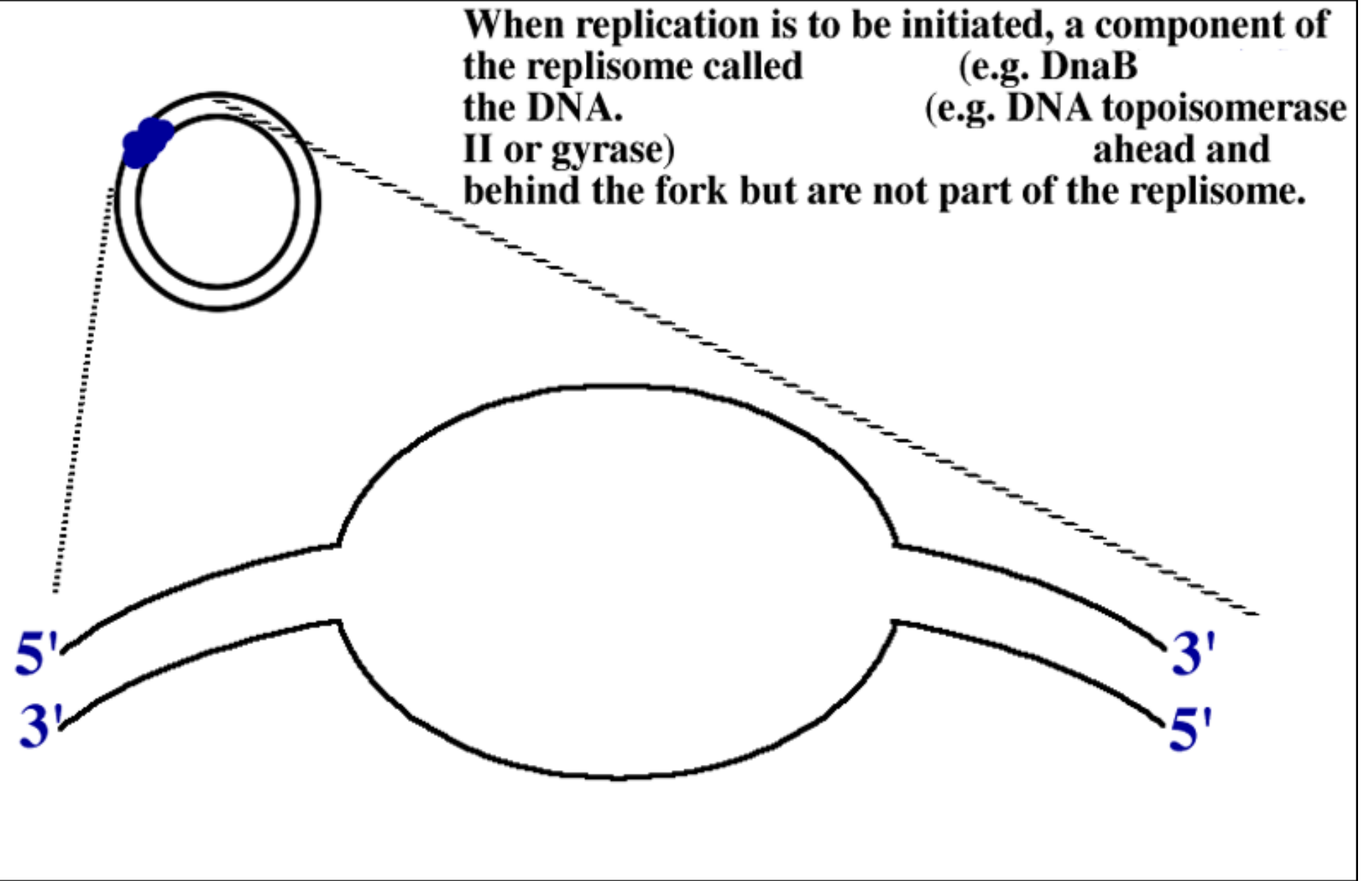
A. The replisome contains _____ that synthesize DNA using one strand of the existing DNA as a template.

B. DNA is synthesized using _____ . Synthesis always occurs in the _____ direction. An existing fragment of DNA or RNA must be present to serve as a _____.



C. Most DNA polymerases not only synthesize DNA but they also have a _____ function (a _____ that _____ and inserts the correct nucleotides).

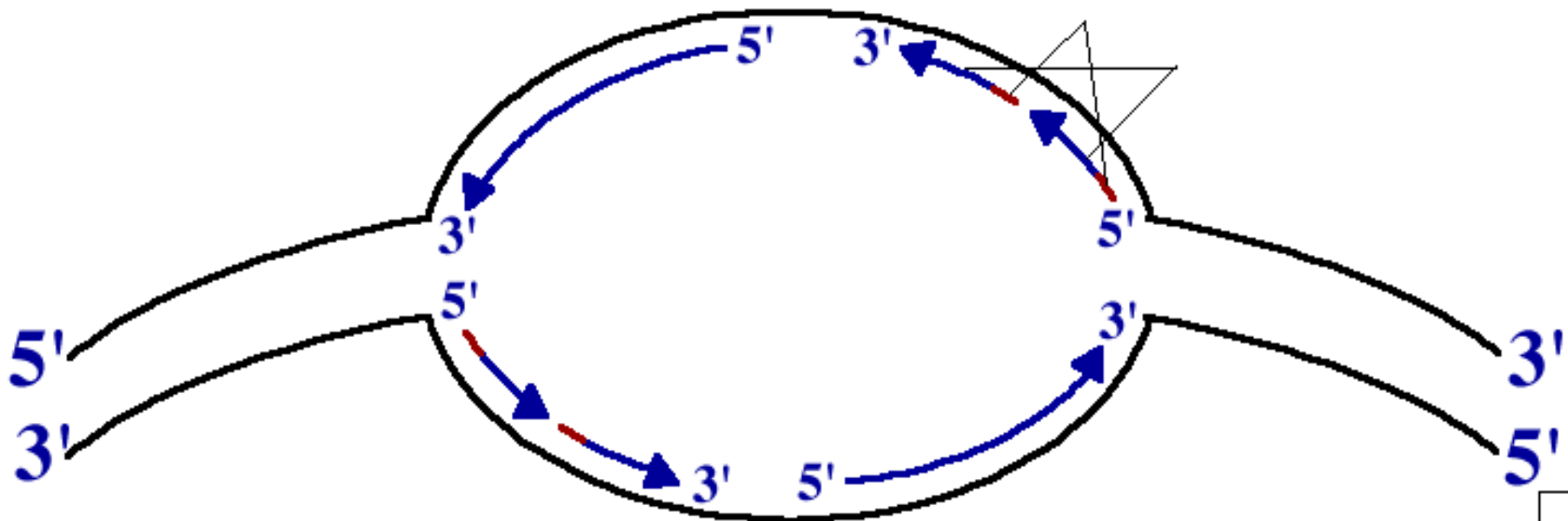
D. Initiation of replication



Thus, synthesis is continuous in the direction of the fork for and in the opposite direction (the lagging strand).

E. Replication of the lagging strand:

1. (an RNA polymerase that is part of the replisome) synthesizes short
2. DNA polymerase in the 5'-3' direction. This creates small fragments of DNA that begin with RNA primers. These fragments are called
3. As DNA polymerase adds nucleotides to an elongating Okazaki fragment, eventually it
A different type of DNA polymerase then and replaces them with deoxynucleotides.
4. DNA ligase between adjacent fragments.



From the Walter and Eliza Hall Institute of Medical Research