

OVERVIEW OF DNA REPLICATION

1. Overview of DNA replication

- Definition of DNA replication: The process where DNA replicates its _____ and involves many _____.
- What phase in the cell cycle where DNA replication occur? _____
- What the correct model for DNA replication? _____
- Where is the DNA replication begin? _____
- What is the direction of DNA synthesis? _____

2. Match the following enzymes and protein to its function.

Helicase	 Synthesis RNA primer by adding RNA nucleotides using 3' end of the parental DNA strand as a template.
Single-strand binding proteins	 Recognizes the 3' OH end of the RNA primer, and adds free complementary DNA nucleotides.
Topoisomerase	 Joins the Okazaki fragments by forming phosphodiester bonds to form continuous DNA strands.
Primase	 Unwind the double strand of DNA by breaking hydrogen bonds between the nitrogenous bases.
DNA polymerase III	 Removes RNA primer and replaces it with DNA nucleotides.
DNA polymerase I	 Bind to the unwound DNA strand, and prevent them for annealing.
DNA ligase	 Relieves tension to the DNA molecule by nicking and cutting certain placed on the phosphate backbone.