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PHYSIOLOGY DEPARTMENT

BCH 204

MEDICAL BIOCHEMISTRY III

1. STEPS FOR DNA REPLICATION

STEP 1: Replication fork formation

STEP 2: Primer bonding

STEP 3: Elongation

STEP 4: Termination

2. FUNCTIONS OF ENZYMES IN DNA REPLICATION

a. DNA helicase

- i. Unwinds and separates double stranded DNA.
- ii. It forms the replication fork by breaking hydrogen bonds between nucleotide pairs in DNA

b. DNA primase(a type of RNA polymerase)

- i. Generates RNA primers. *PRIMERS are short RNA molecules that act as templates for the starting point of DNA replication

c. DNA polymerases

- i. Synthesize new DNA molecules by adding nucleotides to leading and lagging DNA strands.

d. DNA Gyrase or Topoisomerase

- i. Unwinds and rewinds DNA strands to prevent the DNA from becoming tangled or supercoiled.

e. Exonucleases

- i. Group of enzymes that remove nucleotide bases from the end of a DNA chain

f. DNA ligase

- i. Joins DNA fragments together by forming phosphodiester bonds between nucleotides.