

DNA Replication

Biology

Semi-conservative replication, and why one strand is made in pieces.

The mechanism at a replication fork.

1

Helicase unwinds

Breaking hydrogen bonds between the strands.

2

Primase lays an RNA primer

DNA polymerase cannot start from nothing.

3

Leading strand, continuous

Synthesised 5' to 3' toward the fork.

4

Lagging strand, in fragments

Okazaki fragments, made away from the fork.

5

Ligase joins them

Sealing the sugar-phosphate backbone.

SEMI-CONSERVATIVE

Each new molecule keeps one parental strand

Meselson and Stahl demonstrated it with ^{15}N labelling

DNA polymerase proofreads as it goes, giving an error rate of roughly one per billion bases.