~~30th January 2024~~

DNA polymerase is 5' to 3' direction, 31st Jan 2024
this is the direction in which synthesis proceeds.

→ ~~Okazaki~~ Okazaki discovered the evidence of his fragments when we isolated DNA from dividing cells, and centrifugated them. He found small DNA fragments. (More complicated, but this is the digest.

* Replication of both the strands must be coordinated, as if they are mismatched they cannot form chromatin together, etc.

* 5'→3' as the raw material is tri phosphate nucleotide releases energy like ~~of~~ ATP from 5' end to provide energy for polymerase. Polymrase first gets the energy then does its job.

* ~~Lea~~ The polymerases on each strand comes close and form a complex and moves together. This is allowed due to looping of the lagging strand. This coordinates replication of the strands. Diagram of loop in slides.

* ~~RNase~~ RNA~~se~~ primer binds to DNA so that polymerase can recognise it and bind to it to start replication. Okazaki fragments have ~~sev~~ several such primers as it is discontinuous unlike leading strand. These are removed by RNAse and filled in by ligase.

* DNA polymerase I does main replication, DNA polymerase III does gap filling, etc.

* Gyrase release pressure of coil from helicase opening coil.

→ Ribose sugars are not allowed in Replication due to steric hindrance from -OH.

⊛ Monday Class test tutorial hours — syllabus is whatever taught before monday.

1st February 2024

⊛ There are several origins of replication in the human DNA.

Telomerase is a reverse transcriptase — takes RNA as template to synthesize DNA. very rare — only found in retroviruses apart from this.

It fixes the okazaki fragment end shortening problem.

⊛ Helicase loading and activation is the rate determining step of DNA replication.

ORC → Origin recognition complex.