- extremely accurate
- proofreads
- does not distinguish b/w DNA & RNA (!)
- very fast reaction due to processive nature

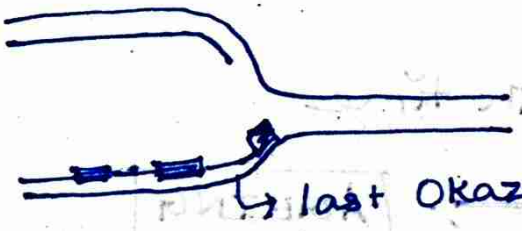
Replication at chromosomal ends:

→ Repititive telomere sequence (TTAGGG)
→ Protects chromosome ends ~~at~~ from damage
— telomeric proteins

Why repitition? Why proteins?

Shelterin — protects telomere end — as the end is free and the end is perceived by DNA polymerase as a strand break (exonucle

End Replication Problem:



Primer removed → place not filled → bases lost and unreplicated

Replication cycles → Chromosome gets shorter & shorter.

Telomerase

→ ribonucleaprotein

- TERT – Telomerase reverse transcriptase
- TER – Telomerase RNA
- → RNA dependent DNA polymerase

In Telomerase → complementary RNA seq.

TTAGGGTTAGGGTTA

↓

Telomere lengthened by several 1000 bases.

↓

After extension → shortening does not affect because of ~15–20 bases

(?) Why TTAGGG

Telomerase activity ↓ with time

→ AGEING

(?) Frequency of telomerase activity wrt. rep. cycle.

(?) Half-life of telomerase

Regulation of replication

Cell cycle — blah blah blah

Helicase - Loading and activation

- Helix → straight
- Rate determining state
- **Loading** — Bing of Helicase to ORC
- **Activation** — Separation of strands.
- MCM 2-7 + Cdt1 **ORC** → Complex → CdT-1 sep. throug ATP.

Origin Recog. Complex

YAY NO REMEMBERING

CDK phosphorylates helicase → Activation

G_1 - loading (Act. inhibited) , G_2, S, M → **Activation,** (loading inhibited)
