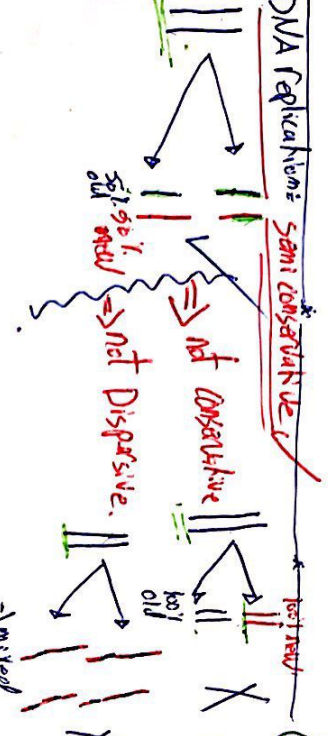


DNA Replication & Basic Information

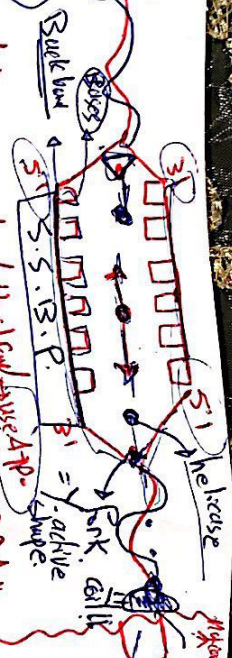
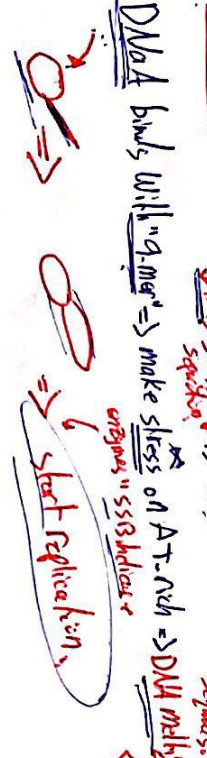
① the helical collection of DNA within cells \rightarrow genome
We can extract DNA from single cell or group of cells
"skin, blood, nerve" that are similar.

② DNA is organized into chromosomes.
 \rightarrow bacterial \Rightarrow DNA, circular chromosome.
 \rightarrow Eukaryotic \Rightarrow multiple DNA, linear "a" completed with histones to allow DNA packaging condense in nuclei.

③ the replication must be accurate, variation is important.
④ DNA poly \Rightarrow DNA synthesis / and the substrates are "deoxyribonucleotides"

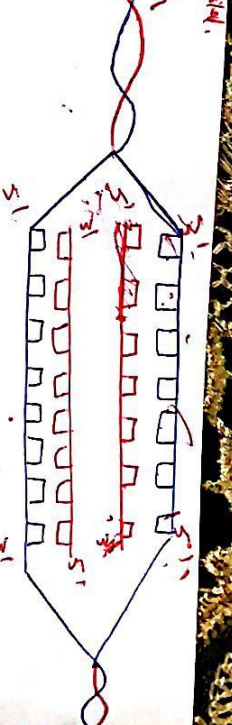
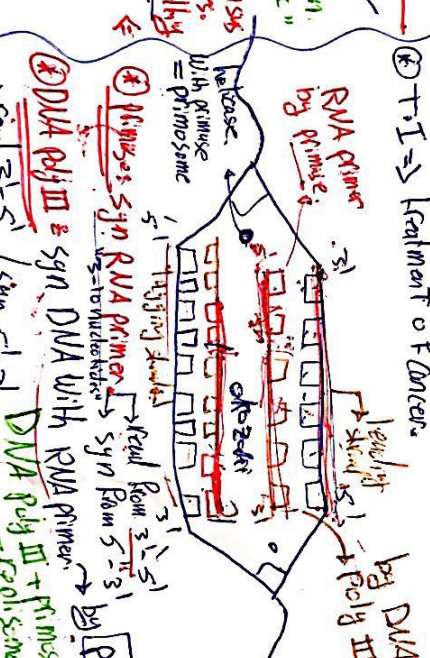


The General mech:
 - multiple orig. R. W 50-300kb
 - in eukaryote \rightarrow multiple orig. R.
 - "prokaryote" \rightarrow single orig. R.
 - "A. Q. BP origin" \rightarrow origin of replication
 - "ori"



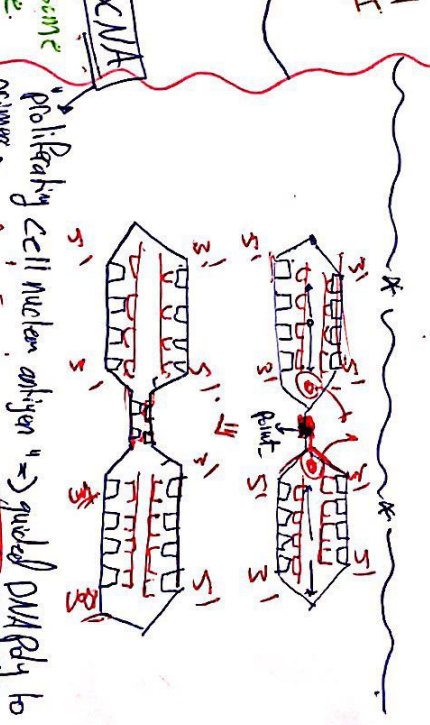
⑤ helices \Rightarrow separate double strand using "helicase"
 S.S.B.P. \Rightarrow single strand binding protein "SSB"
 binds with single strand "valley" from bases "to" prevent formation hairpin structure "comp. structure like" "pancake structure"
 prevent single strand from degradation "nucleases"
 - help helicases to stabilize unbound single strand
 "prevent reannealing"

⑥ T.I. \Rightarrow treatment of F. Dancus
 RNA primer by primase
 by DNA
 by Pol III
 "we used topoisomerases" to remove topological strain and reform phosphodiester bonds



⑦ DNA poly I = RNA exonuclease "5'-3'" \rightarrow RNA primers
 - RNA primer by primase
 - DNA polymerase I by DNA
 - DNA ligase with primase

⑧ DNA poly I = RNA exonuclease "5'-3'" \rightarrow RNA primers
 - RNA primer by primase
 - DNA polymerase I by DNA
 - DNA ligase with primase



⑨ proofreading \Rightarrow mistake "3'-5' exonuclease"
 - RNA primer by primase
 - DNA polymerase III by DNA
 - DNA ligase with primase