ONA Damage, Mutations and repair mechanisms? \* Endogenous DNA damages 1) Deamination -> Base pair substitution. Opurination -> Base pair Deletion. 3) Replication errors -> Substitution, Deletion, Insertion. (4) Oxidative damage of ONA -> chemical modification of Nitrogenous Bases and mispaining \* Enogenous ONA downages A- Radiation Damage ionizing VV Rays radiation. pyrimidine dimer (Intra strand (ross - linking) Direct indirect Damage Damage SSB production Coursing kink DSB free padicals or knot in ONA preventing proper replication oupoptosis malignancy

B- chemical mutagens s-1) Base Modifying Agents => Base poir substitution. 2 Base analogs -> Base poir substitution. 3 Intercalating Agents => Insertion or Deletion -> frameshift mutation.

\* ONA Repair mechanisms 8 1) Direct report mechanisms 2 Base excision reaponing L> enample à reparing Urinduced Base damage Modifying Deamination \* Chycosylase "excluding Agents humans " induced downage \* Ap endonudease photolyases 06-methylquanine methyl transferase. \* ONA polymerase \* DNA ligase 3 pudeotide excision repair > Corrects bulk distortions in DNA "UV induced pyrimidune dimers" \* endonuclease

\* ONA polymerase

\* DNA ligase.

(4) Strand- directed mismatch repair

L> corrects replication errors

"Deletion, Substitution. Insention"

)ouble strand breaks repair (5) Non - homologous homologous (Error - prone (Error-free mechanism) mechanism) accurately change repowert of DNA sequence at the site of breakage

Mutations L sition purine purine framesh Doint >Transversion purine => pylimidue Intation Hissense Silent Insention pon " not the multiple of on the protein three " cubetitution Sequence.

Conservative "new amino acid chemically similar" \* Missense < m- Conservative "Dissimilar"