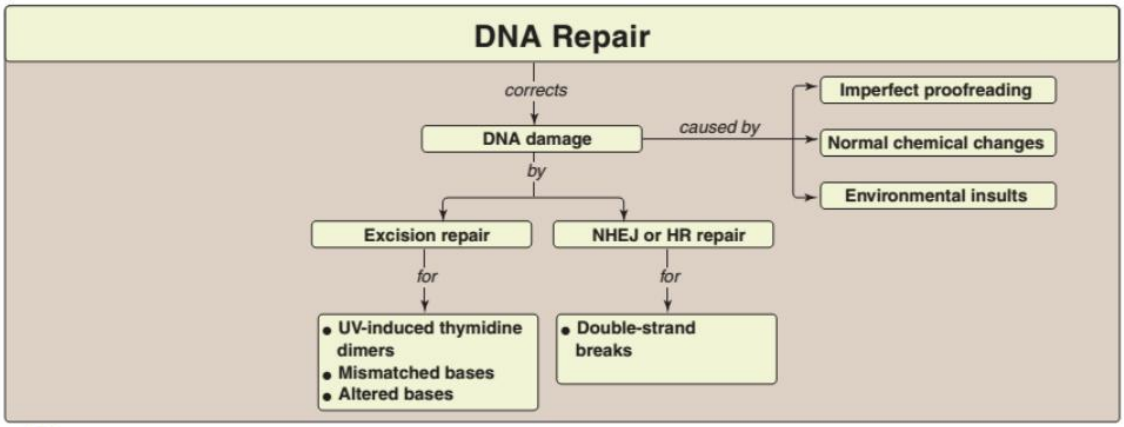
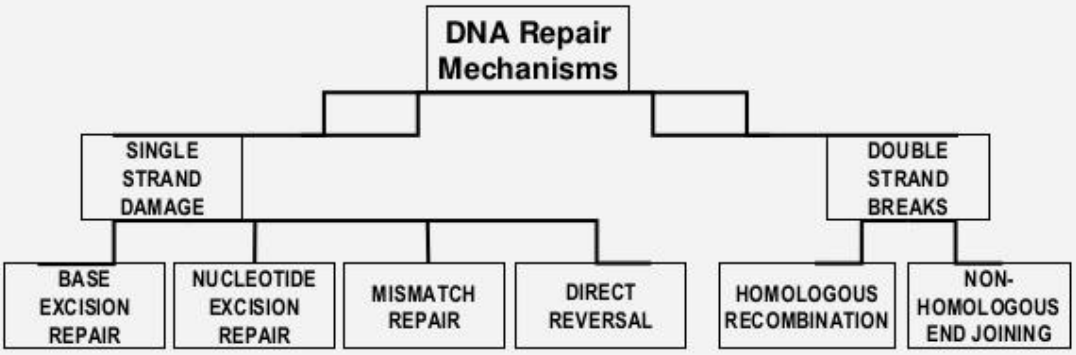
Summary of DNA repair



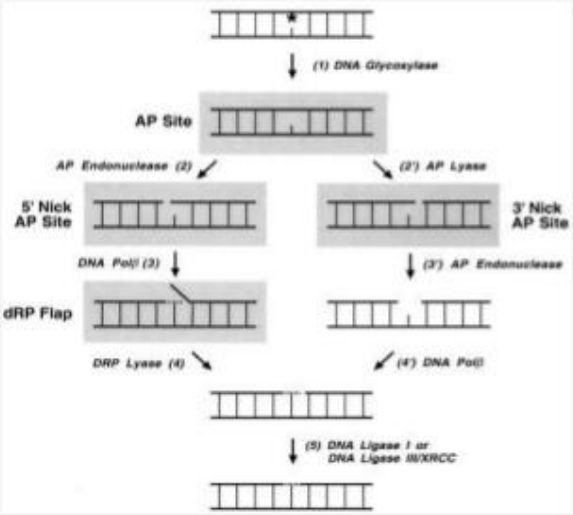
DNA REPAIR

DNA repair is a collection of processes by which a cell identifies and corrects damage to the DNA molecules that encode its genome. There are several types to repair mechanism according to the types of DNA damage.



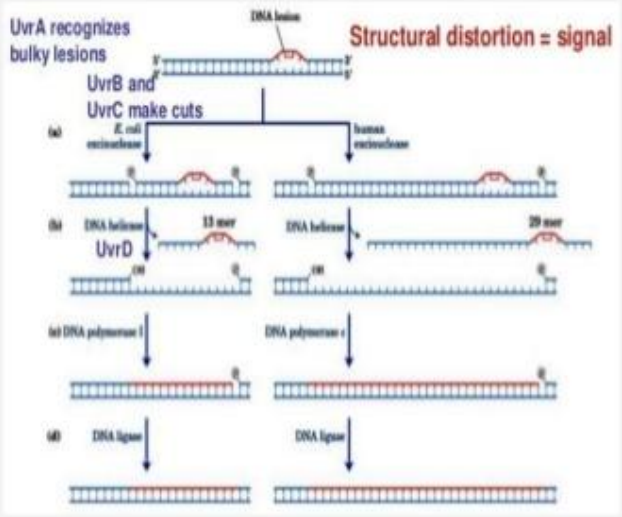
Base Excision Repair

- Repairs damage to a single nucleotide caused by oxidation, alkylation, hydrolysis, or deamination
- Consist of DNA glycosylases and AP endonuclease
- Produce AP site during repair process



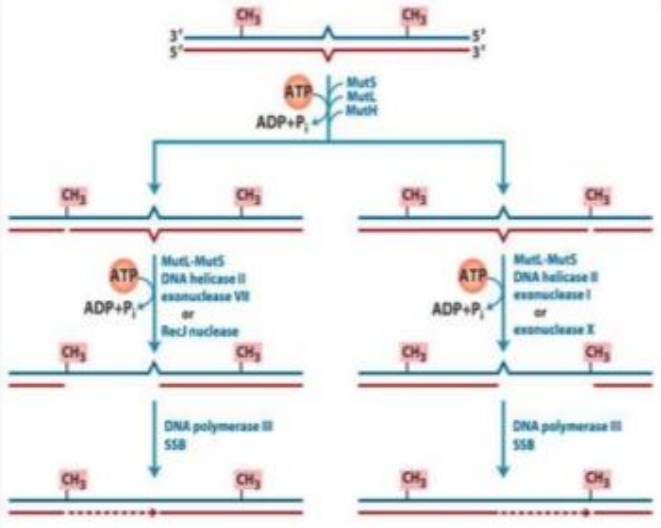
Nucleotide Excision Repair

- Repairs "bulky" lesions in DNA that alter or distort the regular DNA double helix
- Repairs Non-specific DNA damage
  - Chemical adducts
  - UV photoproducts
- Group of genes (uvr) involved in recognizing and clipping out the lesions in the DNA
- Repair is completed by DNA pol I and DNA ligase



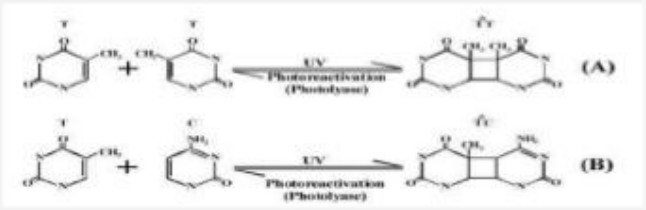
Mismatch Repair Mechanism

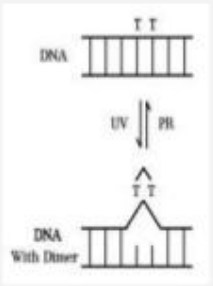
- Mismatch repair (MMR) corrects errors of DNA replication and recombination that result in mispaired (but normal, that is non-damaged) nucleotides following DNA replication



Direct Repair Mechanisms:

Photoreactivation by photolyase





Reversal of O6 methyl Guanine to Guanine by methyltransferase