

ICRP / NATRAD

Biology
6:1

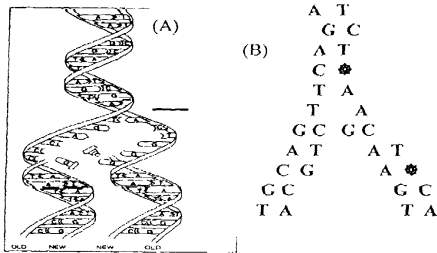


FIG. 2.8. DNA replication and mutation fixing. (A) The parent strand of DNA unwinds whilst enzymes assemble two identical daughter strands using each parent half as a template. (B) The base (Guanine) opposite Cytosine in the parent has been damaged. The enzymes cannot recognise it and put the default, Adenine into one daughter, changing the code. After cell replication, the daughter cell will remove the damaged base but will assume that the Adenine residue is correct and put Thymine opposite. This fixes the change and all the descendants will have copies of this error.

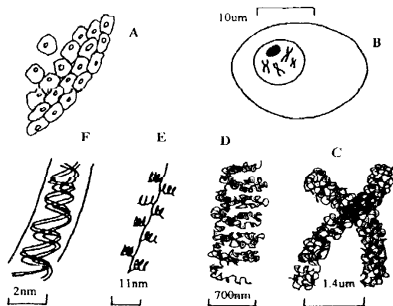
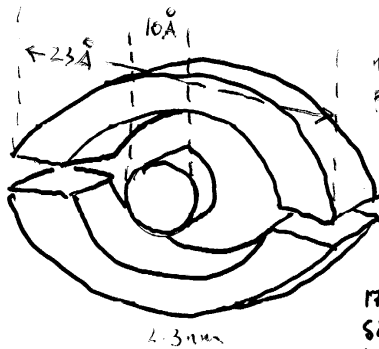


FIG. 2.1. Cells, chromosomes and DNA. A: Cells of the intestinal wall; enlarged in B to show nucleus and four pairs of chromosomes. C: Enlarged chromosome pair; D: Condensed section of chromosome made up of chromatin fibres which are condensed in E from the individual DNA double helix shown in F. Gauges show typical distances.

hydrated
 Sr^{++}
 $\sim 3\text{\AA}$
 crystal
 ionic
 radius
 $\sim 1.32\text{\AA}$



twisted of nucleotides,
 protein showing volumes
 occupied by bases
 and sugar phosphate
 atoms
 Kornberg A
 1974
 DNA synthesis

17.5 eV makes me
 single strand break