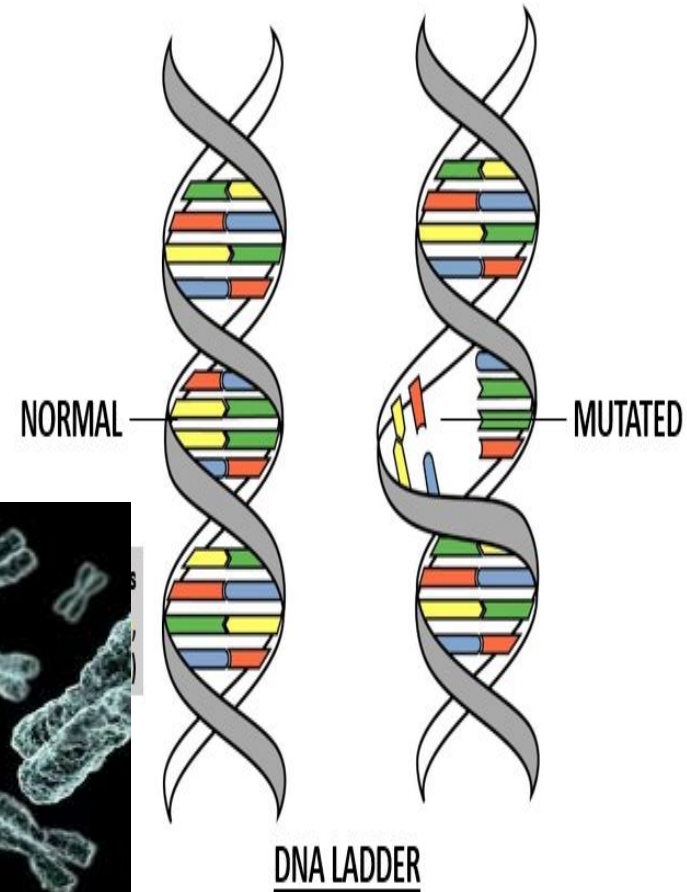
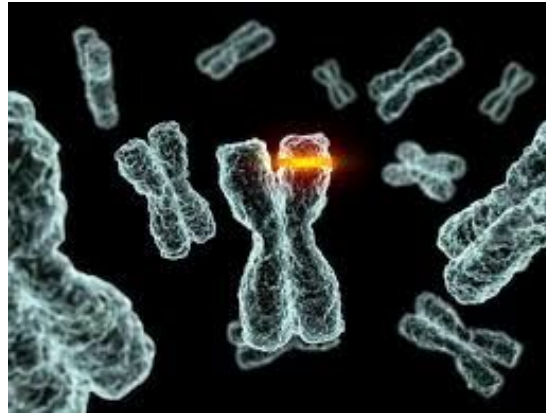


Chapter 12.4: Mutations

Sometimes cells make mistakes when copying their own DNA.

These mistakes are called **mutations**, they are changes in the genetic material.



There are gene mutations and chromosomal mutations

Gene mutations with changes in only a few nucleotides are called point mutations.

Point mutations include:

- substitutions- when one base is changed to another
- Insertions - when a base is inserted
- Deletions- when a base is removed

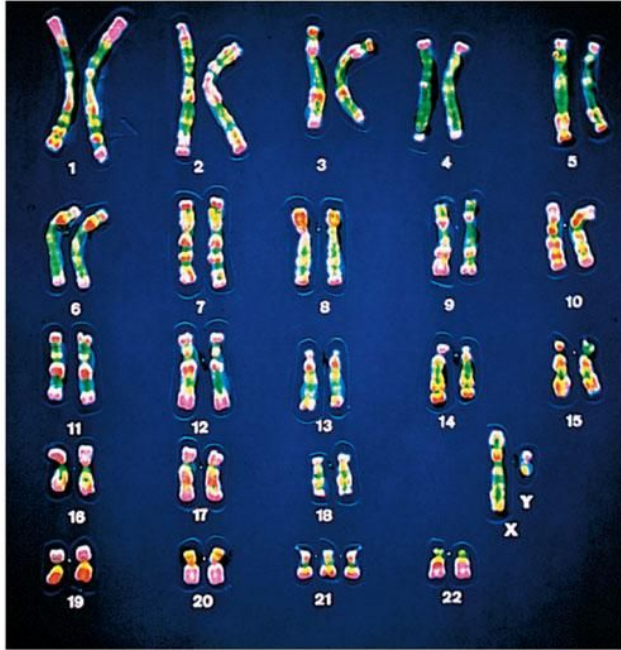
Substitution

Original sequence T G G C A G
Mutated sequence T G G T A G



Chromosomal mutations involve changes in the number or structure of chromosomes.

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Karyotype of a person with Down syndrome. Note the three number 21 chromosomes.

