

Mutations

- A permanent change that occurs in a cell's DNA is called a mutation.
- **Types of mutations**
 - Point mutation
Normal DNA = TAC GGC TAA
Mutated DNA = TAC CGC TAA (the G was changed to a C)
 - Insertion
Normal DNA = TAC GGC TAA
Mutated DNA = TAC GGG CTA A (a G got added causing a FRAMESHIFT mutation)

▪ Deletion

- Normal DNA = TAC GGC TAA
- Mutated DNA = TAC GCT AA (removes the G and causing a FRAMESHIFT mutation)

If a codon is changed the amino acid sequence can change = change in protein (changes how the gene is expressed known as phenotype).

Change in protein can mean problems for the organism

Causes of Mutation

- **MUTAGENS**- anything that can cause a mutation
- Can occur spontaneously (by chance)
- Chemicals and radiation also can damage DNA.
- High-energy forms of radiation, such as X rays and gamma rays, are highly mutagenic.

Body-cell v. Sex-cell Mutation

- Body/Somatic cell mutations are not passed on to the next generation. Example= a skin cell mutation is NOT passed to offspring.
- Mutations that occur in sex cells/GAMETES are passed on to the organism's offspring and will be present in every cell of the offspring.