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ASSIGNMENT

Write a short note on mutagenesis and mutation

Mutagenesis

This is a process by which an organism’s genetic information is altered or changed and therefore leads to mutation. Mutagenesis is also known as the process of inducing mutations. Mutations may occur due to exposure to natural **mutagens** such as ultraviolet (UV) light, to industrial or environmental mutagens such as benzene or asbestos, or by deliberate mutagenesis for purposes of genetic research. Types of mutagenesis includes **directed mutagenesis** which involves  a [hypothesis](https://en.wikipedia.org/wiki/Hypothesis) proposing that organisms can respond to environmental stresses by [orthogenetically](https://en.wikipedia.org/wiki/Orthogenesis" \o "Orthogenesis) directing [mutations](https://en.wikipedia.org/wiki/Evolution#Mutation) to certain [genes](https://en.wikipedia.org/wiki/Genes) or areas of the [genome](https://en.wikipedia.org/wiki/Genome), **signature tagged mutagenesis** which involves a genetic technique used to study gene function, **site-directed mutagenesis** which is a molecular biology method that is used to make specific and intentional changes to the DNA sequence of a gene and any gene product. Other types of mutagenesis includes transposon mutagenesis, insertional mutagenesis, sequence saturation mutagenesis.

Mutation

A mutation is a change that occurs in our DNA sequence, either due to mistakes when the DNA is copied or as the result of environmental factors. It is also defined as a persistent alteration in the genetic material that can replicate and be faithfully transmitted to subsequent generations. Mutation can occur on the chromosome or specific genes. Based on the chromosome, it could be within the compliment of a set of chromosome or an increase of the chromosome set from the same source or different source. The different types of mutation include **missense mutation** which has to do with amino acids substitution that affects the resulting protein and this generally falls under the point mutation. Other types include nonsense mutation, silent mutation, somatic mutation, germinal mutation, forward mutation and many more. Mutation has been mostly seen as a curse due to the phenotypic adverse effect that it expresses but it can also be a blessing as it gives way for evolution, study of the cell’s metabolism and many more