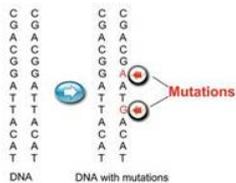


Kinds of Gene Mutation

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What kinds of gene mutations are possible?



Mutation: Introduction:

The changes in a genomic sequence are called as Mutation.

DNA copy error, UV radiation, viruses, transposons and mutagenic chemicals are the inducing factors of mutation.

Gene Mutation: Definition:

A gene mutation is a permanent change in the DNA sequence that makes up a gene. Mutations occur from a single DNA base to a large segment of a chromosome. Alteration of gene sequence also possible and it can be done by various ways. These mutations effects on health and alter the functions depending on the place where they occur.

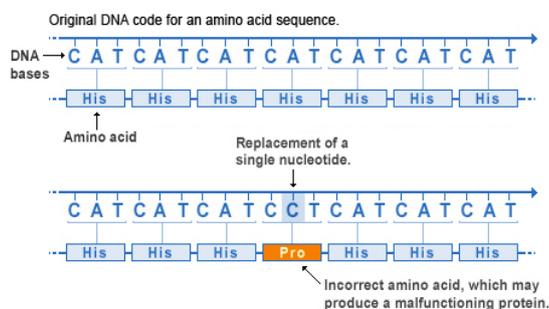
The Types of Mutations

- Small scale mutation – Point mutations, Insertions, deletions
- Large scale mutation – Translocation, Inversion.

Point mutations occur within the protein coding region of a gene may be classified into three kinds.

1. Silent mutations: code for the same amino acid.
2. Missense mutations: code for a different amino acid.
3. Nonsense mutations: code for a stop and can truncate the protein.

Missense mutation

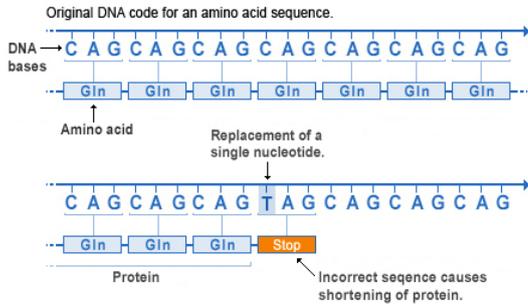


Missense mutation:

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It is a change in one DNA base pair that results in the substitution of one amino acid for another in the protein made by a gene.

Nonsense mutation



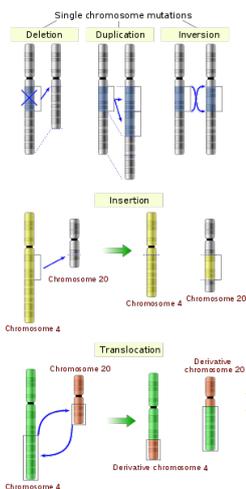
Nonsense mutation:

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A change in one DNA base pair results with nonsense mutation. DNA sequence signals the cell to stop building a protein and results with the shortened protein which alters the functions of gene.

Insertion:

By adding a piece of DNA an insertion changes the number of DNA bases. So, the protein made by the gene may not function properly.



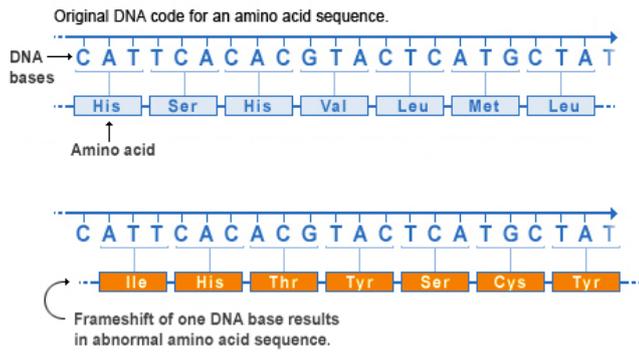
Deletion:

The number of DNA bases will be altered by the deletion of a DNA piece. Small deletions occur in one or a few base pairs and larger deletions remove many genes. The function of protein may be altered because of the deleted DNA.

Duplication:

A piece of DNA is abnormally copied one or more times. This mutation may alter the function of the resulting protein.

Frameshift mutation



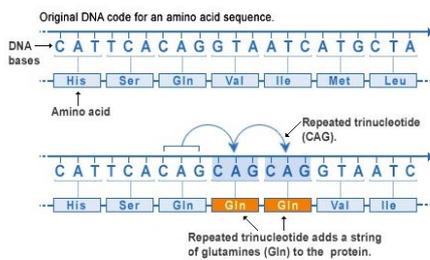
Frameshift mutation:

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The addition or loss of DNA bases changes a gene's reading frame results with the frame shift mutation. A frame shift mutation shifts the grouping of bases and changes the amino acid code results with the non functional protein.

Repeat expansion:

Repeat expansion mutation



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Nucleotide repeats are short DNA sequences that are repeated a number of times in

a row. This type of mutation can cause the resulting with the improper functional protein.

Want to know more about “Gene Mutation types?” Click here to schedule live homework help from a certified tutor!

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