

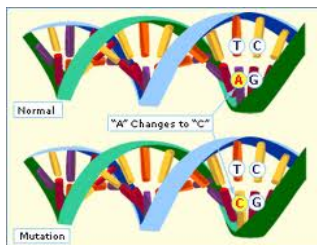
Mutation

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Darwinian Evolution through Mutation



Any change occurring in the message that a gene carries end up with Mutation. It mainly occurs while copying DNA during cell divisions.



This change will lead to errors in DNA. [Mutations](#) are the raw materials of evolution. New

[alleles](#) and new [regulatory regions](#) are created by mutation only.

Mutations - an important part in evolution

Examples

- Humans and chimpanzees have the same coding sequences with minor changes only. But the genes present in [control regions](#) are differ.

Not all changes are dangerous. We can't even notice some mutations and a very small percentage of mutation is beneficial. Mutation can be a slow, adaptive process which contributes to [evolution](#).



Example, Tortoises have evolved protective shells to escape from their predators.

[Mutations](#) have helped the organisms like plant & animals to adapt to the climate changes and the ones which can't adapt were dies out. These organisms evolve protective measures for their survival. They have adapted to the surroundings by changing their body colour or behaviours for this change. This adaptation helps them to live in extreme climates.



Continuous variation in organisms leads to Darwinian evolution. Most variations happen by mutation. The genetic polymorphism can be maintained by the mutation-selection balance.

H.J. Muller demonstrated that mutations can be induced by X-rays. He observed that the extremely low mutation rate always deleterious to the fitness of the organism. And the mutational load on the population will be placed.



Any chromosome or even a single base can get mutated. Sometimes organisms can suffer because of the drastic change happened due to mutations. For example, Fruit flies have altered the number of wings.

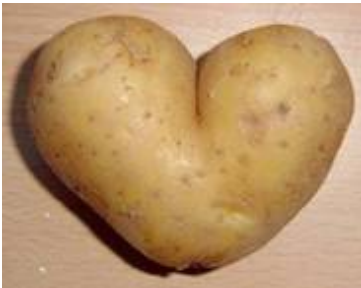
Mutation – Selection Process

Selection never deletes the unused gene or the bad gene. By mutation it will again appear in any of the successive generation by natural selection. This is the balance between the selection and mutation. It is called as genetic polymorphism also. What DNA does in general and, equally important to evolution, how DNA changes.

According to the experts, [Darwinian evolution](#) is driven by a combination of *Random Mutation* and *Natural Selection*:

"Cumulative selection is the key to all our modern explanations of life. It strings a series of acceptably lucky events (random mutations) together in a nonrandom sequence so that, at the end of the sequence, the finished product carries the illusion of being very very lucky indeed." -Richard Dawkins, *The Blind Watchmaker*





Want to know more about the uses of mutation? [Click here](#) to schedule live online session with e Tutor!

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