Point Mutation Encyclopedia Article

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Point Mutation

A point **mutation** is a change in a single base in the coding part of the **deoxyribonucleic acid** (**DNA**). Point mutations are changes in one base pair of the DNA and they can vary in their effects. They can range from being unobservable to being fatal to the organism.

Due to the inbuilt redundancy of the code of DNA (whereby several different triplet **codons** can code for the same **amino acid**) some point mutations are neutral, that is they have no observable effect, the same amino acid is still produced in the same location. Other point mutations can substitute the amino acid produced in the polypeptide chain. This can produce a non-functioning protein, which can then affect the whole organism even leading to death. In some cases the protein produced under the action of the point mutation can actually perform better than the original form. Where this beneficial effect occurs it may lead to a greater ability to survive in the given environment, thus leading to a greater number of offspring potentially being produced with the concomitant chance of a wider spread over the whole population for this new form of the **gene**. Some point mutations change the section of DNA affected from sense to nonsense. When nonsense DNA is found it is a signal for the **cell** to stop making the polypeptide chain. This is the production of a stop codon.