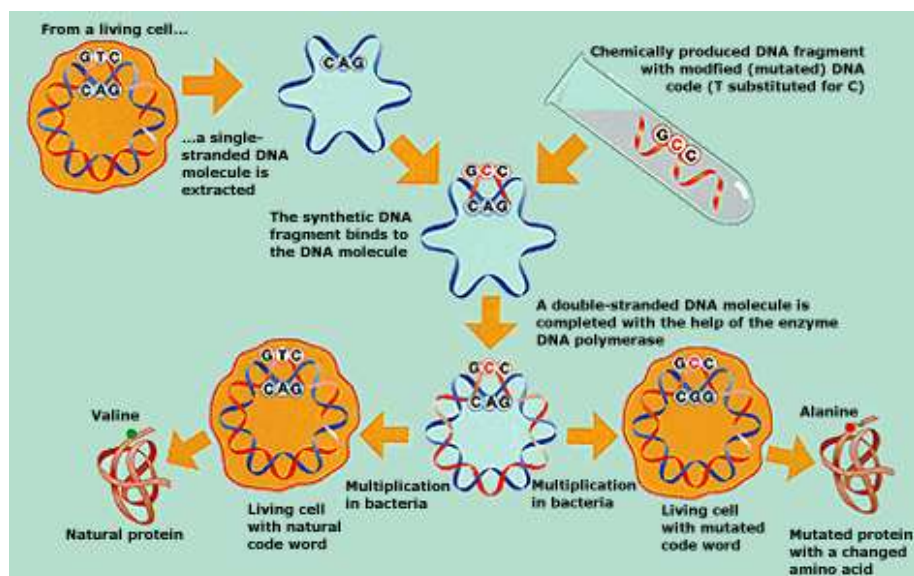


Site-directed mutagenesis reprograms DNA

Using site-directed mutagenesis the information in the genetic material can be changed. A synthetic DNA fragment is used as a tool for changing one particular code word in the DNA molecule. This reprogrammed DNA molecule can direct the synthesis of a protein with an exchanged amino acid. **Michael Smith's** method has become one of biotechnology's most important instruments.



With Smith's site-directed mutagenesis the researchers can study in detail how proteins function and how they interact with other biological molecules. Site-directed mutagenesis can be used, for example, to systematically change amino acids in enzymes, in order to better understand the function of these important biocatalysts. The researchers can also analyse how a protein is folded into its biologically active three-dimensional structure. The method can also be used to study the complex cellular regulation of the genes and to increase our understanding of the mechanism behind genetic and infectious diseases, including cancer.

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