Applications of genetic engineering.

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ABSTRACT

Genetic engineering has wide applications in modern biotechnology. For various industrial processes, this technique may be used in microorganisms as well as with higher organisms. The principle involved is the construction of plasmids of desired biochemical characteristics i.e., the plasmids can be spliced with genes from an unrelated organism. The genes now produce the protein in the cell of host microorganisms. The plasmids are tiny ringlets of DNA, apart from the chromosome, that may contain 2 – 250 genes. They exist autonomously in the cell. This plasmid technology can be applied in the three different sectors in biotechnology such as pharmaceutical industries, agriculture and fermentation industries. Plasmid technology has shown that products like insulin, interferon, vaccines and human growth hormones may be industrially possible. Similarly the genes which produce desire enzymes and secondary metabolites can be driven by introducing plasmid gene for increasing the production of our desired product. In agriculture, nitrogen fertilizers may be eliminated by incorporating plasmids, containing bacterial genes for nitrogen fixation into the plant cells. By 1984, over 200 companies world over had established gene splicing experiments and working, on industrial applications of genetic engineering. One company in 1980 could harvest insulin from bacteria whose plasmids had been spliced with DNA for this protein. There are many other products derived from genetic engineering. Urokinase, a clot dissolving enzyme is produced from genetically engineering bacteria. Endorphin, a pain killer is also derived from bacteria.

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