FOCUS POINT

GENETICS OF FUTURE

INSULIN PRODUCTION

1) Isolate human DNA which contain insulin gene
2) Isolate plasmid (Extra chromosomal circular DNA) from the bacteria.
3) Cutting of insulin gene from the DNA using restriction endonuclease enzyme.
4) Joining insulin gene with plasmid using ligase enzyme.
5) Plasmid with ligated insulin gene is inserted in to bacterial cell.
6) These bacteria multiply in the culture medium produce inactive insulin.
7) From this active insulin is produced.

ROLE OF ENZYMES IN GENETIC ENGINEERING

1) RESTRICTION ENDONUCLEASE (GENETIC SCISSORS)
These are the enzymes that used to cut the gene of interest.
2) LIGASE (GENETIC GLUE)
These are the enzymes that are used for joining the genes.

ROLE OF VECTOR IN GENETIC ENGINEERING

Vector is a plasmid DNA that is used to transfer desirable gene from one cell to another. Vector which contain ligated genes enter target cells and the new genes become the part of genetic constitution of target cells.
Plasmid in bacteria are generally used as vector

DNA FINGER PRINTING.

The technology of testing the arrangement of nucleotides in the DNA of person is called DNA finger printing or DNA profiling.
The arrangement of nucleotides in each person also differs, just like the difference in the fingerprint of each person. This is the basic principle of DNA fingerprinting.

SCOPE OF DNA FINGERPRINTING

- **To identify real parents in case of parental dispute.**
- **To identify persons found after long periods of missing due to natural calamities or wars.**
- **To find out hereditary characteristics.**
- **DNA of skin, hair, nail, blood and other body fluids obtained from the place of robber etc,is compared with DNA of suspected persons. By analyses the arrangement of nucleotides sequence the real culprit can be identified from among the suspected persons.**

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