

DIET PALAKKAD - ANAYAKSHI

SAMAGRA SHIKSHA KERALA (SSK)

QUALITY EDUCATION FOR ALL

A JOINT VENTURE OF DIET AND SSK, PALAKKAD

Inter Bell
Intervention Based on Effective Leisure Learning
DIET PALAKKAD

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അനിയമം

Genetics of the Future

10th Biology
Chapter_07
Worksheet based on
Focus Area

1.

Analyse the word pair relationship and fill in the blanks:

- Restriction endonuclease : genetic scissors
..... : genetic glue
- DNA profiling : Tests the arrangement of nucleotides
..... : Identifies the location of a gene in the DNA.

2.

Given below are the various steps involved in the production of insulin through genetic engineering. Arrange them appropriately.

- Producing active insulin from this.
- Cutting the gene responsible for the production of insulin from human DNA.
- Bacteria produce inactive form of insulin.
- Isolating bacterial DNA.
- Joining the gene with bacterial DNA and inserting it in to the bacterial cell.
- Providing a favourable medium for the multiplication of bacteria.

3.

DNA testing - Dead bodies identified.

Kollam : About twenty dead bodies of those who lost their lives in the Paravoor firework tragedy were identified through DNA test and handed over to relatives.

Didn't you read the newsreport?

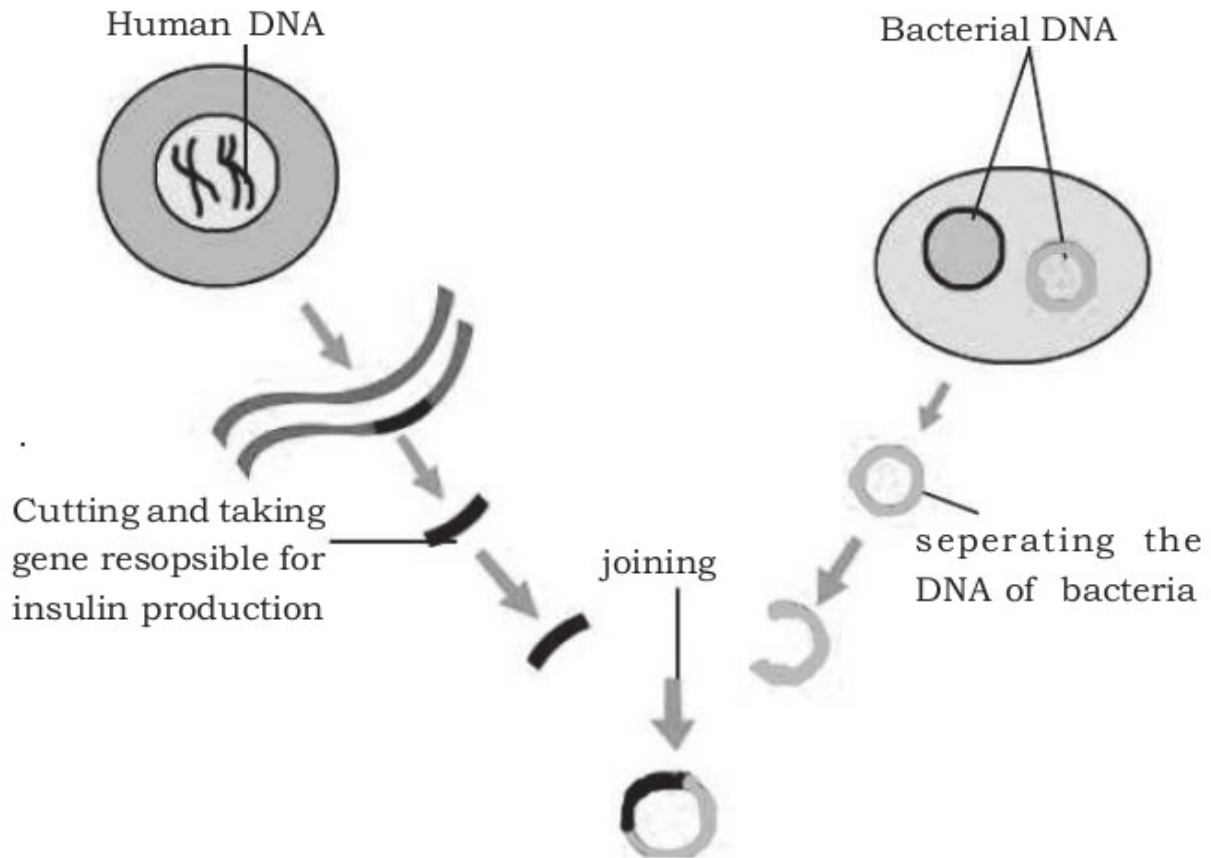
- What is the basis of DNA test?
- How is it possible to identify relations through DNA test?

4.

What are the scope of DNA fingerprinting and gene mapping?

5.

Analyse the stages in the production of bacteria those are capable of producing insulin and answer the following questions



- Which is the enzyme used for cutting the gene responsible for insulin production ?
- Which is the mechanism used for transfer of genes from one cell to another ?
- Which is the enzyme used for joining gene responsible for insulin production with the DNA of the bacteria?
- Name the technology referred here.

6.

What is the importance of 'genetic scissors' and 'genetic glue' in connection with genetic engineering ?

7.

.A rrange columns B and C in accordance with column A.

A	B	C
a) genetic glue	i) Carries foreign genes	I) Plasmid
b) genetic scissors	ii) Cut the genes	II) Junk gene
c) Vectors	iii)Join sugar and phosphate	III) Restiction endo nuclease
	iv) Join the genes	IV) Ligase

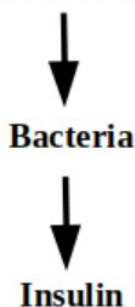
8.

Write the significance of each of the following steps in the process of producing insulin-producing bacteria through genetic engineering.

- The plasmid DNA is extracted.
- DNA is deposited in the bacterial cell.
- The desired gene is cut from the human DNA.

9.

Human insulin gene



- What is the technology indicated in the illustration?
- What is the limitation in producing insulin using the method mentioned in the illustration ?
- What is the solution that biotechnology has come up with to overcome this?

10.

How does the new genes become part of target cell through genetic engineering?

11.

Who invented DNA finger printing? How does this technology help in detecting crimes?

12.

Identify the relationship between the words given below and fill in the blanks.

Genetic scissors :restriction endonuclease

Genetic glue :.....

13.

Different steps in the synthesis of genetically modified bacteria which can produce human insulin is given below .Arrange them in the correct order.

- a) separates bacterial DNA
- b) cuts the gene which controls the synthesis of insulin.
- c) DNA is inserted into the bacterial cell .
- d) bacteria synthesizes inactive insulin
- e) Provides suitable conditions for the multiplication of bacteria
- f) Joins insulin producing gene with the bacterial DNA

14.

Identify the photo and answer the questions given below.



Write the name of the scientist.
What was his contribution to science?

15.

Analyse the newspaper report and and write down answers for the questions given below.



Idukki: Identified the dead bodies who lost their lives in land sliding through DNA test.

What is the basis of DNA test?
How is it possible to identify relations through DNA Test?
How could we identify the real culprit through DNA fingerprinting?