

Chapter – 10 | Biotechnology and Its Applications

QUIZ
PART-03

1. Recombinant DNA technology is highly effective in the field of:

- A. Agriculture only
- B. Healthcare
- C. Ecology
- D. Taxonomy (B)

Explanation : Recombinant DNA technology is used in healthcare for producing safe and effective therapeutic drugs in large quantities.

2. Recombinant therapeutic drugs are preferred because they:

- A. Produce undesirable immune reactions
- B. Are obtained only from animals
- C. Do not have undesirable immunological effects
- D. Cannot be produced in large quantities (C)

Explanation : Recombinant therapeutic drugs do not produce undesirable immunological effects compared with some products obtained from non-human sources.

3. Insulin is secreted by which cells of the pancreas?

- A. Alpha cells of islets of Langerhans
- B. Beta cells of islets of Langerhans
- C. Liver cells
- D. Muscle cells (B)

Explanation : Insulin is secreted by beta cells of the islets of Langerhans in the human pancreas and helps control blood glucose levels.

4. Insulin is important for controlling:

- A. Blood pressure
- B. Body temperature
- C. Blood glucose level
- D. Heart rate (C)

Explanation : Insulin helps maintain and control blood glucose levels in the body.

5. Before recombinant insulin production, insulin used by diabetic patients was mainly extracted from:

- A. Plants
- B. Bacteria
- C. Animal pancreas
- D. Viruses (C)

Explanation : Due to insufficient availability of human insulin, insulin was extracted from the pancreas of animals such as pigs.

6. Insulin obtained from animals may cause:

- A. Increased immunity
- B. Allergies and reactions to foreign proteins
- C. Increased blood glucose
- D. No effect at all (B)

Explanation : Animal-derived insulin can cause allergies and other reactions against foreign proteins in some patients.

7. Human insulin consists of two short polypeptide chains called:

- A. Chain A and Chain B
- B. Chain B and Chain C
- C. Chain A and Chain C
- D. Chain X and Chain Y (A)

Explanation : Mature insulin is composed of two polypeptide chains, A and B, connected by disulfide bonds.

8. The extra segment present in pro-hormone insulin is called:

- A. A-chain
- B. B-chain
- C. C-peptide
- D. Disulfide peptide (C)

Explanation : In mammals and humans, insulin is first synthesized as a pro-hormone containing an extra segment called C-peptide.

9. C-peptide is removed from insulin during:

- A. Translation
- B. Maturation
- C. Replication
- D. Transcription (B)

Explanation : C-peptide is cleaved during maturation and is not present in mature insulin.

10. In 1983, Eli Lilly prepared DNA sequences corresponding to:

- A. Only C-peptide of insulin
- B. A and B chains of human insulin
- C. Animal insulin genes
- D. Human growth hormone (B)

Explanation : Eli Lilly prepared two DNA sequences corresponding to the A and B chains of human insulin and introduced them into plasmids of E. coli.