

Found in some enteric bacteria and E.coli, Lac operon is an operon necessary for transfer and metabolism of lactose. The lac operon of E.coli comprises genes involved in the metabolism of lactose, which gets expressed only in the presence of lactose and absence of glucose.

1. Lac operon is an example of

- (a) only positive regulation
- (b) only negative regulation
- (c) both positive and negative regulation
- (d) sometimes positive sometimes negative

Answer: (c)

2. In the presence of lactose, how long does it take for the lac operon to be expressed?

- (a) when lactose equals glucose concentration
- (b) when glucose is more than lactose concentration
- (c) as long as lactose is more than glucose concentration
- (d) as long as lactose is more than galactose concentration

Answer: (c)

3. Which of these acts as an inducer of the lac operon?

- (a) Allolactose
- (b) Lactose
- (c) Galactose
- (d) Glucose

Answer: (a)

4. The sequence of the structural genes in the lac operon is

- (a) lacA-lacZ-lacY
- (b) lacZ-lacY-lacA
- (c) lacZ-lacA-lacY
- (d) lacA-lacY-lacZ

Answer: (b)

5. Regulation of the lac operon can be envisioned as regulation of enzyme synthesis by its

- (a) lactose
- (b) substrate
- (c) carbohydrates
- (d) all of the above

Answer: (d)

6. Lac Operon will be turned on when

- (a) Lactose is less than glucose
- (b) Lactose is less in the medium
- (c) Lactose is more than glucose
- (d) Glucose is enough in the medium

Answer: (c)

7. In a cell as per the Operon Concept, the regulator gene governs the chemical reactions by

- (a) Inhibiting the substrate in the reaction
- (b) Inhibiting migration of mRNA into cytoplasm
- (c) mRNA transcription inhibited
- (d) Enzyme-reaction inactivation

Answer: (d)

8. In Lac-operon, the gene product of LacA gene is

- (a) Beta-galactoside permease
- (b) Beta-galactoside transacetylase
- (c) Beta-galactosidase
- (d) Beta-galactoside isomerase

Answer: (b)

9. This condition in lac operon facilitates the condition of lac genes being transcribed at high levels

- (a) low glucose, high lactose
- (b) low glucose, low lactose
- (c) high glucose, high lactose
- (d) high glucose, low lactose

Answer: (a)

10. The correct option regarding the lac operon in E.coli from the following is

- (a) Lac operon is switched on in the absence of lactose
- (b) Lac repressor binds to the lac promoter
- (c) β -galactosidase is the only enzyme produced in large quantities when lac operon is turned on
- (d) lac operon messenger RNA is a polycistronic mRNA

Answer: (d)