

1/ Fill in the blanks with the suitable (word)s. (20 M)

1. The first and most effective steps for regulating gene expression occurs at
2. The formation of hairpin loop, signals for RNA polymerase to pause in trp operon.
3. Riboswitches can be described as
4. Any transcription factor has two structural components a and a sites.
5. Blocking of translation initiation in un-fertilized egg could be done by
6. In order to cause a frame shift mutation, must occur.
7. A base substitution mutation where the triple codon changes to code for a different amino acid is called, and the effect it produces could be described as (none, serious or variable).
8. An example of the chromatin remodeling system is, which has role in the regulation of gene expression via chromatin remodeling.

Q2/ Give the reason(s) for the following statements. (10 M)

1. Regulation of gene expression is the basis of valuable processes of many life aspects.
2. Transcription factors can regulate gene expression even if the gene is located thousand nucleotides away from the transcription factors gene or location.

Q4/ Indicate True or False, then CORRECT the False one if there is any. (14 M)

1. *TrpR* is the repressor protein in *Tryptophan* operon.
2. The two tryptophan codons in *trp* operon are located directly after the leader region.
3. When eukaryotic cells aren't dividing, chromosomes exist in a condensed state called chromatin.
4. Mutation in non-reproductive cells will not be transmitted to next progeny.
5. Allolactose is the repressor molecule in *lactose* operon system.
6. In all organisms the life span of their mRNAs are same.
7. Chemical modifications for newly synthesized proteins in term of gene regulation can also determine where a protein is found in the cell.

Q5/ Explain a condition in *Lac* operon where there is low levels of glucose within the media and lactose gets hydrolyzed. (6 M)

BEST LUCK


Dr. Trefa Salih Mohamad