

Quiz: Alterations of Gene Expression

Part I: True or False: Write T or F

1. ____ Gene expression is the process by which information in a gene is used to make a protein.
 2. ____ All genes in a cell are active at the same time.
 3. ____ Environmental factors can influence gene expression.
 4. ____ Gene expression can be turned on or off.
 5. ____ Changes in gene expression always involve changes to the DNA sequence.
 6. ____ Proteins can help regulate gene expression.
 7. ____ Different cell types can have different patterns of gene expression.
 8. ____ Nutrition and stress can affect gene expression.
 9. ____ Gene expression has no effect on an organism's traits.
 10. ____ Alterations in gene expression can sometimes lead to disease.
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Part II: Matching

Match the term in Column A with the correct definition in Column B.

Column A

11. Gene Expression
12. Protein
13. Regulation
14. Environmental Factors
15. Trait

Column B

- A. Factors outside the organism that can affect genes
 - B. A process that controls whether a gene is active
 - C. A molecule made from genetic instructions
 - D. The process of using genetic information to make a product
 - E. A characteristic of an organism
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Part III: Multiple Choice: Circle the best answer.

16. What is gene expression?
 - a. The copying of DNA
 - b. The process of using genetic information to make proteins or other products
 - c. Cell division
 - d. Mutation of DNA
17. Which of the following can influence gene expression?
 - a. Diet
 - b. Temperature
 - c. Stress
 - d. All of the above

18. Why do muscle cells and nerve cells look and function differently?
- They contain different DNA
 - They express different genes
 - They have no genes
 - They are different species
19. Which molecule often helps regulate gene expression?
- Water
 - Protein
 - Oxygen
 - Sugar
20. Altered gene expression can affect:
- Cell function
 - Physical traits
 - Health
 - All of the above
21. What does it mean when a gene is "turned off"?
- The gene is removed from DNA
 - The gene is not being expressed
 - The gene is duplicated
 - The gene changes shape
22. Which statement about gene expression is true?
- It is the same in every cell.
 - It never changes.
 - It can respond to environmental conditions.
 - It only occurs in plants.
23. Which of the following is an example of an environmental influence on gene expression?
- Sunlight exposure
 - Nutrition
 - Stress
 - All of the above
24. Alterations in gene expression may contribute to:
- Development and growth
 - Adaptation to the environment
 - Certain diseases
 - All of the above
25. The main purpose of gene regulation is to:
- Ensure genes are used when needed
 - Destroy DNA
 - Stop all protein production
 - Create mutations