

Epigenetics Wrap-Up Questions

All in complete sentences and in your own words! Any word you can't pronounce and explain must be defined in your response! Use your Power Words handout for additional guidance.

1. Define methyl groups and histones, and describe their role in epigenetics.
2. Describe the results of the agouti mouse study.
 - a. Did any of the human studies reach similar conclusions? Explain.
3. What did researchers learn by comparing the epigenomes of younger versus older identical twins? In your answer explain the significance of the results to the general population.
4. Why was the Swedish famine research significant? What did it teach us?
5. Explain the concept of *transgenerational response*.
6. For what purpose(s) do researchers compare identical twins with fraternal twins?
7. If identical twins are separated at birth, predict their similarities and differences. Justify your predictions with evidence from our readings and the video.
8. Do we have any evidence that we can purposefully change the epigenome of an organism? Explain.
9. Define heritability and provide an example of the heritability of any human trait.
10. Would you expect the heritability of autism to be more or less than 50%? Justify your answer using evidence from our readings and the video.
11. When a gene is active, describe the following characteristics:
 - a. Is the gene tightly or loosely wound around histones?
 - b. Are there many or few methyl molecules attached to the gene?
12. When a gene is inactive, describe the following characteristics:
 - a. Is the gene tightly or loosely wound around histones?
 - b. Are there many or few methyl molecules attached to the gene?