

Name \_\_\_\_\_

## Unveiling the Mysteries of Epigenetics

### Short Answer Key

1. External factors that can influence epigenetic marks include diet, lifestyle, environmental exposures, and stress.
2. DNA methylation regulates gene activity by adding methyl groups to specific regions of the DNA molecule, which can block gene expression.
3. Chromatin is the complex of DNA and proteins in the cell nucleus. Histone modifications alter the structure of chromatin, affecting the accessibility of genes for transcription.
4. Epigenetics may impact personalized medicine by predicting disease risk, optimizing treatment strategies, and developing targeted therapies based on an individual's epigenetic profile.
5. Identical twins provide insights into the study of epigenetics because they share the same DNA sequence but can exhibit differences in phenotype due to epigenetic modifications.

