Advanced Historical Biology

History Of Biology · Answer Key · 12 Questions

1. In 1952, the Hershey-Chase experiment conclusively demonstrated that DNA, not protein, was the genetic material. Which bacteriophage did they utilize for this study?

A) T2 bacteriophage
B) Lambda phage
C) Phi X 174
D) M13 phage

2. Who is credited with the first published description of the cell using a compound microscope to examine cork, coining the term 'cell' in his 1665 work 'Micrographia'?

A) Antonie van Leeuwenhoek
B) Robert Hooke
C) Marcello Malpighi
D) Theodor Schwann

3. Barbara McClintock was awarded the Nobel Prize in Physiology or Medicine in 1983 for her discovery of what genetic phenomenon in maize, first reported in the 1940s?

A) Epigenetic silencing
B) Transposable elements
C) RNA interference
D) Alternative splicing

4. The 'Miller-Urey' experiment, conducted in 1953, simulated conditions thought to be present on the early Earth to test the chemical origin of life. Which of the following gases was NOT included in their initial mixture?

A) Methane
B) Ammonia
C) Oxygen
D) Hydrogen

5. In 1900, the Mendelian laws of inheritance were 'rediscovered' independently by three scientists. Which of the following was NOT one of these three?

A) Hugo de Vries
B) Carl Correns
C) Erich von Tschermak
D) Thomas Hunt Morgan

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6. Which scientist conducted the 'Beadle and Tatum' experiment at Stanford University in 1941, which established the 'one gene-one enzyme' hypothesis?

A) George Beadle and Edward Tatum
B) François Jacob and Jacques Monod
C) Joshua Lederberg and Norton Zinder
D) Arthur Kornberg and Severo Ochoa

7. The 1928 transformation experiment performed by Frederick Griffith provided the first evidence of 'genetic material' transfer. Which bacterium did he use as his model organism?

A) Escherichia coli
B) Streptococcus pneumoniae
C) Bacillus subtilis
D) Staphylococcus aureus

8. In 1958, the Meselson-Stahl experiment proved that DNA replication is semi-conservative using isotopes of which element to label the nitrogenous bases?

A) Carbon-14
B) Nitrogen-15
C) Phosphorus-32
D) Sulfur-35

9. Before the discovery of the structure of DNA, Oswald Avery, Colin MacLeod, and Maclyn McCarty identified the 'transforming principle' in 1944. What enzyme did they use to prove DNA was the substance?

A) Protease
B) Lipase
C) DNase
D) RNase

10. Who formulated the 'Endosymbiotic Theory' in its modern form in a 1967 paper titled 'On the Origin of Mitosing Cells'?

A) Lynn Margulis
B) Carl Woese
C) Motoo Kimura
D) Ernst Mayr

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11. The discovery of the double helix structure of DNA in 1953 relied heavily on X-ray diffraction data obtained by which scientist, whose contribution was famously overlooked for the Nobel Prize?

A) Rosalind Franklin
B) Barbara McClintock
C) Dorothy Hodgkin
D) Gerty Cori

12. In 1937, Hans Krebs described the Citric Acid Cycle, for which he later won a Nobel Prize. What is the specific chemical that combines with acetyl-CoA at the beginning of the cycle?

A) Isocitrate
B) Alpha-ketoglutarate
C) Oxaloacetate
D) Fumarate

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