Historical Milestones in Genetics

Genetics History · Answer Key · 25 Questions

1. Who coined the term 'genetics' in a private letter to Adam Sedgwick in 1905?

A) Gregor Mendel
B) William Bateson
C) Thomas Hunt Morgan
D) Hugo de Vries

2. In 1944, which researchers provided the first experimental proof that DNA is the substance that causes bacterial transformation?

A) Avery, MacLeod, and McCarty
B) Watson and Crick
C) Hershey and Chase
D) Franklin and Wilkins

3. Barbara McClintock was awarded the Nobel Prize in 1983 for her discovery of what genetic phenomenon?

A) X-inactivation
B) Genetic linkage
C) Transposable elements
D) Alternative splicing

4. The 1952 Hershey-Chase experiment utilized which organism to confirm that DNA, not protein, is the genetic material?

A) Drosophila melanogaster
B) Escherichia coli
C) T2 bacteriophage
D) Neurospora crassa

5. Which scientist is credited with the first isolation of DNA in 1869, originally referring to the substance as 'nuclein'?

A) Friedrich Miescher
B) Phoebus Levene
C) Albrecht Kossel
D) Oswald Avery

6. What was the primary conclusion of the 1908 Hardy-Weinberg principle?

A) Mutation rates are constant
B) Allele frequencies remain constant in a population in the absence of evolutionary forces
C) Genetic drift is the primary driver of speciation
D) Recombination frequency is proportional to physical distance

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7. In 1910, Thomas Hunt Morgan identified a white-eyed mutation in fruit flies, proving that genes are located on:

A) Mitochondria
B) Chromosomes
C) Ribosomes
D) Nuclear envelopes

8. The first genetic map, depicting the relative positions of genes on a chromosome, was constructed by whom in 1913?

A) Alfred Sturtevant
B) Ronald Fisher
C) Sewall Wright
D) Theodosius Dobzhansky

9. Which team of scientists published the first complete DNA sequence of a free-living organism, Haemophilus influenzae, in 1995?

A) Human Genome Project team
B) Venter, Fraser, et al.
C) Maxam and Gilbert
D) Sanger and Coulson

10. Frederick Sanger was awarded his second Nobel Prize in 1980 for which achievement?

A) Sequencing the human genome
B) Determining the amino acid sequence of insulin
C) Developing the chain-termination method of DNA sequencing
D) Discovery of restriction enzymes

11. What did the 1928 Griffith experiment demonstrate regarding Streptococcus pneumoniae?

A) Bacterial conjugation
B) The presence of a 'transforming principle'
C) DNA replication mechanisms
D) Antibiotic resistance mutations

12. Who received the 1958 Nobel Prize for discovering the mechanisms of genetic recombination in bacteria?

A) Joshua Lederberg
B) Edward Tatum
C) George Beadle
D) All of the above

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13. The 'One Gene, One Enzyme' hypothesis, proposed in 1941, was based on experiments with which fungus?

A) Saccharomyces cerevisiae
B) Neurospora crassa
C) Aspergillus nidulans
D) Penicillium chrysogenum

14. Who proposed the existence of messenger RNA (mRNA) in 1961 based on studies of phage-infected bacteria?

A) Brenner, Jacob, and Meselson
B) Watson and Crick
C) Nirenberg and Matthaei
D) Holley and Khorana

15. The Meselson-Stahl experiment of 1958 provided evidence for which mode of DNA replication?

A) Conservative
B) Semiconservative
C) Dispersive
D) Random

16. Which scientist discovered the 'Chargaff's Rules' regarding the molar ratios of nitrogenous bases in DNA?

A) Erwin Chargaff
B) Linus Pauling
C) Maurice Wilkins
D) Rosalind Franklin

17. In 1970, which two scientists independently discovered reverse transcriptase, an enzyme that synthesizes DNA from RNA?

A) Baltimore and Temin
B) Watson and Crick
C) Mullis and Smith
D) Cech and Altman

18. Kary Mullis invented the Polymerase Chain Reaction (PCR) technique in which year?

A) 1975
B) 1983
C) 1989
D) 1992

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19. Which geneticist coined the term 'linkage' to describe the tendency of genes located on the same chromosome to be inherited together?

A) Thomas Hunt Morgan
B) William Bateson
C) Gregor Mendel
D) Hugo de Vries

20. The Human Genome Project was officially launched in which year?

A) 1985
B) 1990
C) 1995
D) 2000

21. Who developed the dideoxy chain-termination method for DNA sequencing in 1977?

A) Frederick Sanger
B) Walter Gilbert
C) Allan Maxam
D) Francis Crick

22. In 1902, Walter Sutton and Theodor Boveri independently proposed what theory?

A) Central Dogma
B) Chromosome theory of inheritance
C) Operon model
D) Clonal selection theory

23. What was the first organism to have its entire genome sequenced in 1996?

A) Caenorhabditis elegans
B) Drosophila melanogaster
C) Saccharomyces cerevisiae
D) Escherichia coli

24. Which scientist discovered the existence of restriction enzymes, later used to engineer recombinant DNA?

A) Werner Arber
B) Hamilton Smith
C) Daniel Nathans
D) All of the above

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25. The term 'epigenetics' was first coined in 1942 by which developmental biologist?

A) Conrad Waddington

B) James Watson

C) Sydney Brenner

D) Eric Davidson

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