

Milestones in Genetic Discovery

Genetics · Answer Key · 20 Questions

1. Who published the first description of the DNA double helix structure in the journal Nature in 1953?

- A) James Watson and Francis Crick**
- B) Rosalind Franklin and Maurice Wilkins
- C) Oswald Avery and Colin MacLeod
- D) Erwin Chargaff and Linus Pauling

2. Which scientist is credited with the first successful isolation of 'nuclein' from white blood cells in 1869?

- A) Gregor Mendel
- B) Friedrich Miescher**
- C) Theodor Boveri
- D) Walter Sutton

3. What was the first organism to have its entire genome sequenced in 1995 by The Institute for Genomic Research?

- A) Escherichia coli
- B) Saccharomyces cerevisiae
- C) Haemophilus influenzae**
- D) Caenorhabditis elegans

4. The first successful instance of gene therapy in humans, conducted in 1990, targeted which enzyme deficiency?

- A) Adenosine deaminase**
- B) Phenylalanine hydroxylase
- C) Glucose-6-phosphate dehydrogenase
- D) Hypoxanthine-guanine phosphoribosyltransferase

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

- A) Thomas Hunt Morgan
- B) Hugo de Vries
- C) William Bateson**
- D) Carl Correns

6. In 1944, the Avery-MacLeod-McCarty experiment provided the first definitive evidence that which substance was the 'transforming principle'?

- A) Protein
- B) RNA
- C) Lipids
- D) DNA**

7. Which technique, invented by Kary Mullis in 1983, allowed for the rapid amplification of specific DNA segments?

- A) Southern Blotting
- B) Polymerase Chain Reaction**
- C) Sanger Sequencing
- D) Restriction Fragment Length Polymorphism

8. The first animal to be cloned from an adult somatic cell using nuclear transfer was Dolly the sheep in what year?

- A) 1994
- B) 1996**
- C) 1998
- D) 2000

9. Who discovered the phenomenon of 'jumping genes' (transposons) in maize, for which they were awarded the Nobel Prize in 1983?

- A) Barbara McClintock**
- B) Emmanuelle Charpentier
- C) Jennifer Doudna
- D) Elizabeth Blackburn

10. The first linkage map of a chromosome, detailing the linear arrangement of genes, was created in 1913 for which organism?

- A) *Mus musculus*
- B) *Drosophila melanogaster***
- C) *Arabidopsis thaliana*
- D) *Zea mays*

11. Which Nobel laureate was the first to determine the amino acid sequence of a protein, specifically bovine insulin, in 1955?

- A) Frederick Sanger**
- B) Linus Pauling
- C) Christian Anfinsen
- D) Stanford Moore

12. What was the first commercially available genetically modified food product approved by the FDA in 1994?

- A) Bt corn
- B) Flavr Savr tomato**
- C) Golden rice
- D) Roundup Ready soybean

13. In 1961, which researchers discovered that genetic codons consist of three nucleotides (triplets) by using synthetic RNA?

- A) Marshall Nirenberg and Heinrich Matthaei**
- B) Arthur Kornberg and Severo Ochoa
- C) Francois Jacob and Jacques Monod
- D) Sydney Brenner and Francis Crick

14. Which experiment in 1952 provided final confirmation that DNA, not protein, is the genetic material in bacteriophages?

- A) Meselson-Stahl experiment
- B) Hershey-Chase experiment**
- C) Griffith's experiment
- D) Beadle-Tatum experiment

15. Who developed the method for DNA sequencing by chain termination in 1977, now known as Sanger sequencing?

- A) Walter Gilbert
- B) Allan Maxam
- C) Frederick Sanger**
- D) George Church

16. The first draft of the human genome was publicly announced by the Human Genome Project in what year?

- A) 1998
- B) 2000**
- C) 2003
- D) 2005

17. Which scientists were the first to demonstrate that one gene corresponds to one enzyme (or polypeptide) in 1941?

- A) George Beadle and Edward Tatum**
- B) Thomas Hunt Morgan and Calvin Bridges
- C) Alfred Hershey and Martha Chase
- D) Joshua Lederberg and Edward Tatum

18. The first transgenic mammal, a mouse created by microinjecting DNA into a fertilized egg, was reported in which year?

A) 1974

B) 1980

C) 1982

D) 1985

19. In 1910, who identified the White-eyed mutation in fruit flies, proving that genes are located on chromosomes?

A) Thomas Hunt Morgan

B) Edmund Beecher Wilson

C) Nettie Stevens

D) Theodor Boveri

20. Which groundbreaking tool, published in 2012 by Doudna and Charpentier, revolutionized genome editing?

A) TALENs

B) Zinc Finger Nucleases

C) CRISPR-Cas9

D) Meganucleases