GENE EDITING TRIVIA

SHOW WHAT YOU KNOW ABOUT CRISPR TECHNOLOGY!

QUESTION #1

What is gene editing?

...

A. Changing an organism’s DNA

B. Creating new genes

C. Cloning cells

D. Mixing genetic material

What is gene editing?

The alteration of genetic material of a living organism by inserting, replacing, or deleting a DNA sequence.

QUESTION #1

- A. Changing an organism’s DNA
- B. Creating new genes
- C. Cloning cells
- D. Mixing genetic material

QUESTION #2

Which one of these is NOT a gene editing technique?

•••

A. Gene Gun

B. TALENs

C. Zinc Finger Nucleases

D. DNA Slicer

QUESTION #2

Which one of these is NOT a gene editing technique?

A gene gun works by shooting nucleic acid-coated gold particles at high velocity. TALENs and ZNFs can be engineered to target specific DNA sequences.

A. Gene Gun

B. TALENs

C. Zinc Finger Nucleases

D. DNA Slicer

QUESTION #3

What are some applications of gene editing technology?

...

A. Agriculture & food safety

B. Healthcare

C. Disease control

D. All of the above

QUESTION #3

What are some applications of gene editing technology?

There are many ways gene editing technology can be used! For example, foods we eat can be edited to be non-toxic, and human cells can be edited to treat genetic conditions.

A. Agriculture & food safety

B. Healthcare

C. Disease control

D. All of the above

QUESTION #4

What U.S. government agency regulates gene editing technology?

•••

A. The U.S. Department of Agriculture (USDA)

B. The Environmental Protection Agency (EPA)

C. The Department of Education (DOE)

D. The Food and Drug Administration (FDA)

QUESTION #4

What U.S. government agency regulates gene editing technology?

The FDA works closely with the EPA and USDA/APHIS on various issues related to the regulation of products of biotechnology, including genome editing.

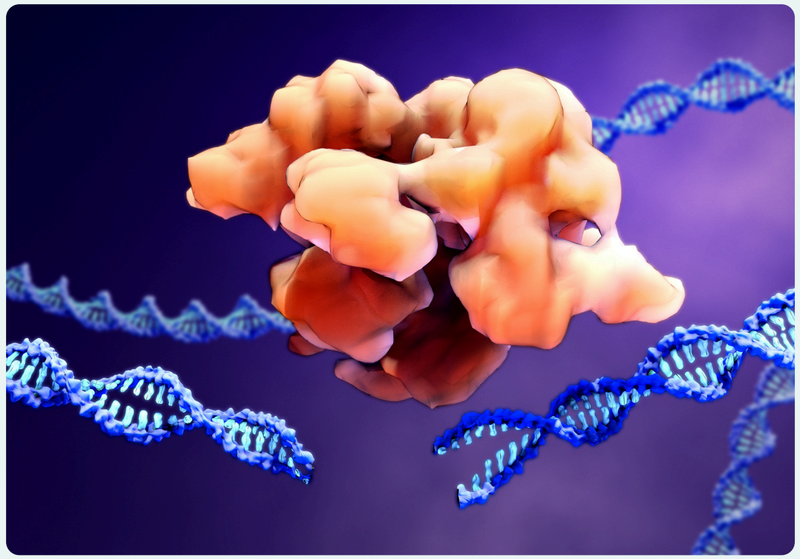
A. The U.S. Department of Agriculture (USDA)

B. The Environmental Protection Agency (EPA)

C. The Department of Education (DOE)

D. The Food and Drug Administration (FDA)

QUESTION #5



What does CRISPR stand for?

...

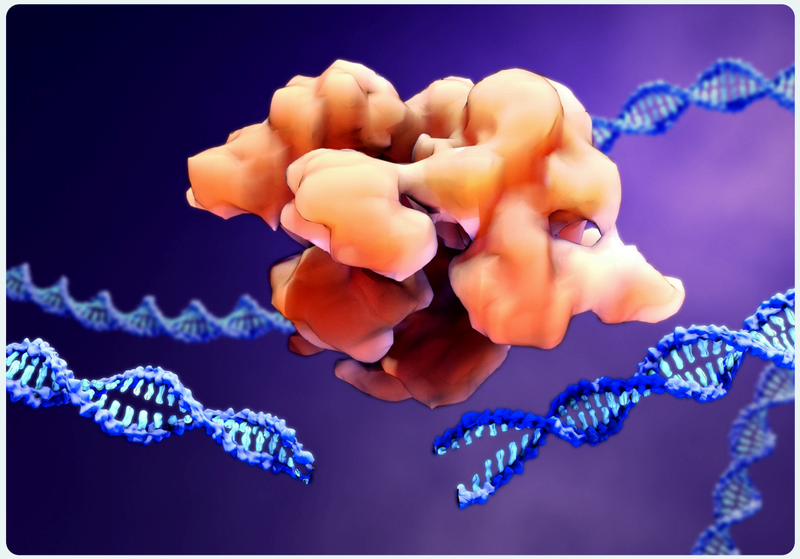
A. Complex Ribonucleic Acid Sequencing Process

B. Cellular Replication & Inherited Sequence Profiling

C. Chromosomal Regulation & Inheritance Strategy

D. Clustered Regularly Interspaced Short Palindromic Repeats

QUESTION #5



What does CRISPR stand for?

It is made of repeated short segments of DNA that read the same way forward and backward.

A. Complex Ribonucleic Acid Sequencing Process

B. Cellular Replication & Inherited Sequence Profiling

C. Chromosomal Regulation & Inheritance Strategy

D. Clustered Regularly Interspaced Short Palindromic Repeats

QUESTION #6

How was CRISPR gene editing technology discovered?

...

A. Creating genetically-modified mice

B. Studying bacterial immune systems

C. Analyzing the DNA of extinct species

D. Top-secret government project

QUESTION #6

How was CRISPR gene editing technology discovered?

In 1987, a repetitive DNA sequence was discovered in the E. coli genome during a gene analysis involved in phosphate metabolism.

A. Creating genetically-modified mice

B. Studying bacterial immune systems

C. Analyzing the DNA of extinct species

D. Top-secret government project

QUESTION #7

What is the correct order of CRISPR gene editing steps?

...

A. Slice, repair, repeat

B. Recognition, creation, replacement

C. Recognition, cleavage, repair

D. Cut, creation, recognition

QUESTION #7

What is the correct order of CRISPR gene editing steps?

CRISPR “spacer” sequences guide the system to find sequences of DNA. When the target DNA is found, Cas9 binds to the DNA and cuts it, shutting the targeted gene off.

A. Slice, repair, repeat

B. Recognition, creation, replacement

C. Recognition, cleavage, repair

D. Cut, creation, recognition

QUESTION #8

What is the current United States policy on gene editing for human therapeutics?

•••

A. Permitted under strict regulations & govt. oversight

B. Completely prohibited

C. Allowed without any regulations or oversight

D. Only allowed for research, not clinical, purposes

QUESTION #8

What is the current United States policy on gene editing for human therapeutics?

Gene therapy is permitted but must be approved by the Department of Health and Human Services (DHHS), which houses the FDA & is responsible for overseeing clinical trials.

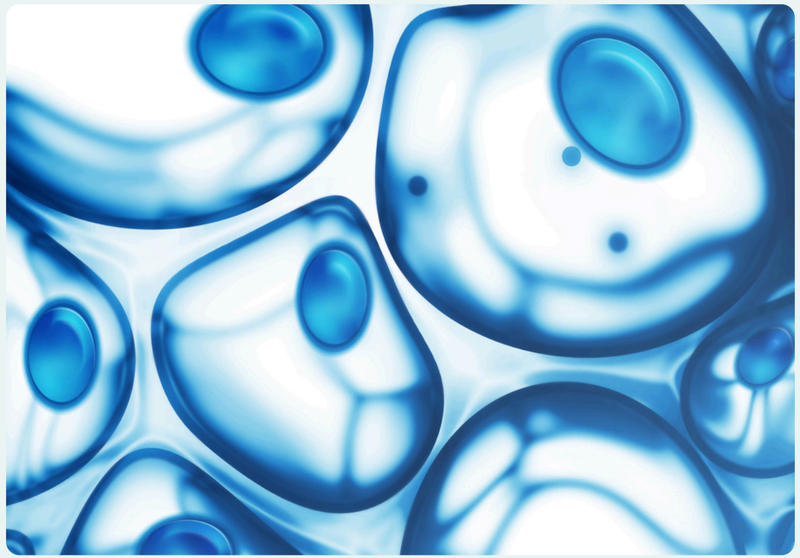
A. Permitted under strict regulations & govt. oversight

B. Completely prohibited

C. Allowed without any regulations or oversight

D. Only allowed for research, not clinical, purposes

QUESTION #9



What was the first type of cell to be modified using CRISPR?

•••

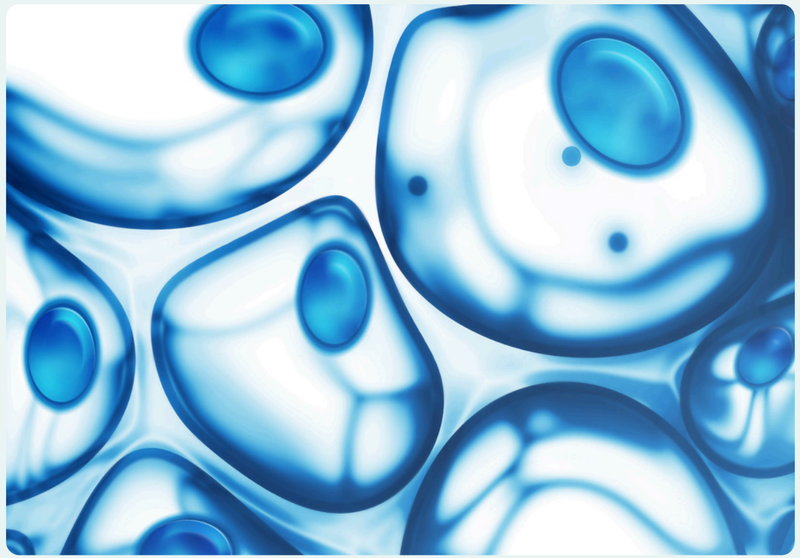
A. Human cells

B. Plant cells

C. Bacterial cells

D. Animal cells

QUESTION #9



What was the first type of cell to be modified using CRISPR?

CRISPR was first used by Danisco in 2008. The company used it to improve the immunity of bacterial cultures against viruses to produce cheese and yogurt.

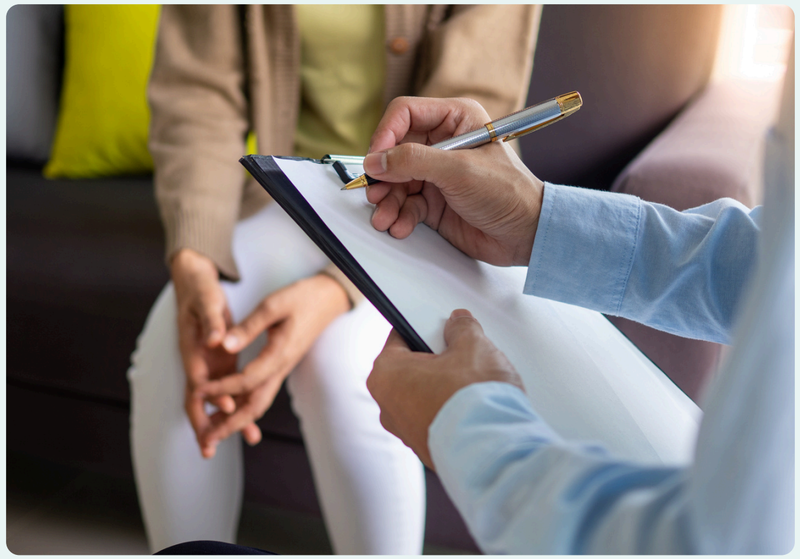
A. Human cells

B. Plant cells

C. Bacterial cells

D. Animal cells

QUESTION #10



In what year was CRISPR technology used to successfully treat a person with sickle cell disease for the first time?

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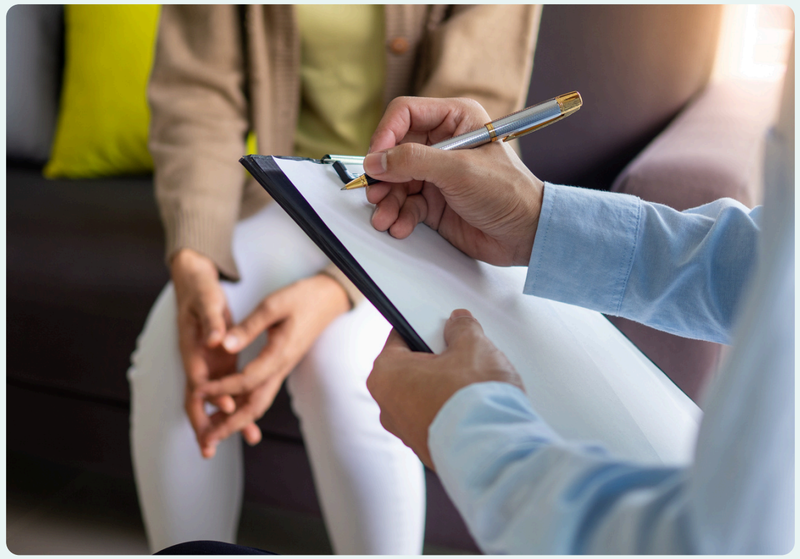
A. 2006

B. 2021

C. 2016

D. This has not happened yet.

QUESTION #10



In what year was CRISPR technology used to successfully treat a person with sickle cell disease for the first time?

The first person to be treated using a CRISPR-based therapy was a patient in a clinical trial for cancer in China in 2016.

A. 2006

B. 2021

C. 2016

D. This has not happened yet.

PERSONAL
GENETICS
EDUCATION &
DIALOGUE

THANKS FOR PLAYING!