

Ethics in Biotechnology Quiz Answer Key PDF

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What are the ethical challenges associated with ensuring equitable access to biotechnology advancements?

The ethical challenges include ensuring fair distribution of biotechnological benefits, preventing exploitation of marginalized communities, and addressing disparities in access to healthcare and resources.

Which of the following are ethical principles in biotechnology?

- A. Autonomy ✓**
- C. Justice ✓**
- D. Sustainability
- C. Beneficence ✓**

Discuss the potential ethical implications of using CRISPR technology in human gene editing.

The use of CRISPR technology in human gene editing raises significant ethical concerns, such as the risk of unintended genetic changes, the moral implications of altering human embryos, issues of consent, and the potential for exacerbating social inequalities through unequal access to genetic enhancements.

What is a major ethical concern in personalized medicine?

- A. Cost
- C. Efficacy
- D. Accessibility
- C. Privacy ✓**

How do cultural beliefs influence public perception of biotechnology? Provide examples.

Cultural beliefs influence public perception of biotechnology by shaping attitudes towards its applications, such as genetic modification and environmental impact. For instance, in cultures that emphasize traditional agricultural practices, there may be resistance to GMOs, whereas cultures that prioritize innovation may support biotechnological solutions.

What are some ethical concerns associated with genetic modification?

- A. Environmental impact ✓**
- C. Economic inequality ✓**
- D. Increased crop yield
- C. Privacy of genetic data ✓**

Which ethical issues are associated with the use of GMOs?

- A. Food safety ✓**
- C. Environmental impact ✓**
- D. Improved nutrition
- C. Economic inequality ✓**

What is the ethical concern related to the confidentiality of genetic information?

- A. Environmental impact
- C. Cost
- D. Accessibility
- C. Privacy ✓**

What are some challenges in regulating biotechnology?

- A. Rapid technological advancement ✓**
- C. High cost of research
- D. Public opposition ✓**
- C. Lack of international consensus ✓**

Which technology is most associated with ethical debates around genetic modification?

- A. CRISPR ✓**
- C. Ultrasound
- D. X-ray

C. MRI

In your opinion, what future ethical challenges might arise with the development of synthetic biology? Explain your reasoning.

Future ethical challenges in synthetic biology may include concerns about biosecurity, the potential for unintended ecological consequences, and the moral implications of creating and manipulating living organisms.

Which of the following is a key ethical issue in stem cell research?

- A. Energy consumption
- C. Water pollution
- D. Noise pollution
- C. Use of embryonic cells ✓**

Which historical event is often cited in discussions about cloning ethics?

- A. Human Genome Project
- C. CRISPR development
- D. Discovery of DNA
- C. Dolly the sheep ✓**

Explain the ethical principle of autonomy and its relevance in biotechnology.

The ethical principle of autonomy refers to the right of individuals to make their own choices and decisions regarding their personal health and body, which is crucial in biotechnology for ensuring informed consent and respect for individual preferences in genetic and medical interventions.

What are the potential benefits of biotechnology in medicine?

- A. Personalized treatment ✓**
- C. Reduced healthcare costs ✓**
- D. Increased privacy risks
- C. Faster drug development ✓**

Describe a real-world case where biotechnology raised significant ethical concerns and explain the outcomes.

The He Jiankui case, where CRISPR was used to create genetically edited twins, raised ethical concerns about consent and safety, leading to global condemnation and legal actions.

What is the term for the fair distribution of biotechnology benefits and risks?

- A. Autonomy
- C. Beneficence
- D. Non-Maleficence
- C. Justice ✓**

Which international protocol focuses on the safe handling of living modified organisms?

- A. Kyoto Protocol
- C. Montreal Protocol
- D. Paris Agreement
- C. Cartagena Protocol ✓**

Which technologies are involved in ethical debates about biotechnology?

- A. CRISPR ✓**
- C. MRI
- D. Cloning ✓**
- C. Stem cell research ✓**

What is the primary ethical principle that ensures biotechnology advancements do more good than harm?

- A. Autonomy
- C. Beneficence ✓**
- D. Non-Maleficence
- C. Justice