

TED Talk

Paul Root Wolpe: It's Time to Question Bio-Engineering

1. What were the 3 waves of evolution?
 - a. _____
 - b. _____
 - c. _____
2. What are some examples of intentional evolution? _____

3. What does **bioluminescent** mean? _____
4. What organisms have been made bioluminescent? _____

5. What kinds of animals have been cloned? _____

Think about the questions Wolpe asks at the end of his talk:

- Is it okay to manipulate and create whatever creatures we want?
- Do we have free reign to design animals exactly the way we want them?
- Does industry get to create creatures who in their milk, in their blood, in their saliva, and other bodily fluids create the drugs and industrial molecules we want and then warehouse them as manufacturing machines?
- Do we get to create organic robots where we remove the autonomy from these animals and turn them into our playthings?
- Once we perfect these technologies in animals and we start using them in human beings, what are the ethical guidelines we use then?

Writing Assignment (Counts as a completion-based quiz grade)

- **Prompt:** Bioengineering benefits humanity through the use of genetic modification to improve crops, medicines, and forestry, but many people still have concerns about the distribution and use of these products in agriculture, supermarkets, and hospitals. As of now, the only "rule" of biotechnology research forbids artificial cloning of humans.
- **In your paragraph:**
 - Take a position → Is bioengineering ethical or not?
 - Defend your position
 - If it is ethical, provide evidence that it is being used responsibly and justify why no additional "rules" are necessary
 - If it is unethical, provide evidence of irresponsible use and describe what "rules" you think should be in place
- **Requirements**
 - On a separate sheet of paper
 - Typed or NEATLY handwritten
 - One or more paragraphs using the standard format → An 8th grade paragraph is at least 8-10 sentences long

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