Cornell Guided Notes

Biotechnology for Health (Biomedical Innovations) | 2027-04-16

Name	Period	Date	Lesson
		2027-04-16	

Lesson focus

Engineered organism debate

Key words and questions	Prepared details and student notes
Essential question **What is today's target?**	Argue whether genetically engineering bacteria to produce medicine is ethically justified despite biosafety risks. Big idea: Genetic engineering offers medical benefits that must be weighed against biosafety risk. **My notes, examples, and questions**
Key words **What vocabulary unlocks the lesson?**	- recombinant DNA - restriction enzyme - ligase - plasmid - competent cell **My notes, examples, and questions**

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Cornell Notes - Continued

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Must-know ideas **What should I understand by the end?**	- Recombinant DNA technology inserts a human gene into a bacterial plasmid to produce a protein like insulin. - Containment levels and selection markers are engineering controls that reduce escape risk. - Ethical justification requires weighing patient benefit against probability and severity of harm. **My notes, examples, and questions**
Process notes **What happens during class?**	- 0-5 min: Warm-up: where does most insulin come from today? - 5-20 min: Read briefing on recombinant insulin bacteria; choose a position - 20-40 min: Small-group debate tracking containment and patient-benefit claims - 40-55 min: Full-class debrief: which biosafety concern was hardest to dismiss? - 55-70 min: Reflection: what safeguards would change your position? - 70-80 min: Exit ticket: one sentence on whether benefit justifies risk, with a reason **My notes, examples, and questions**

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Steps and evidence **What do I do and turn in?**	- Read the briefing on a recombinant bacterium engineered to make insulin. - Choose a side on whether the benefit justifies the risk. - List two reasons grounded in safety and patient benefit. - Debate in your group, tracking claims about containment and oversight. - Reflect on what safeguards would make you more comfortable. Evidence: Exit ticket - One sentence stating whether engineered-organism benefit justifies biosafety risk, with a specific reason grounded in containment or patient benefit. **My notes, examples, and questions**
Checks for understanding **How do I know I got it?**	- You defended a position on engineered-organism ethics. - You referenced biosafety and patient benefit. **My notes, examples, and questions**

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Lab or safety notes **What must I handle carefully?**	Supplies: - Micropipettes and sterile tips - Plasmid DNA sample - Restriction enzyme and buffer - DNA ligase - Competent cells - Microcentrifuge tubes - Personal protective equipment **My notes, examples, and questions**

Summary

Today's lesson focused on Engineered organism debate. The main target was: Argue whether genetically engineering bacteria to produce medicine is ethically justified despite biosafety risks. The evidence of learning is Exit ticket: One sentence stating whether engineered-organism benefit justifies biosafety risk, with a specific reason grounded in containment or patient benefit.. In my own words, the most important idea from today is:

My summary

My final question or connection