Cornell Guided Notes

Biotechnology for Health (Biomedical Innovations) | 2027-04-19

Name	Period	Date	Lesson
		2027-04-19	

Lesson focus

Workflow notes and controls

Key words and questions	Prepared details and student notes

Essential question
What is today's target?

Outline the recombinant DNA workflow and explain the rationale for each control. Big idea: Every step in the recombinant DNA workflow has a specific enzyme, a specific purpose, and controls that verify the outcome.

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

Key words and questions	Prepared details and student notes
Must-know ideas **What should I understand by the end?**	- Restriction endonucleases recognize and cut DNA at palindromic sequences, generating compatible sticky ends. - DNA ligase seals the nicks between the insert and vector after annealing. - Antibiotic selection plates distinguish transformed cells from non-transformed cells. **My notes, examples, and questions**
Process notes **What happens during class?**	- 0-5 min: Warm-up: what does a restriction enzyme actually do to DNA? - 5-20 min: List workflow steps and name the enzyme or reagent for each - 20-40 min: Explain restriction enzyme specificity; sketch a sticky-end diagram - 40-55 min: Identify positive and negative controls; write safety rationale for each - 55-70 min: Partner check: can your partner identify all four steps and both controls? - 70-80 min: Exit ticket: name the enzyme for each workflow step and both controls **My notes, examples, and questions**

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Steps and evidence **What do I do and turn in?**	- List the workflow steps: cut, ligate, transform, select. - For each step, name the enzyme or reagent used. - Explain why restriction enzymes cut at specific sequences. - Identify a positive and a negative control for the experiment. - Write the safety reason each control is included. Evidence: Pre-lab - Recombinant DNA workflow outline with four ordered steps, named enzyme or reagent for each, restriction enzyme specificity explanation, and positive/negative control identification with safety rationale. **My notes, examples, and questions**
Checks for understanding **How do I know I got it?**	- You ordered the recombinant DNA workflow correctly. - You justified a positive and a negative control. **My notes, examples, and questions**

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Lab or safety notes **What must I handle carefully?**	Safety: - No wet chemicals today; this is a notes and diagram session. - If using physical model components, handle small pieces carefully to avoid choking hazard for younger students in adjacent rooms. - Keep workspace organized; loose paper fragments from cut-out diagrams should be collected before leaving. Supplies: - Printed or digital workflow diagram template - Colored pencils or markers for annotating restriction sites - DNA model kit or paper cut-out plasmid diagram (if available) - Restriction enzyme reference card or online resource **My notes, examples, and questions**

Summary

Today's lesson focused on Workflow notes and controls. The main target was: Outline the recombinant DNA workflow and explain the rationale for each control. The evidence of learning is Pre-lab: Recombinant DNA workflow outline with four ordered steps, named enzyme or reagent for each, restriction enzyme specificity explanation, and positive/negative control identification with safety rationale.. In my own words, the most important idea from today is:

My summary

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My final question or connection