

Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2026-11-24

Name

Period

Date

Lesson

Lesson focus

Protein expression

Key words and questions

Prepared details and student notes

Essential question
What is today's target?

Explain how a host cell expresses the inserted gene to produce the target protein. Big idea: Gene expression turns an inserted DNA sequence into a functional protein, and every step is a potential control point.

My notes, examples, and questions

Key words
What vocabulary unlocks the lesson?

- plasmid
- recombinant DNA
- ligase
- transformation
- expression

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?

- Expression requires the inserted gene to have a promoter the host cell recognizes.
- Temperature, nutrient availability, and inducer concentration each affect mRNA and protein yield.
- GFP fluorescence or enzyme activity is used as a visible proxy for successful expression.

My notes, examples, and questions

Process notes

What happens during class?

- 0-10: Read expression notes; define expression in own words
- 10-28: Trace transcription of inserted gene; annotate promoter role
- 28-45: Trace translation; annotate ribosome reading human mRNA in bacteria
- 45-58: List two growth conditions that affect yield; explain mechanism
- 58-70: Identify expression evidence in sample data; write one sign
- 70-80: Add notes to tracker; preview Friday quiz topics

My notes, examples, and questions

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Steps and evidence What do I do and turn in?

- Read the expression notes in the PLTW course shell and define expression.
- Trace transcription and translation of the inserted gene in the host cell.
- Explain why growth conditions can raise or lower how much protein is made.
- Identify one sign that expression worked in the sample data.
- Add your expression notes to your Unit 4 PLTW tracker evidence.

Evidence: Notebook check - Annotated notes tracing transcription and translation of the inserted gene, two yield-affecting conditions, and one piece of expression evidence from sample data.

My notes, examples, and questions

Checks for understanding How do I know I got it?

- You'll be able to describe how a host cell expresses an inserted gene.
- You'll be able to name a condition that changes protein yield.

My notes, examples, and questions

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Cornell Notes - Continued

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Lab or safety notes
What must I handle carefully?

Supplies:

- Plasmid and gene-insert models or DNA simulation kit
- Restriction enzyme and ligase reagents or model cards
- Micropipette and tips
- Host cell transformation simulation materials
- Selection plate reference handout
- Safety goggles and nitrile gloves

My notes, examples, and questions

Summary

Today's lesson focused on Protein expression. The main target was: Explain how a host cell expresses the inserted gene to produce the target protein. The evidence of learning is Notebook check: Annotated notes tracing transcription and translation of the inserted gene, two yield-affecting conditions, and one piece of expression evidence from sample data.. In my own words, the most important idea from today is:

My summary

My final question or connection