

Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2027-04-28

Name

Period

Date

Lesson

Lesson focus

Purification overview

Key words and questions

Prepared details and student notes

Essential question
What is today's target?

Explain why a manufactured protein must be purified and what purity means for a medicine. Big idea: A protein medicine is only as useful as it is pure; contaminants can trigger immune reactions or reduce efficacy.

My notes, examples, and questions

Key words
What vocabulary unlocks the lesson?

- GFP
- chromatography
- elution
- protein marker
- purity
- QC

My notes, examples, and questions

Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2027-04-28

Cornell Notes - Continued

Key words and questions

Prepared details and student notes

Must-know ideas
What should I understand by the end?

- Cell lysate contains the target protein mixed with thousands of other bacterial proteins, DNA, and membrane fragments.
- Contaminants in a therapeutic protein can provoke dangerous immune responses in patients.
- Purity is quantified by the ratio of target protein to total protein, often confirmed by gel analysis.

My notes, examples, and questions

Process notes
What happens during class?

- 0-10: Read purification overview; define purity in own words
- 10-25: List cell-lysate components besides target protein
- 25-42: Explain safety risk of each contaminant type
- 42-58: Preview this week's purification steps (chromatography, SDS-PAGE)
- 58-70: Write exit ticket: purity definition and one impurity risk
- 70-80: Submit exit ticket; preview Tuesday chromatography diagram

My notes, examples, and questions

Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2027-04-28

Cornell Notes - Continued

Key words and questions

Prepared details and student notes

Steps and evidence What do I do and turn in?

- Read the purification overview notes in the PLTW course shell and define purity.
- List what else is in the cell mixture besides the target protein.
- Explain why an impure protein medicine could be unsafe.
- Preview the purification steps you will model this week.
- Submit a short exit ticket defining purity and one risk of impurity.

Evidence: Exit ticket - Short exit ticket defining purity and identifying one concrete safety risk of an impure protein medicine.

My notes, examples, and questions

Checks for understanding How do I know I got it?

- You'll be able to explain why a protein medicine must be purified.
- You'll be able to define purity and a risk of impurity.

My notes, examples, and questions

Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2027-04-28

Cornell Notes - Continued

Key words and questions

Prepared details and student notes

Lab or safety notes
What must I handle carefully?

Supplies:

- Chromatography column and buffers
- GFP-containing protein sample
- Collection tubes for elution fractions
- SDS-PAGE gel and protein marker ladder
- UV light source for GFP detection
- Micropipette and tips
- Safety goggles and nitrile gloves

My notes, examples, and questions

Summary

Today's lesson focused on Purification overview. The main target was: Explain why a manufactured protein must be purified and what purity means for a medicine. The evidence of learning is Exit ticket: Short exit ticket defining purity and identifying one concrete safety risk of an impure protein medicine.. In my own words, the most important idea from today is:

My summary

My final question or connection