Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2026-12-01

Name	Period	Date	Lesson
		2026-12-01	

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**

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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?**	- 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**

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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**

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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