

Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2026-10-23

Name

Period

Date

Lesson

Lesson focus

Microarray introduction

Key words and questions

Prepared details and student notes

Essential question
What is today's target?

Explain how a microarray uses hybridization to test many genes at once and where it differs from PCR. Big idea: How does a chip the size of a postage stamp test thousands of genes simultaneously?

My notes, examples, and questions

Key words
What vocabulary unlocks the lesson?

- primer
- restriction enzyme
- gel electrophoresis
- microarray
- hybridization
- marker

My notes, examples, and questions

Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2026-10-23

Cornell Notes - Continued

Key words and questions

Prepared details and student notes

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

- Microarray hybridization: fluorescently labeled cDNA from a sample binds to complementary probe sequences on the chip; fluorescence indicates which genes are expressed.
- A bright spot means the gene is expressed (mRNA present in sample); a dark spot means little or no expression.
- Microarrays survey thousands of genes at once but require specialized equipment and bioinformatics; PCR is targeted and gel is the readout, not a scanner.

My notes, examples, and questions

Process notes
What happens during class?

- 0-8: Hook: microarray image; introduce hybridization concept
- 8-25: Define hybridization; explain spot color as expression signal
- 25-50: Build comparison table: PCR, gel, microarray (purpose, scale, limit, output)
- 50-65: Write one limit of microarrays not shared by PCR or gel
- 65-75: Partner quiz: cover one column; name the method from description
- 75-80: Submit comparison table to course shell; review for Friday quiz

My notes, examples, and questions

Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2026-10-23

Cornell Notes - Continued

Key words and questions

Prepared details and student notes

Steps and evidence What do I do and turn in?

- Define hybridization and explain how a labeled sample binds to spots on a microarray.
- Describe what a colored spot versus a dark spot tells you about a gene.
- Compare in one row each: PCR, gel, and microarray, listing what each method is best for.
- Write one limit of microarrays that gel or PCR does not share.
- Submit your method comparison as your daily evidence.

Evidence: Vocabulary task - Three-row method comparison table (PCR, gel, microarray) plus one sentence on a microarray limit not shared by the other two methods.

My notes, examples, and questions

Checks for understanding How do I know I got it?

- You'll be able to explain how a microarray reads many genes by hybridization.
- You'll be able to compare PCR, gel, and microarray by purpose and limit.

My notes, examples, and questions

Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2026-10-23

Cornell Notes - Continued

Key words and questions

Prepared details and student notes

Lab or safety notes
What must I handle carefully?

Supplies:

- Agarose gel and casting tray
- Gel electrophoresis chamber with power supply
- Micropipette and tips
- Loading dye and DNA size ladder
- TAE or TBE running buffer
- Safety goggles and nitrile gloves

My notes, examples, and questions

Summary

Today's lesson focused on Microarray introduction. The main target was: Explain how a microarray uses hybridization to test many genes at once and where it differs from PCR. The evidence of learning is Vocabulary task: Three-row method comparison table (PCR, gel, microarray) plus one sentence on a microarray limit not shared by the other two methods.. In my own words, the most important idea from today is:

My summary

My final question or connection