

Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2027-02-04

Name

Period

Date

Lesson

Lesson focus

Pathogen-ID report submission

Key words and questions

Prepared details and student notes

Essential question
What is today's target?

Submit a complete pathogen-identification report defending your BLAST result with evidence. Big idea: How does a scientist turn computational evidence into a defensible scientific claim?

My notes, examples, and questions

Key words
What vocabulary unlocks the lesson?

- DNA sequence
- PCR
- Sanger sequencing
- BLAST
- E-value
- query coverage
- control

My notes, examples, and questions

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Cornell Notes - Continued

Key words and questions

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

- A credible identification report cites percent identity, E-value, and query coverage together, not just one number.
- A control run proves the tool worked correctly; without it, the result cannot be trusted.
- Sequence-based identification has limits: databases are incomplete, and contamination or sequencing errors can produce false matches.

My notes, examples, and questions

Process notes
What happens during class?

- 0-10 min: Assemble materials: hit-table screenshot, top hit data, control run result, and comparison table from Thursday
- 10-25 min: Draft the Claim: one sentence naming the pathogen with full organism name
- 25-45 min: Write the Reasoning paragraph: cite E-value, query coverage, and percent identity; explain why each supports the claim
- 45-58 min: Add the control explanation: how the control run validates the workflow
- 58-70 min: Write the limitation sentence; proofread the full report for accuracy and completeness
- 70-80 min: Submit in the course shell; confirm it shows as turned in

My notes, examples, and questions

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Steps and evidence What do I do and turn in?

- Assemble your hit-table screenshot, top organism name, E-value, and query coverage.
- Write a Claim naming the pathogen and a Reasoning paragraph using your match-quality numbers.
- Explain how your control run shows the workflow was reliable.
- Add one sentence on a limitation of identifying a pathogen by sequence alone.
- Submit the report in the PLTW course shell.
- Confirm it is turned in and note what you would test to confirm in a real lab.

Evidence: Lab report - Pathogen-ID report: claim naming organism, reasoning paragraph citing E-value/query coverage/percent identity, control validation explanation, and one limitation sentence.

My notes, examples, and questions

Checks for understanding How do I know I got it?

- You will be able to defend a pathogen ID with BLAST evidence.
- You will be able to cite E-value and coverage to justify a match.
- You will be able to state a limitation of sequence-based identification.

My notes, examples, and questions

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Lab or safety notes
What must I handle carefully?

Supplies:

- Lab computers with internet access
- NCBI BLAST nucleotide tool
- Unknown pathogen DNA sequence file
- Known control sequence file
- Shared results spreadsheet
- Screenshot tool

My notes, examples, and questions

Summary

Today's lesson focused on Pathogen-ID report submission. The main target was: Submit a complete pathogen-identification report defending your BLAST result with evidence. The evidence of learning is Lab report: Pathogen-ID report: claim naming organism, reasoning paragraph citing E-value/query coverage/percent identity, control validation explanation, and one limitation sentence.. In my own words, the most important idea from today is:

My summary

My final question or connection