Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2027-02-19

Name	Period	Date	Lesson
		2027-02-19	

Lesson focus

Specificity vs sensitivity

Key words and questions	Prepared details and student notes

Essential question
What is today's target?

Distinguish specificity from sensitivity and use your ELISA results to discuss how good the test is. Big idea: How do scientists measure the reliability of a diagnostic test, and why does the right balance depend on the disease?

My notes, examples, and questions

Key words
What vocabulary unlocks the lesson?

- positive control
- negative control
- specificity
- sensitivity
- primary antibody
- secondary antibody

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?**	- Sensitivity measures how well a test catches true positives (sick people who test positive); a sensitive test misses few sick people. - Specificity measures how well a test avoids false positives (healthy people who test positive); a specific test rarely flags healthy people as sick. - Screening tests (population-level) favor high sensitivity; confirmatory tests favor high specificity. **My notes, examples, and questions**
Process notes **What happens during class?**	- 0-10 min: Write plain definitions of sensitivity and specificity; draw the 2x2 table (true positive, true negative, false positive, false negative) - 10-25 min: Sort Wednesday's ELISA results into the four categories using your plate photo and data table - 25-40 min: Classify any anomalous results: sensitivity problem (missed a true positive) or specificity problem (flagged a true negative)? - 40-55 min: Explain in writing why a screening test favors sensitivity; connect to Monday's false-results bioethics discussion - 55-68 min: Connect your controls to the test's specificity: did the negative control stay negative? Explain what it proves - 68-80 min: Write one trustworthiness judgment sentence; share with a partner and defend your reasoning **My notes, examples, and questions**

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Steps and evidence **What do I do and turn in?**	- Write plain definitions: sensitivity catches true positives, specificity avoids false positives. - Sort your ELISA results into true positives, true negatives, and any apparent errors. - Decide whether any odd result looks like a sensitivity or a specificity problem. - Explain why a screening test often favors sensitivity over specificity. - Connect your controls to how you would trust the test's specificity. - Write one sentence judging how trustworthy your ELISA run was and why. Evidence: Data table - 2x2 classification table sorting ELISA results into true/false positives and negatives, plus a one-sentence reliability judgment citing controls. **My notes, examples, and questions**
Checks for understanding **How do I know I got it?**	- You will be able to define sensitivity and specificity. - You will be able to classify results as true or false positives and negatives. - You will be able to judge a test's reliability from its results. **My notes, examples, and questions**

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Lab or safety notes **What must I handle carefully?**	Supplies: - Pre-coated ELISA microplate - Primary antibody solution - Secondary antibody solution - Substrate solution - Wash buffer and squirt bottle - Micropipettes and tips - Positive and negative control samples **My notes, examples, and questions**

Summary

Today's lesson focused on Specificity vs sensitivity. The main target was: Distinguish specificity from sensitivity and use your ELISA results to discuss how good the test is. The evidence of learning is Data table: 2x2 classification table sorting ELISA results into true/false positives and negatives, plus a one-sentence reliability judgment citing controls.. In my own words, the most important idea from today is:

My summary

My final question or connection