Cornell Guided Notes

Genetics of Disease (Medical Interventions) | 2026-11-05

Name	Period	Date	Lesson
		2026-11-05	

Lesson focus

CRISPR and reproductive screening

Key words and questions	Prepared details and student notes

Essential question
What is today's target?

Explain how CRISPR-Cas9 edits DNA, including off-target risk, and apply it to a reproductive screening case. Big idea: How precise does a molecular scissors need to be before it is safe enough to use on a human embryo?

My notes, examples, and questions

Key words
What vocabulary unlocks the lesson?

- gene therapy
- vector
- CRISPR-Cas9
- somatic
- germline
- off-target
- informed consent

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?**	- CRISPR-Cas9 uses a guide RNA to direct the Cas9 endonuclease to a specific genomic address; Cas9 cuts both DNA strands. - The cell repairs the cut via NHEJ (often creating insertions/deletions) or HDR (if a repair template is supplied); HDR enables precise edits. - Off-target edits occur when the guide RNA matches non-target sequences well enough to direct a cut; this can disrupt tumor-suppressor genes or other critical loci. **My notes, examples, and questions**
Process notes **What happens during class?**	- 0-8: Hook headlines; introduce guide RNA, Cas9, and repair as three discrete steps - 8-30: Annotate CRISPR article: mark guide RNA, Cas9 cut, repair step; define off-target in margin - 30-45: Read reproductive screening case; note what CRISPR could and could not ethically do - 45-62: Write CER claim about using CRISPR in this case with two evidences - 62-75: Peer review: check that reasoning names one CRISPR limit - 75-80: Submit annotation and CER; preview Friday ethics synthesis **My notes, examples, and questions**

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Steps and evidence **What do I do and turn in?**	- Annotate the assigned CRISPR article, marking the guide RNA, the Cas9 cut, and the repair step. - Define off-target editing and explain in one line why it is a safety concern. - Read the reproductive screening case and decide what CRISPR could and could not ethically do. - Write a CER claim about using CRISPR in the case, with two pieces of evidence. - Submit your annotation and reproductive screening CER as your daily evidence. Evidence: CER - Annotated CRISPR article (guide RNA, Cas9 cut, repair step marked; off-target defined) plus a CER on using CRISPR in the reproductive screening case. **My notes, examples, and questions**
Checks for understanding **How do I know I got it?**	- You'll be able to explain CRISPR-Cas9 editing and off-target risk. - You'll be able to apply CRISPR limits to a reproductive case. **My notes, examples, and questions**
Lab or safety notes **What must I handle carefully?**	No special lab safety notes today. Follow normal classroom and digital-work expectations. **My notes, examples, and questions**

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Summary

Today's lesson focused on CRISPR and reproductive screening. The main target was: Explain how CRISPR-Cas9 edits DNA, including off-target risk, and apply it to a reproductive screening case. The evidence of learning is CER: Annotated CRISPR article (guide RNA, Cas9 cut, repair step marked; off-target defined) plus a CER on using CRISPR in the reproductive screening case.. In my own words, the most important idea from today is:

My summary

My final question or connection