SESSION 7 | GEND: DNA TO RNA TO PROTEIN AND PHENOTYPE

From a Gene Instruction to a Cell Behavior

Essential question: How can a change in DNA affect development without changing every cell in the body?

TODAY'S TAKE-HOME **Genes do not act alone or act as destiny. Their protein products participate in cell behaviors that must occur in the right place and time.**

Bring yesterday forward

Yesterday: fusion is an active remodeling process with a narrow window.

Quick reading

DNA can be copied into RNA and used to build a protein. The protein changes cell behavior only in the right cell, place, and time.

Optional reading: https://pmc.ncbi.nlm.nih.gov/articles/PMC2 659 566/

Deck map

Slides 5-6: study and question the picture | Slide 7: name the rule | Slide 8: read the biology evidence | Slides 9-11: transfer and decide | Slides 12-13: exit and bridge.

The visual in words

DNA instruction	RNA message	Protein tool	Cell behavior	Developmental outcome

Build the idea

Model start: A gene can be transcribed into RNA and translated into a protein with a cellular job. The effect depends on where and when that job is needed.

- Trace one claim from DNA to RNA to protein to cell behavior.

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- Describe IRF6 as one example of a gene with a developmental job.

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- Add one context factor that prevents a gene from being destiny.

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- State one limitation before making a causal claim about Mateo.

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Use the analogy, then return to the science

ANALOGY	BIOLOGY
Construction manual	A page matters only when the crew reads it, builds the right tool, and uses it at the correct job site and time.

Apply the model to Mateo

This bridges to genetics while keeping the developmental story intact: a plausible mechanism is not a conclusion about an individual patient.

What can this lesson explain? What cannot it prove?

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Exit ticket and next unlock

EXIT	NEXT
Explain why a gene is an instruction, not a destiny statement.	**Next: compare multiple genes, evidence types, and mechanisms without losing the developmental story.**

Four truths check

Truths 1 and 4: Gene expression guides developmental decisions, and disrupted regulation can change a process. Circle the part of today's notes that supports this truth.