Developmental biology

with Dr M. Fethullah Simsek



A microscope image of a zebrafish embryo.
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Talking *points*

Knowledge

1. What is a morphogen?
2. What is a somite?

Comprehension

3. How do morphogen gradients control embryo development?
4. How does fibroblast growth factor (FGF) influence somite segmentation?
5. Why are zebrafish good model organisms for studying development?

Application

6. How do you think Fethullah's technique of using microscopes to image live zebrafish embryos will help the team learn more about FGF signalling?
7. How do you think scientists could use Fethullah's findings to treat developmental problems in humans?

Analysis

8. Why is it important to understand how morphogens control embryo development?

Evaluation

9. To what extent do you agree that it is important to conduct experiments with animals to learn more about human development? Why?

Activity

Imagine that scientists have successfully used Fethullah's research to create a technique that allows them to diagnose and treat birth defects in human embryos. You are a science journalist, and you have been tasked to write a news report about this groundbreaking new technology.

Your report should explain Fethullah's research that underlies the technology (from his article) and how this has been expanded to diagnose and treat birth defects in humans (from your answer to question 7).

As a journalist, you would have the opportunity to interview Fethullah and other people (e.g., scientists, doctors, parents). What questions would you ask them about the research, the technology and their implications? Write a list of interview questions for your interviewees and imagine how they would answer these.

Write your news report using clear and accessible language to explain the science to a general public audience who do not have background knowledge about topics such as morphogens and somites. It should include quotes from your imagined interviews and should have an engaging heading and introduction to capture readers' attention.

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