



The big science of small brains



In recent years, hospitals in several countries began reporting a rise in new-borns with unusually small heads and underdeveloped brains. Some of these children faced severe developmental delays, seizures, and other neurological complications. What puzzled doctors was the pattern — it seemed to appear in clusters, often linked to viral outbreaks or infections during pregnancy.

Scientists began tracing the origin of this condition, trying to understand what caused it, how it develops, and what could be done to prevent it. To do this, they turned to models, methods, and tools that revealed the inner workings of biology — from genes to cells to whole organisms.

You're now retracing their steps.

1. To study how brain development is affected by viruses or genetic disruptions, researchers turned to a small, fast-breeding organism also known as *Drosophila melanogaster*, a classic model in biology. Despite its size, it shares many developmental genes with humans, and scientists can manipulate these genes to mimic certain disorders. What is this model organism's common name?

Unscramble the letters to identify it:

I U F R T Y L F

	○					○	○
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2. To study how stopping functions of some genes affects developing brain cells, scientists grow the cells in the lab. These cells are kept in controlled conditions and given nutrients, warmth, and the right environment to divide and form networks. Using this system, researchers can observe their growth, and test interventions. What facility did the scientists use? Unscramble the letters to identify it:

E L C R T C U L E U A

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3. Scientists looked for changes in brain tissue, organoids, or embryos. They used this tool to see how neurons were forming, where damage occurred, and whether brain structures were affected.

What method did they use to observe these changes? Unscramble the letters to identify it:

O Y M S I R P C O C

○		○					○	○	
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4. You now have three pieces of the investigation:
 - a. A model organism used to study brain development.
 - b. A facility to grow brain cells.
 - c. An imaging method to observe how the brain forms and where it goes wrong.

All of these were part of the global effort to understand a neurological condition marked by abnormally small heads and underdeveloped brains in new-borns.

What is the name of this condition? Pick the circled letters in the previous questions and unjumble them:

○	I	○	○	○	○	E	○	H	A	○	○
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