- Transmission Received: Dr. Evelyn Cross Urgent Report
- Location: Genesis Biotech Underground Research Facility Sector 3
- Date: Classified
- Status: Emergency Lockdown

Student Challenge: Lazarus Virus Biological Analysis Report

Dr. Cross's Last Transmission:

"I've isolated the data. Now it's up to you. How is the virus manipulating macromolecules and enzymes to survive? Why is the immune system failing? If we can identify what it's consuming and how, maybe we can cut off its fuel source. Hurry! Time is running out!"

Your Mission:

Analyze the Genesis Biotech Lab Data and use your knowledge of macromolecules, enzymes, and body systems to answer the following questions. Your findings may hold the key to stopping the Lazarus Virus before it spreads beyond containment.

Macromolecules & Viral Fuel Source

1. Identify and describe the four macromolecules:

- **Carbohydrates:** What is their function in the body? How are they affected by the Lazarus Virus?
- Lipids: What role do they play in cell membranes and energy storage? How does the virus use them?
- **Proteins:** How do they contribute to cellular function? What happens when the virus starts breaking them down?
- **Nucleic Acids:** Why are these macromolecules essential for genetic function? Does the virus manipulate DNA/RNA?



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2. Which macromolecules does the Lazarus Virus rely on the most?

- Look at Lab Test #1 (Blood Sample Analysis). Which macromolecules decrease in infected cells? Which increase?
- How might this change affect a person's ability to function?

Enzyme Function & Viral Manipulation

3. Define an enzyme. What is its function in living organisms?

4. Are enzymes specific to their substrate? Why or why not?

• Consider how enzymes function like locks and keys.

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5. How does the Lazarus Virus change enzyme activity in infected cells?

- Look at Lab Test #2 (Enzyme Activity Graphs).
- Does enzyme function increase or decrease? What does this mean for the infected?

6. What happens when an enzyme's environment is altered?

- Describe the effects of pH, temperature, and substrate concentration changes on general enzymes.
- What do you predict is happening to enzymes in infected cells, where pH is more acidic?



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The Immune System & Its Breakdown

- **?**. What is the function of the immune system?
 - Describe how the immune system normally defends against pathogens.

8. Why is the immune system failing to recognize infected cells as a threat?

- Look at Lab Test #3 (Organ System Response).
- What part of the immune system has stopped responding?
- How does this allow the virus to spread undetected?

9. How does a balanced diet support immune system function?

- Explain how carbohydrates, lipids, proteins, and nucleic acids contribute to a strong immune system.
- If a survivor has been eating poorly, would they be more or less likely to survive the virus? Why?

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Student Challenge: Lazarus Virus Biological Analysis Report The Nervous System & Infection Effects

1. What is the function of the nervous system?

- Describe its role in controlling body movements, reflexes, and responses.
- Differentiate between the CNS (Central Nervous System) and PNS (Peripheral
- Nervous System).
- What does each control?

- 1. What does Lab Test #3 (Autopsy Report) suggest about nervous system function in infected individuals?
- Why do infected subjects move erratically?
- Why don't they respond to pain or fear?
- What would happen if the CNS or PNS completely failed?

1. Predict how full nervous system collapse would change a normal person? Zombie behavior?