

Name _____

Period _____

Infection Lab



Can we fight the infection?

Some pathogens have gotten past our body's first two defenses: our skin and inflammation. Now our immune system must react to stop the infection. Today we will model a cell-mediated immune response by searching for and destroying infected cells.

A healthy immune system is ready to fight the infection with antibodies and T cells. The antibodies attach to proteins on the surface of the cell called antigens while T cells search the body looking for antibodies that have found pathogens. When T cells find antibodies attached to a pathogen with matching antigens, the T cells destroy the pathogen.

To get lab credit and lab minutes:

- Answer all questions in the introduction.
- Participate in the simulation.
- Collect class data.
- Complete the discussion questions.

Our Questions:

Can we stop the infections?
What pathogens will we find?
Will it be fun(gi)?

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Directions:

1. If you are an antibody: You will search for infected cells to attach to. When you find a cell with antigens that match your symbol, wait by that cell until an killer t cell arrives.

If you are a killer T cell: Your job is to search for antibodies that have found pathogens and "destroy" them by taking off the tape and removing the bacteria.

Q:Are you an antibody or a killer T cell? _____

Q: What will you have to do? _____

2. Record bacteria species and number (written on the end) for each cell you find in the chart below.

Pathogens found:

<i>Pathogen name</i>	<i>Cell number</i>
(Example) Staphylococcus	1

3. After ten minutes return to your seat to collect class data and discuss the lab.

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Pathogens Found Class Data:

[illegible]

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Discussion Questions:

1. Use the attached **Immune System** reference page to fill in this chart

<i>What is it?</i>	<i>What does it do?</i>	<i>Describe or draw how it was modeled in the lab.</i>
pathogen	A pathogen is a disease causing organism or environmental factor	A pathogen was a small card inside of a gray cylinder
antigen		
antibody		
killer T cells		
immune system		
immune response		

2. How did you model the binding of antibodies to matching antigens?

3. What signals a killer T cell to attack a pathogen?

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4. What happens when your immune system can not fight an infection successfully?

5. Did we stop the infection? How do we know if the infection has been eliminated?

6. What pathogens were present in our body?

7. Write a paragraph that describes what you think the purpose of this activity is. Use the following vocabulary in your paragraph and any other vocabulary you think is important:

immune system, pathogen, cell mediated immunity, antigen, antibody, T cell

8. Research one of the diseases featured in this activity. Use your book, the internet or other resources to find this information

What are the symptoms?

How is it cured?

Is there a vaccine?

What part of the world can this disease be found?