Workbook 1: Principles of Innate and Adaptive Immunity

Introduction

The immune system recognizes and responds to diverse pathogens using innate and adaptive strategies. This workbook explores key concepts behind pathogen classification, immune activation, and immunologic memory.

Pathogens

Complete the table below by identifying key structures, typical location in the host (e.g., intracellular, extracellular, or intravesicular), mechanism of pathogenesis, and provide an example organism for each type.

Pathogen	Identifying Structure(s)	Location in Host	Mechanism of Pathogenesis	Example
Virus				
Bacteria				
Fungi				
Parasite				

Steps of an Immune Response

The steps below are out of order. Please assign a number (1–6) in the input box next to each step to reflect their correct sequence in a typical immune response.

- Identify Pathogen – Recognize the pathogen based on its unique characteristics.
- Signal Infection – Alert and coordinate the immune system to respond.
- Activate Response – Trigger a tailored immune response.
- Deploy Effectors – Activate immune effectors (e.g., antibodies, T cells).
- Clear Infection – Eliminate the pathogen and restore homeostasis.
- Build Memory – Establish immunologic memory for future encounters.

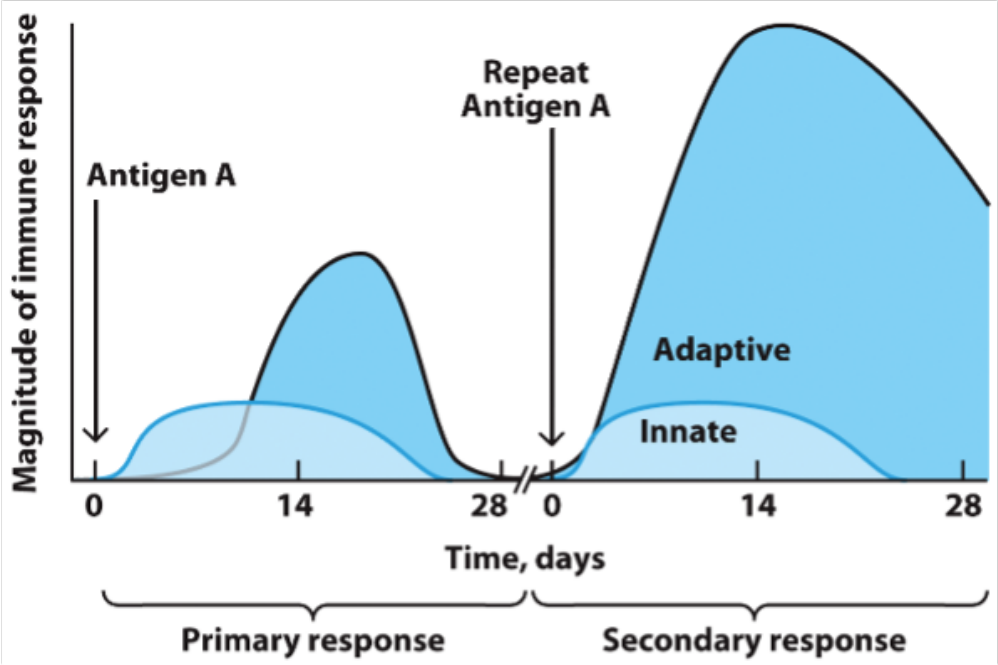
Innate vs. Adaptive Immunity

Compare the two arms of the immune system by completing the table.

Feature	Innate	Adaptive
Response Time		
Specificity & Diversity		
Response to Repeat Infection		
Inflammatory Inducers		
Receptors		
Immune Cells		
Immunologic Memory		

Primary and Secondary Immune Response

Study the graph below showing the innate and adaptive responses after initial and repeated antigen exposure. Then sketch your own version of the **secondary response** in your notebook and upload a photo to Canvas.



Conclusion

Summarize what you've learned about how the immune system defends against a wide variety of pathogens and adapts over time.