

APOLLO

Defence against disease

HL

Biology

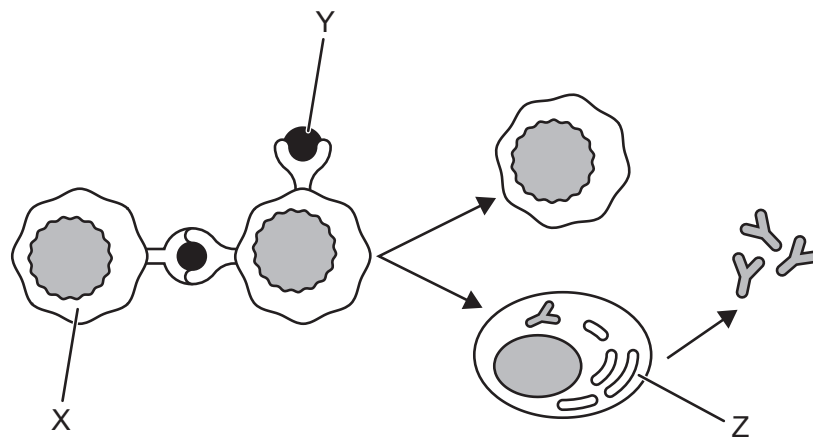
First assessment 2025

7 questions | questions

27. Which cell type is part of the innate immune system?

- A. Phagocytes
- B. B-lymphocytes
- C. T-lymphocytes
- D. Helper T-cells

27. The diagram shows stages in an immune response.



What is represented by labels X, Y and Z?

	X	Y	Z
A.	helper T-cell	antibody	plasma cell
B.	B-cell	antigen	memory B-cell
C.	helper T-cell	antigen	plasma cell
D.	B-cell	antibody	memory B-cell

Section A

Answer **all** questions. Answers must be written within the answer boxes provided.

5. Adaptive immunity leads to cells that are infected by viruses being killed, resulting in immune memory which is the basis of vaccination.

(a) Distinguish between innate and adaptive immune response.

[1]

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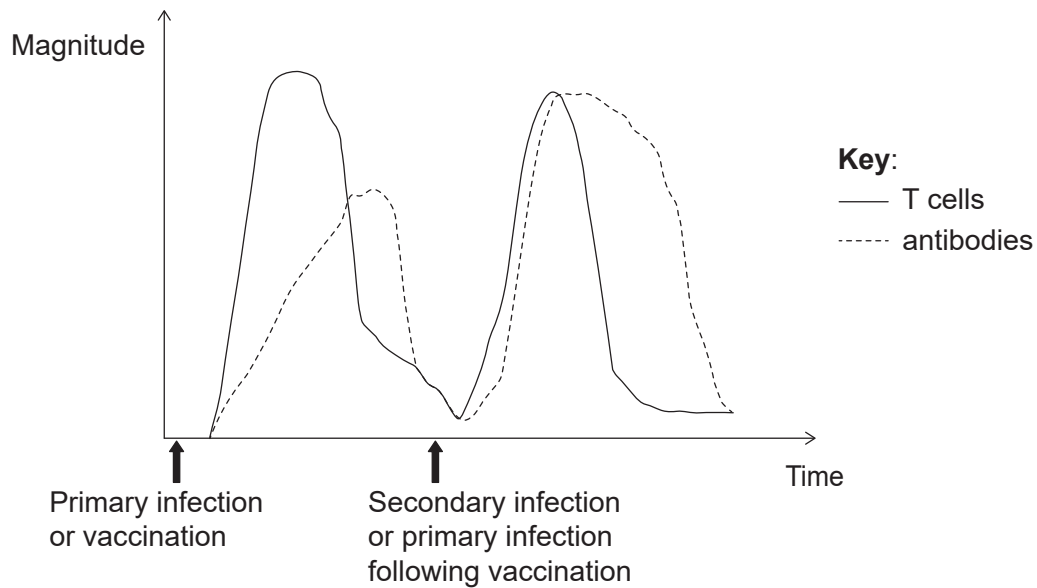
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(This question continues on the following page)



(Question 5 continued)

The graph shows the magnitude of the immune response after infection or after vaccination over time.



- (b) Explain reasons that the T-cells peak before the antibodies after primary infection or vaccination, but T-cells peak at the same time as the antibodies after secondary infection or primary infection following vaccination.

[2]

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- (c) Different types of vaccine are used to prevent viral diseases. Justify this statement in terms of the structure of viruses.

[2]

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Turn over

28. Which function is primarily associated with helper T-cells in the immune system?

- A. Phagocytosis of pathogens
- B. Activation of other cells in the immune system
- C. Antibody production
- D. Retention as memory cells

26. Which of the following will cause the production of antibodies during an infection?

- A. Conversion of fibrinogen to fibrin by thrombin
- B. B-cell activation by helper T-cells and antigens
- C. Plasma cell activation by platelets
- D. Activation of phagocytes by infected body cells

Turn over

29. Which cell is a component of the innate immune system?

- A. T lymphocyte
- B. Phagocyte
- C. B lymphocyte
- D. B memory cell

Section B

Answer **two** questions. One additional mark is available for the construction of your answers for each question. Answers must be written within the answer boxes provided.

8. There are a number of advantages to specificity.
- (a) Explain how vaccination can result in specific immunity to a viral disease. [7]
 - (b) Outline the role of membrane proteins in the movement of specific ions at specific times in the transmission of nerve impulses. [4]
 - (c) Describe the barriers that exist to hybridization between species. [4]