

1. A phagocyte engulfs and digests a pathogen in a process called _____.

2. The secondary immune response is slower and weaker than the first.
☐ True ☐ False
3. Monoclonal antibodies are:
☐ identical antibodies, all made by one type of cell, that bind the same antigen
☐ a type of pathogen
☐ white blood cells
☐ a random mix of antibodies
4. A vaccine gives a person which kind of immunity?
☐ passive
☐ no immunity at all
☐ active – the body makes its own antibodies and memory cells
☐ temporary maternal immunity
5. Phagocytes such as macrophages and neutrophils are types of white blood cell.
☐ True ☐ False
6. T-helper cells in the immune response:
☐ form the cell wall
☐ engulf the pathogen first
☐ recognise the displayed antigen and switch on other immune cells
☐ release ready-made antibodies
7. The variable region of an antibody:
☐ breaks down pathogens with enzymes
☐ is made of carbohydrate
☐ is the binding site whose shape fits one specific antigen
☐ is the same in every antibody

8. Passive immunity lasts for life because memory cells are made.

☐ True ☐ False

9. In phagocytosis, a phagocyte:

☐ makes antibodies

☐ releases ready-made antibodies

☐ becomes a memory cell

☐ surrounds the pathogen, takes it in, and digests it with enzymes

10. Long-lived cells that stay behind to give a fast secondary response are _____ cells.

A-Level Biology

1. **phagocytosis**

Phagocytosis is part of the first line of internal defence – fast and non-specific.

2. **False**

False. Memory cells from the first exposure react quickly, so the secondary response is faster and stronger. This is the basis of long-term immunity.

3. **identical antibodies, all made by one type of cell, that bind the same antigen**

Monoclonal = "one clone" – all identical, so they all bind the same target.

4. **active – the body makes its own antibodies and memory cells**

A vaccine makes the body respond itself, so it builds active, long-lasting immunity.

5. **True**

Yes – phagocytes are white blood cells; they are the first cells to respond to a pathogen.

6. **recognise the displayed antigen and switch on other immune cells**

T-helper cells recognise the presented antigen and activate B-lymphocytes and other cells.

7. **is the binding site whose shape fits one specific antigen**

The two tips of the Y are variable regions – each shaped to bind one specific antigen.

8. **False**

False. Passive immunity gives ready-made antibodies that act fast, but no memory cells are made, so it is short-lived.

9. **surrounds the pathogen, takes it in, and digests it with enzymes**

A phagocyte engulfs the pathogen into a vesicle and digests it with enzymes.

10. **memory**

Memory cells let the body respond before you even feel ill the second time – the basis of immunity.