

The Immune Response

Biology

Humoral and cell-mediated immunity, and how memory works.

The specific immune response to a novel pathogen.

1

Phagocytosis

A macrophage engulfs the pathogen and presents its antigen.

2

T helper activation

A matching helper T cell binds and divides.

3

Clonal selection

The matching B cell is activated and proliferates.

4

Plasma cells

Secrete large quantities of specific antibody.

5

Memory cells

Remain, giving a faster and larger secondary response.

PRIMARY VS SECONDARY

Primary: slow, days, lower antibody peak

Secondary: rapid, higher, longer lasting

That difference is what vaccination exploits

Cytotoxic T cells destroy infected body cells directly, which antibodies cannot reach.