

The Immune System :

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Recognizes and destroys damaged cells and foreign invading cells. Consists of white blood cells, the proteins they make, and the lymphatic duct and node system.

Immunity is the ability to resist disease once exposed to it in the past.

Body defences can be divided into 2 groups -

Non-specific defences :

guard against a wide range of “**pathogens**” (disease causing agents), do not need earlier exposure.

First line of defence - **the skin** (outer dry layers reinforced with keratin), anti-bacterial oils and acidic sweat.

Backed up by mucus and stomach acid

Second line of defence - the “inflammatory response” , WBCs arrive at the scene of damage....

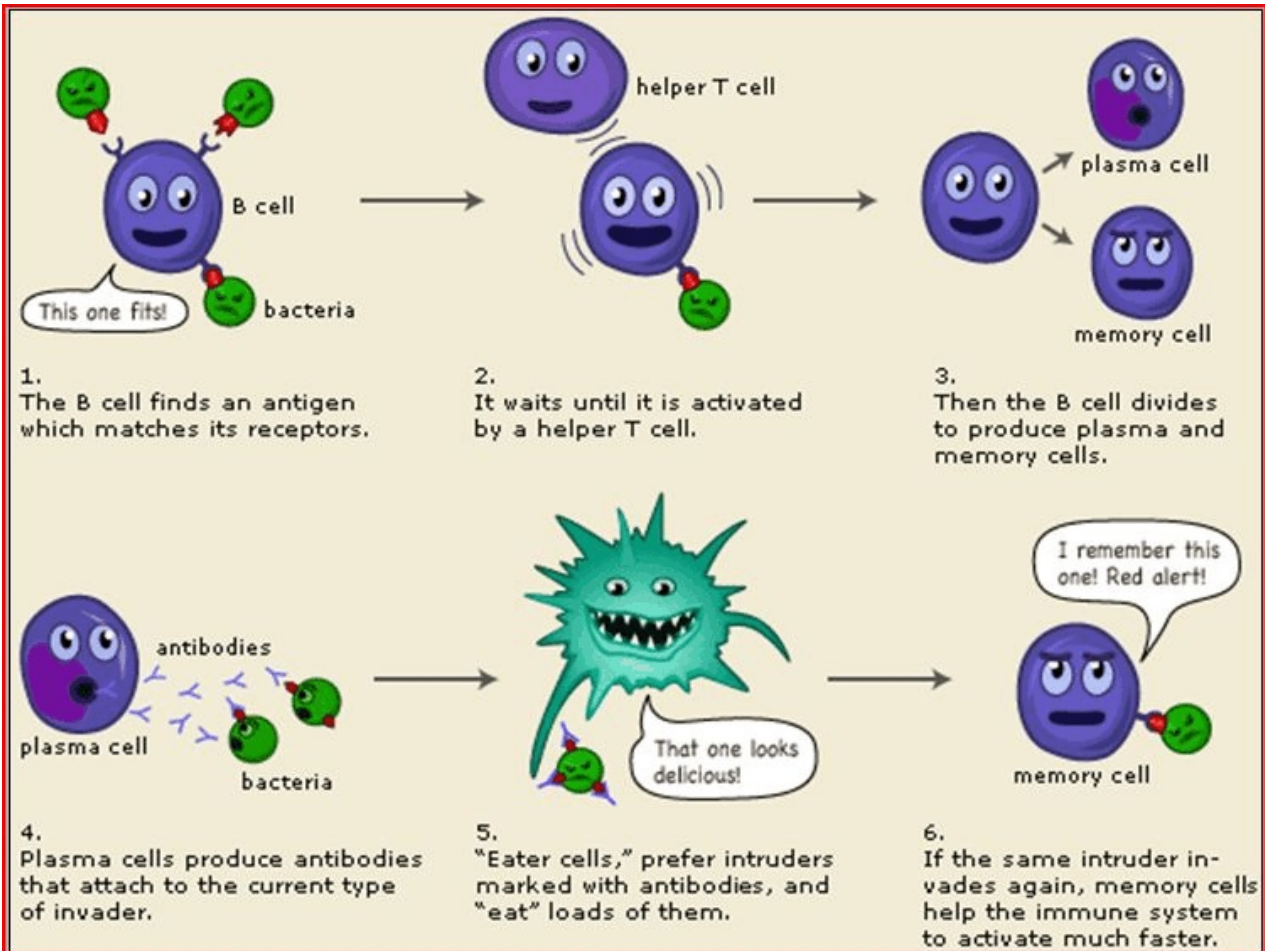
“Macrophages” from liver, spleen, brain, lungs and in the blood and interstitial fluid. Engulf cells using phagocytosis. “Monocytes” and “neutrophils” attack bacteria using phagocytosis.

Specific defences :

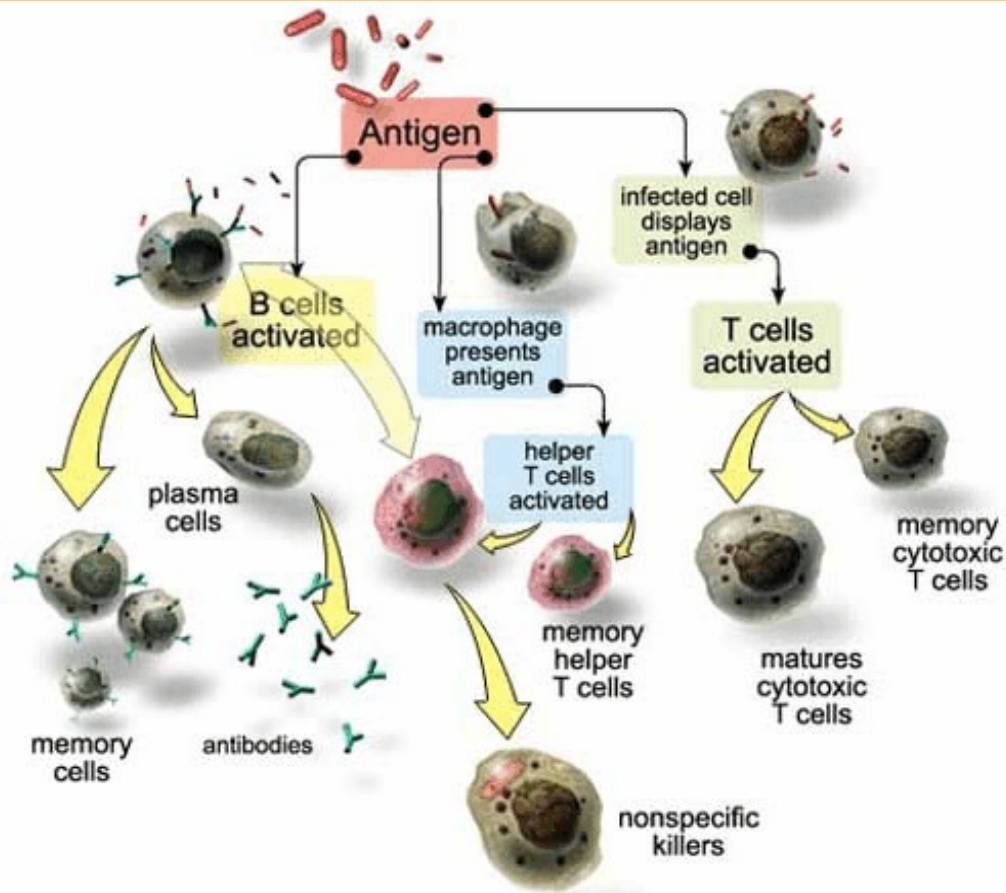
Specialized cells that attack only certain identified pathogens. Unique to an individual. Includes “lymphocytes” (B cells and T cells) from your bone marrow. Form the 2nd and 3rd lines of defence.

To attack a pathogen, you must recognize cells that don't belong to you (shape of their antigens) first. Macrophages engulf them, their antigens moved to the surface of the macrophage. Then your B cells will produce shape specific antibodies that join onto them. This marks them for destruction by T cells. Memory cells are special T cells that

remain in the system in case you are attacked again by the same pathogen in the future (also stored inside lymph nodes).



Immune system cells



(Source: the Human Immune Response System www.uta.edu/chagas/images/immunSys.jpg)

___ When T cells or antibodies begin attacking your own tissues and cells, that's an "autoimmune disorder". Ex. Rheumatoid arthritis

How Do We Get “Immunity” ?

Passive immunity - given to you by mom
Pregnancy and breastfeeding

Active immunity - induced
Vaccines

What are Allergies ?

An exaggerated response of the immune system to a harmless substance like pollen, dust, dander. Antibodies made trigger cells to produce “histamines”.....swelling, vasodilation, fluid production, swelling, and redness. May also cause muscle cramping, vomiting, diarrhea, or asthmatic attacks if the allergen is inhaled.