THE SCIENCE OF MEDICINES

D-BUG FUN FACTS!

THE IMMUNE SYSTEM

DEPLOYING OUR BUILT-IN DEFENCES!

Our immune system defends against infection & disease. When a virus enters our body, this **army of specialised cells** can raise our body temperature to help fight the invaders, make our nose run to trap the virus in snot, & directly attack virus particles.

We have 2 main types of immunity

INNATE IMMUNITY

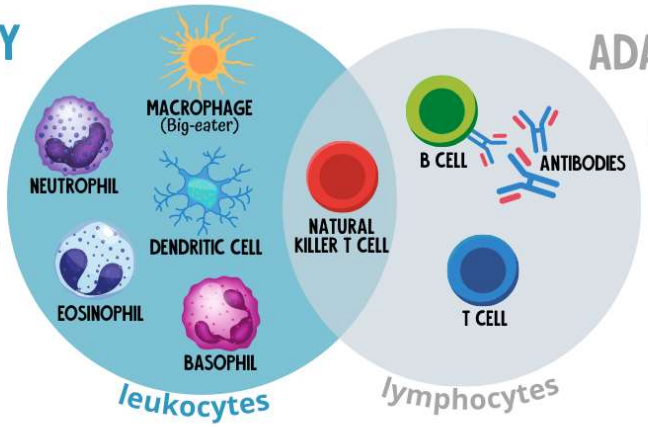
is a type of general protection we are born with.

This system **responds quickly (within minutes to hours), but is not specific**; it targets anything identified as foreign.

The first line of defence against invasion includes physical **barriers** like our skin, nose hair & mucous.

If these barriers are breached, blood cells called ***leukocytes*** are deployed to destroy & devour the invaders.

If this system fails, the adaptive immune system is alerted for reinforcements.



ADAPTIVE IMMUNITY

develops through our life as we are exposed to, and conquer, new infections.

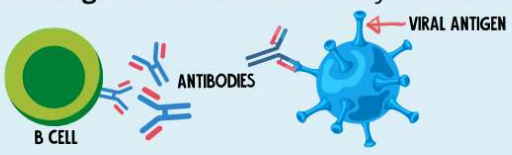
This system **responds slowly (within days to weeks),** with **custom-made defence strategies** against specific invaders.

Memory cells mean our immune system can remember each specific defence strategy (for varying amounts of time).

Specialised blood cells called ***lymphocytes*** include **B cells** (that find & tag invaders) & **T cells** (that destroy the tagged targets).

ANTIGENS & ANTIBODIES!

Antibodies are Y-shaped proteins made by B cells. They can attach to virtually any shaped ***antigen*** (external part of the virus). We have 1000s of different antibodies; each one is trained to recognise a specific antigen. Antibodies defend against infection by blocking invaders from infecting cells, or **marking** them for destruction by T cells.



CURIOUS MINDS HE HIHIRI I TE MAHARA

UNIVERSITY OF OTAGO Te Whare Wānanga o Otāgo NEW ZEALAND