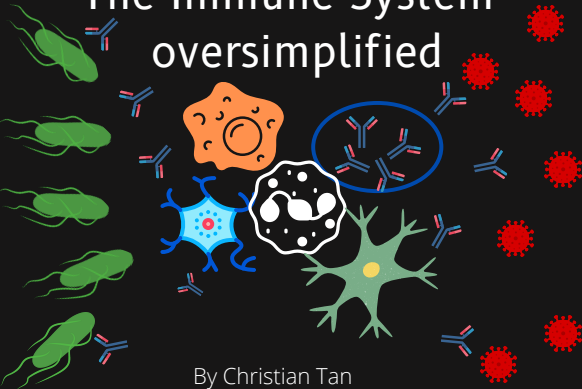
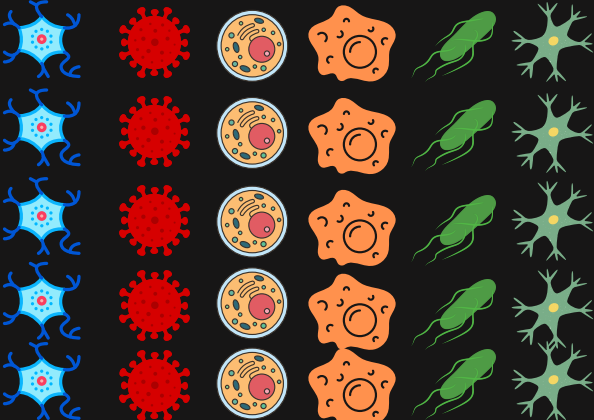
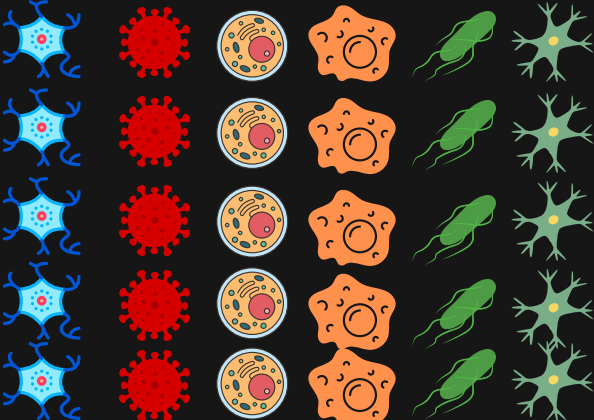


The Immune System- oversimplified

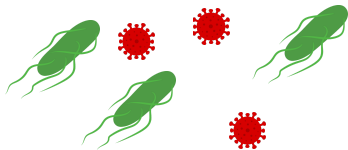


By Christian Tan

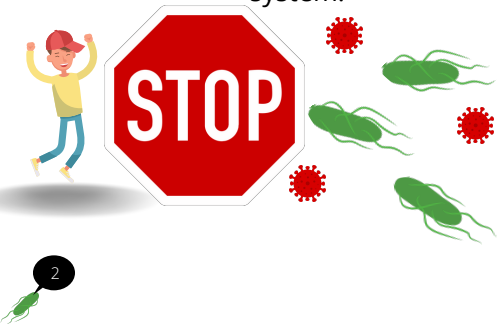




Before we learn about the Immune system, let's learn what it is. The Immune system protects your body from pathogens. Pathogens are tiny creatures that try to make you sick.



Luckily, your Immune system can stop that.
Read on to find out more about the Immune
system!



Imagine that you are walking along a park, looking at the sky when suddenly, you trod on a sharp, rusty nail. It stabs you and pierces through your foot like a knife.



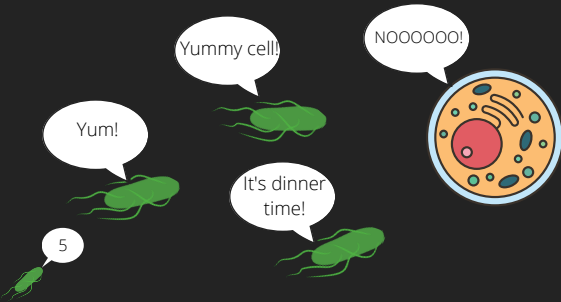
While you cry out in pain, thousands of tiny pathogens called bacteria* rush into your body.

The background of the entire slide is a dense, chaotic field of green, rod-shaped bacteria. Each bacterium has several thin, hair-like flagella extending from its ends. Scattered throughout this field are approximately ten red, spherical viruses. Each virus has a distinct outer shell with small, sharp spikes protruding from it.

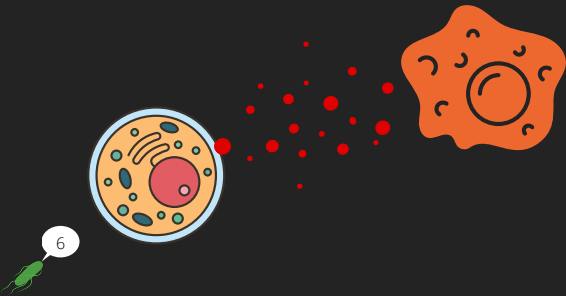
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***Well, actually there are viruses too, not just bacteria but I don't have enough space to explain about viruses in the book. In case you want to know what they look like, they are the red circle thingies.**

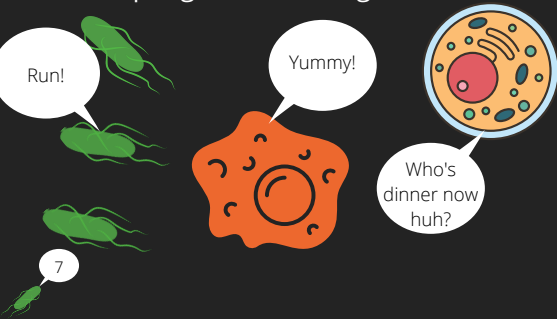
They immediately go in and start damaging cells for their resources. Cells are tiny building blocks that literally make your body.



Now, the cells release tiny yet helpful proteins called Cytokines. Meanwhile, a Macrophage cell picks them up with receptors.



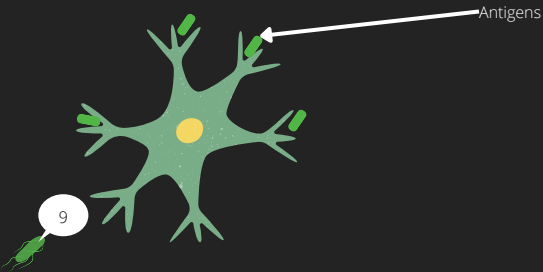
Receptors and Cytokines are like keys and locks and tell the cell what to do. The Macrophages start eating the bacteria.



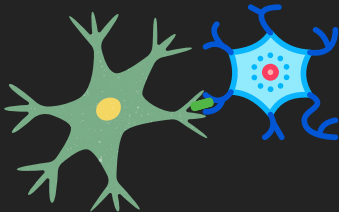
Neutrophils join in too. They ferociously spray acid at pathogens, kind of like when you shake a bottle of soda and it sprays all over your face.



In the background, Dendritic cells come. They swiftly turn bacteria into antigens, which fit perfectly into their receptors.



They then come to Lymph Nodes, which are kind of like an extra system of blood vessels for T cells and B cells*. and and start rubbing the antigens on Helper T cells.



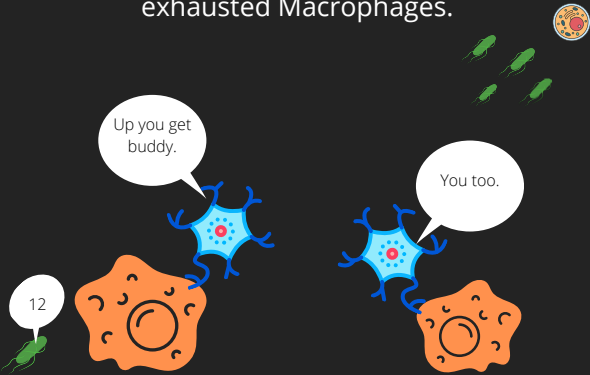
10

*If you want to know more about Lymph Nodes, Read Immune-By Philipp Dettmer!

When the Dendritic cell finds the right T cell,
the T cell multiplies.

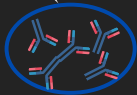


One group rushes to the battlefield to help exhausted Macrophages.

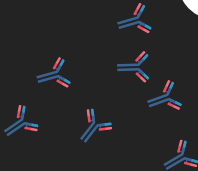


One group rushes to the battlefield to help exhausted Macrophages. The other group activates B cells that shoot out receptors (weird!)

Take that!



ARGHHH!



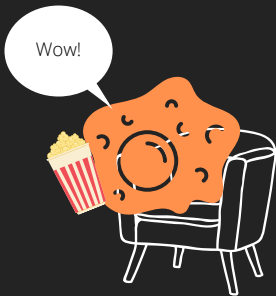
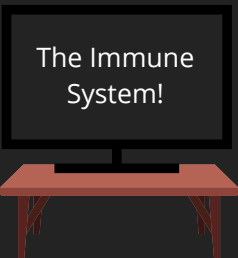
13



The receptors that they shoot out, or Antibodies, are basically calling out the bacteria's name. They stick to the bacteria and make them harmless. The battle is won!



The end!



Credits

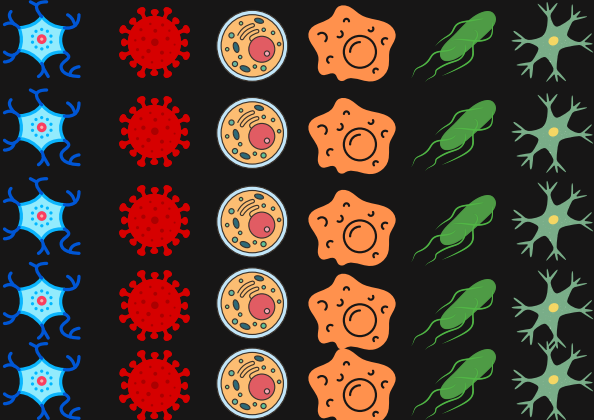
Inspiration: Kurzgesagt-In a Nutshell

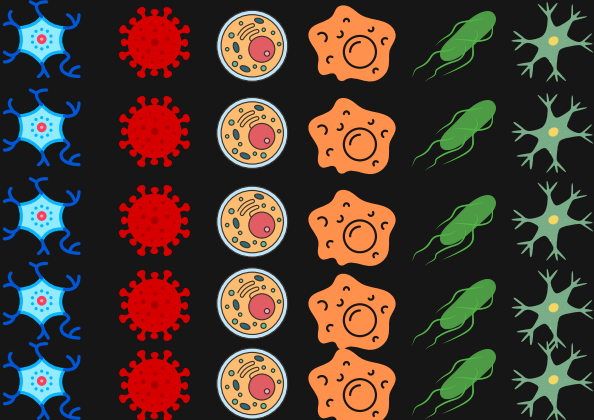
Images: Canva


Text: Christian Tan

Special thanks to Kurzgesagt-In a Nutshell (A great science channel) and the book that inspired this book- Immune-By Philipp Dettmer. If any of the Kurzgesagt team are reading this, your channel is great! If you want to know more about the Immune System, please read the book Immune!









*Take a journey into your
amazing body and meet
your Immune system that
keeps you alive every day
and protects you from
pathogens!*

*A truly amazing book
inspired by the science
channel Kurzgesagt-In a
Nutshell and the book
Immune-by Philipp Dettmer.*

