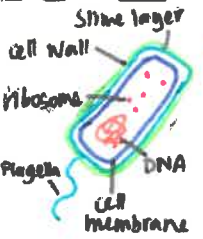


RESPONSE TO INFECTION:

↳ Communicable (infectious) diseases are caused by foreign organisms (pathogens) invading the body + multiplying.

↳ **PATHOGENS: Bacteria, Virus, Parasite + Fungi**



BACTERIA:

- Single-cell organisms
 - ↳ most non-pathogenic
- Rapid multiplication crowds + disrupts/kills cells/tissues.
- Some secrete toxins which damage/kill cells.

VIRUS:

- Contain DNA or RNA
- Induce host cell to make more viral particles:
 - enter cell or insert genetic material
 - new particles leave host + infect more.
- cause illness by killing host cell + disrupting normal cell activity.

ANTIBODIES and ANTIGENS

- ↳ specialised proteins (immunoglobulins)
- ↳ combine w antigen (one particular type only)
- ↳ 10¹⁰ possible combo of variable region
- ↳ any substance causing specific immune response.
 - ↳ E.g. whole virus, bacteria (or part of) + toxin.
- ↳ self-antigen - produced by body, don't trigger response.

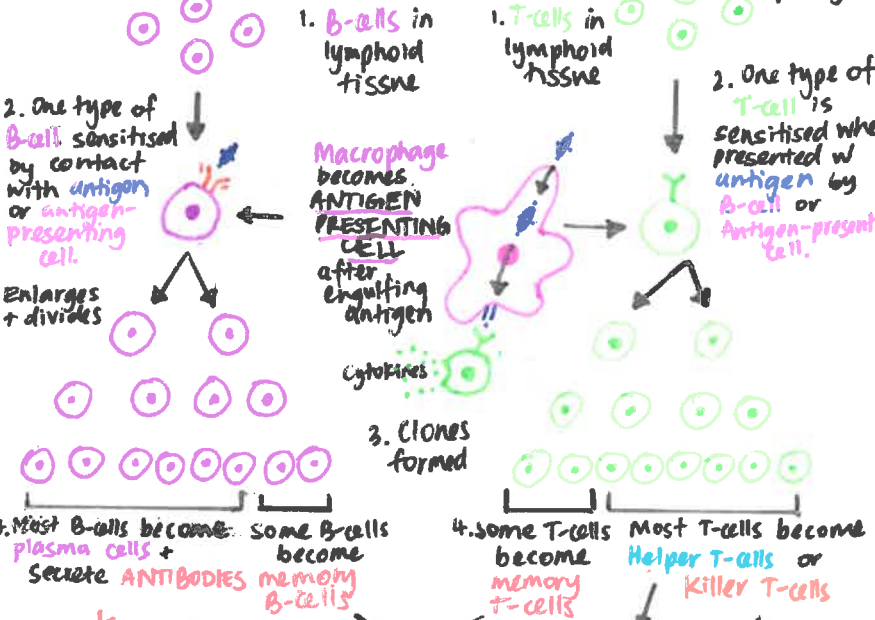


FEVER:

- ↳ body's normal 'thermostat' reset to higher temp - caused by pyrogens.
- ↳ Body feels cold
 - ↳ vasoconstriction
 - ↳ shivering.
- ↳ Fever breaks @ crisis point
 - ↳ vasodilation
 - ↳ sweat
- ↳ Inhibits pathogen growth + speeds body's chemical rx but death occurs @ ~44.5°C

ANTIBODY-MEDIATED (Humoral Response)

↳ resistance prior to antigen entering cells



CELL-MEDIATED (Cellular Response)

↳ resistance to INTRACELLULAR pathogen.



NON-SPECIFIC DEFENCES: (Innate)

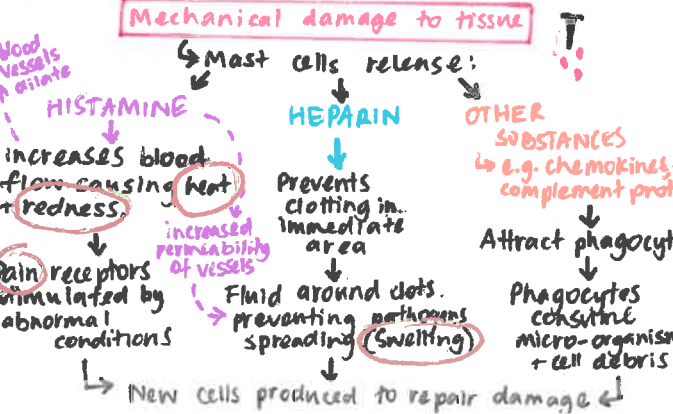
↳ Body's first line. Works against all pathogens



Protective reflexes: sneezing, coughing, vomiting, diarrhoea.

INFLAMMATION:

↳ response to any damage to tissue to reduce/prevent spread of + destroy pathogens + begin repair



ANTIBIOTICS: Treat bacterial infection.

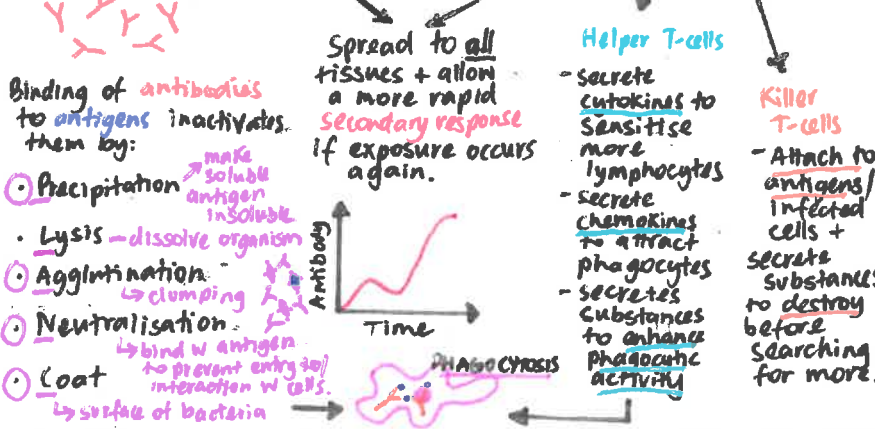
- ↳ Broad-spectrum (effective against many) or narrow-spectrum (effective against specific).
- Bactericidal: changes cell wall/membrane structure or disrupts enzymes.
- Bacteriostatic: stops reproduction by disrupting protein synthesis.

ANTIVIRALS: Treat viral infection

↳ more difficult to make due to viral DNA/RNA inducing host to replicate

VACCINE: artificial introduction of antigen to stimulate antibody production

- Live attenuated - living but weakened
- Dead micro-organism
- Toxoid - made from inactivated toxins
- Sub-unit - fragments of organisms
- ↳ Ethical considerations - animals, testing, risk.



TYPES OF IMMUNITY:

↳ Immunity (resistance to particular infection) can be acquired various ways.

	NATURAL - Normal exposure to antibody/antigen	ARTIFICIAL - Deliberately given antigen/antibody.
PASSIVE - Receives antibodies - immediate but temporary	Antibodies from placenta/breast milk	Antibodies injected into blood
ACTIVE - Antibodies produced after antigen exposure - slow but long-lasting	Natural exposure to antigen	Vaccination