

Let's get all these Immunity words straight

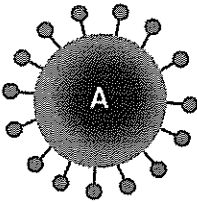

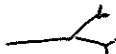
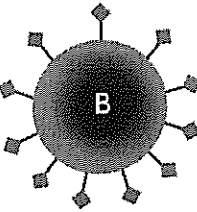

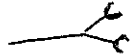
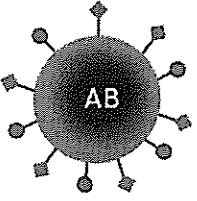


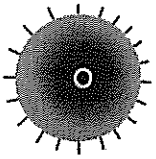


Antibody		Antigen
Y-shaped protein produced by B-cells -attaches to antigens -hinders pathogen & marks for phagocytosis		"antibody generator" non-self antigen are found on pathogen & trigger an immune response.
Name of cell	What it is	Examples
Leukocyte	- white blood cell	phagocyte < ^{neutrophil} macrophage lymphocyte < ^{T cells} B cells
Phagocyte	non-specific WBC's that engulf foreign cells/viruses	- neutrophil - macrophage - dendritic
Lymphocyte	specific to antigens -	<u>B cells</u> - produce antibodies <u>helper T cells</u> - activate B & killer T cells <u>Killer T cells</u> - release cytotoxins
"Immunity word"	Another word for it	More about it
Innate Immunity	non specific	1st & 2nd line of defense
Acquired Immunity	specific	Antibody → B cells → plasma cells → antibodies cellular → killer T cells, cytotoxic
cell-mediated immune response	cellular immunity	killer T cells destroy infected cells
Humoral immune response	antibody immunity	Body produces specific antibodies antibodies attach to antigens on pathogen
immunity		Ability to fight off a pathogen before it infects you
immunization	vaccination	dead/weaknd pathogen - used to create immunity
Active immunity	forever	make memory cells from <u>exposure</u> vaccine
Passive immunity	temporary	given antibodies & unable to make more once the antibodies are gone so is the immunity

Human Blood:

- Human blood consists of 2 main parts. The non-living liquid part is known as plasma the living part is made up of cells
- List the components of blood and describe their function.

Component	Function
Red Blood Cell	Carry O_2 & CO_2
Platelet	Used for clotting
White Blood Cells	Immune system
Plasma	Aids in transport

- Fill in the following blood type chart

Blood Type	Antigen on RBC	Antibodies in body	Blood types they can receive
	A 	Anti-B antibodies 	A & O
	B 	Anti-A antibodies 	B & O
	A & B  	none	A AB B O
	None	Anti-A antibodies Anti-B antibodies  	O

4. The "universal donor" blood type is O. Explain why:

O blood has no antigens on it, this means all blood types will accept it.

5. The "universal recipient" blood type is AB. Explain why:

AB blood has no antibodies, this means it will not react when other blood types are added

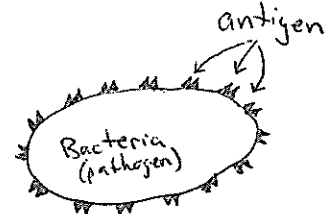
Immunity:

1. Define pathogen:

A disease causing agent.

2. What are the 4 types of Pathogens?

1. Virus
2. Bacteria
3. Fungi
4. Protozoa



3. How does the body recognize a pathogen?

Phagocytes recognize the antigens as foreign. They then engulf the pathogen and present the antigens to other cells of the immune system for further action.

4. Describe the role of phagocytes in the immune response.

Phagocytes are non-specific, they engulf anything they recognize as foreign.

5. List some innate barriers in the first line of defense:

a. Mechanical

1. Skin
2. Mucus membranes

b. Chemical

1. Tears
2. Sweat
3. Saliva
4. Stomach pH

c. Biological

1. "good bacteria" prevent successful growth of "Bad bacteria"
competition

6. Define Inflammation

Redness, heat, pain, swelling
non-specific response. Brings phagocytes to site
of infection / damage

7. In the inflammation response histamine is released by mast cells and damaged body cells. This signals WBC's like Macrophages to help "clean-up" damaged cells.

8. How are blood vessels affected by histamine?

histamine causes the capillaries to open &
release plasma, platelets & Macrophages

9. How is acquired immunity different from innate immunity?

Acquired → specific
Innate → non specific

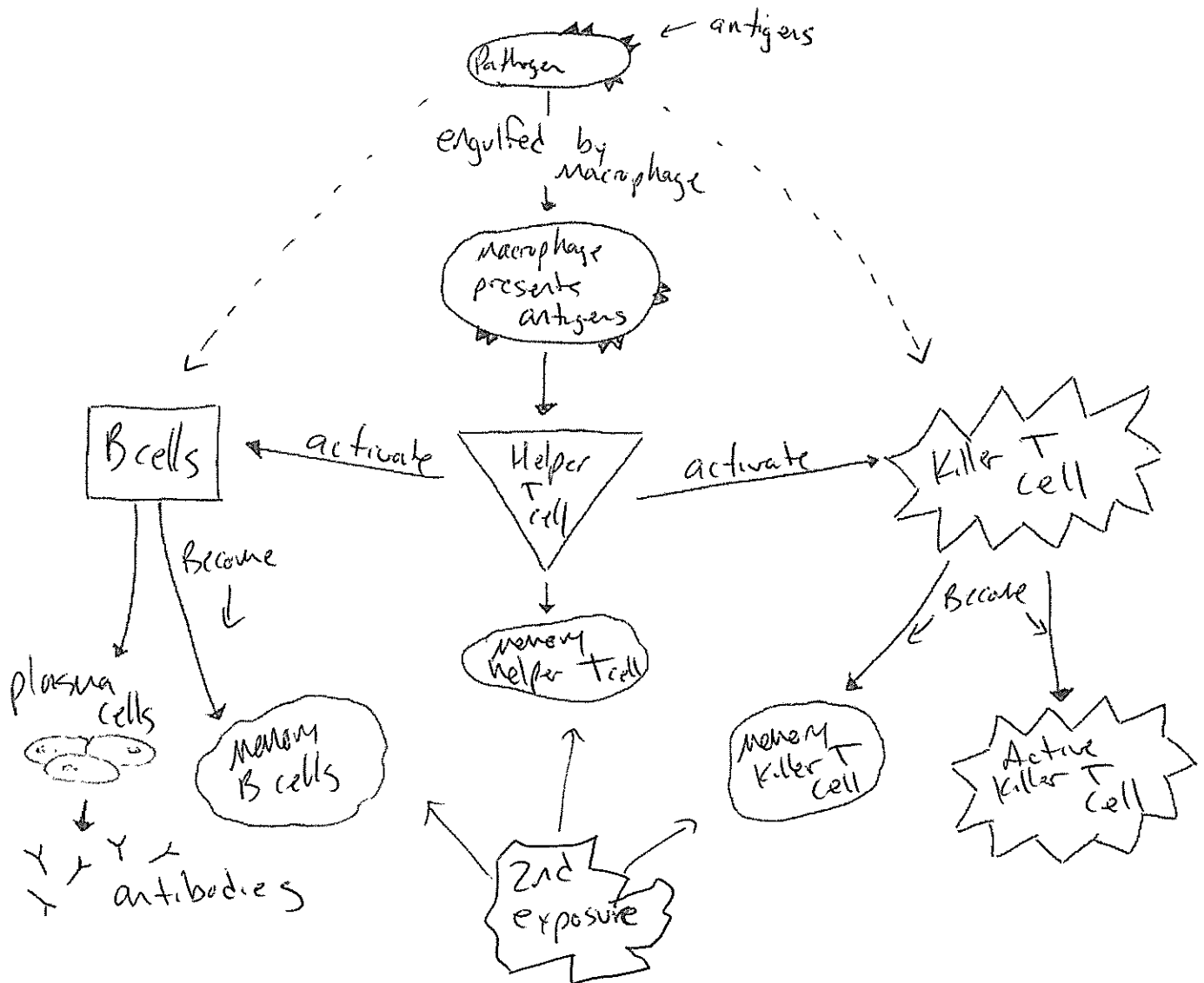
10. Describe the antibody response: (humoral)

Macrophage engulfs pathogen & presents the antigens to a helper T cell - The helper T cells relay the information to B cells. B cells produce plasma cells and memory cells. Plasma cells create antibodies

11. Describe the acquired cellular response: (Cell mediated)

Same as above but the helper T cell activates killer T cells which destroy infected body cells & pathogens

12. Fill in the following Diagram comparing the 2 types of acquired Immunity:



13. Explain why a person is not likely to get the same disease twice.

Memory cells

14. Explain the difference between active and passive immunity.

Active - permanent
passive - temporary

15. What is a vaccination? How does it stimulate active immunity?

Weakened pathogen used to create an immune response + create memory cells

16. Provide two examples of passive immunity.

- Antibodies in breast milk
- antibiotics

Allergies and organ transplants:

17. Define allergy:

Unnecessary reaction to a harmless foreign antigen
Inflammation (uncontrolled)

18. The immune system responds to allergens by releasing histamine
medicines that contain antihistamines relieve these symptoms.

19. A person's immune system may attack a transplanted organ because it contains foreign antigens. This is called organ rejection. Patients are placed on immunosuppressants medication to prevent this.

20. Why might a doctor use your own skin/bone etc. for a graft instead of a donor's?

Same "self" antigens - little risk of rejection

Lymphatic system

21. Follow the fluid:

In the blood it is called: plasma

In-between cells it is called: intercellular fluid (ICF)

within the lymphatic system: lymph

22. Cells are bathed in fluid, also known as intercellular fluid

23. This fluid is drained into special vessels called lymph vessels

24. Once inside these vessels the fluid is called lymph

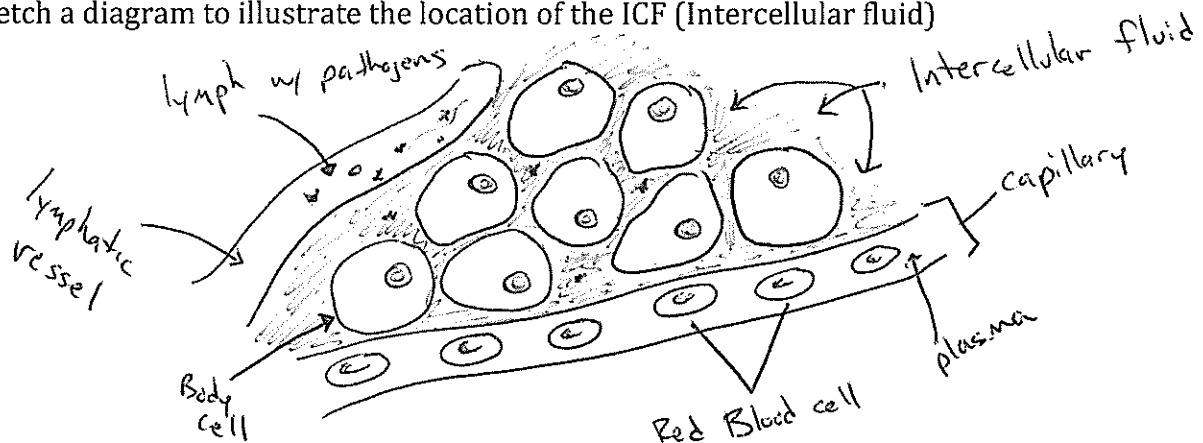
25. What is the function of the lymph?

Allows for diffusion of materials into/out of cells
"cleans" up around cells - carries proteins &
pathogens too big to re-enter capillaries

26. Why is lymph also called intercellular fluid?

Just a different name in different place

27. Sketch a diagram to illustrate the location of the ICF (Intercellular fluid)



28. What is the role of the lymph nodes in the immune system?

Clean out/filter the lymph

Diseases of the immune system:

29. What is an autoimmune disease?

When the immune system attacks your own body

30. What is immunodeficiency?

Weakened immune system

31. Describe H.I.V. and its effect on the body.

HIV attacks T cells & disables the immune system.

32. How is H.I.V prevented? Treated?

Safe sex - Many medications to reduce the virus replication

33. What is leukemia?

Cancer of the bone marrow, Many malfunctioning WBC's

34. How is leukemia treated?

chemotherapy / radiation / Bone marrow transplant

35. It is often said "people do not die from AIDS". Explain why AIDS is considered a lethal disease.

AIDS weakens your immune system but will not kill you. An "opportunistic" disease will kill you b/c you can not fight it.