

Chapter 14 Nonspecific Host Defenses

Building Your Knowledge

1) List the three “lines of defense” a host organism uses to prevent invasion by pathogens.

- a. _____
- b. _____
- c. _____

Which of these defense mechanisms are innate defenses?

Which of these are acquired through exposure to a pathogen or vaccine?

2) List the physical barriers to infection in a mammalian body.

3) How does an intact skin prevent infection?

4) Chemical defenses are chemicals produced by the body to impede the growth of microbes. List three of these defenses, how they impede the growth of microbes, and where they are produced.

Chemical Defense	Anti-microbial Action	Location Produced

5) Genetic defenses may exist between different species (interspecific) or within a single species (intraspecific). Give an example of each.

- a. Interspecific genetic defense -
- b. Intraspecific genetic defense -

6) What are the 3 major tasks the immune system accomplishes for a healthy body?

- a. _____
- b. _____
- c. _____

- 7) How does the immune system distinguish between self and non-self?
- 8) Describe the structure and function of the reticuloendothelial system. Where is the RES in a human body?

How is the RES connected to the blood system, extracellular fluid, and lymphatic systems?

- 9) How does whole blood differ from plasma and serum?
- 10) What is hemopoiesis?

- 11) Where does hemopoiesis take place in infants?

Where does it take place in adults?

What are stem cells?

- 12) List the three types of granulocytes and the two types of agranulocytes and the function of each cell type?

Cell	Granulocyte/Agranulocyte?	Function

Which are the most numerous?

- 13) How are monocytes and macrophages related?

14) What is the structure and function of dendritic cells?

15) How are mast cells and basophils related?

16) How are platelets produced and what is their function in the body?

17) Chemotaxis and diapedesis are related processes. How are they similar? How are they different?
How are they related?

18) What is the lymphatic system, where is it found and what purpose does it serve? List and describe the lymphoid tissues.

Lymphoid Organ	Location	Function
Vessels		
GALT		
Lymph Nodes		
Spleen		
Thymus		
Tonsils		

19) What are the 3 basic functions of an inflammatory response?

- a. _____
- b. _____
- c. _____

20) What are the four cardinal (classic) signs of inflammation, what are the Latin terms for these signs and what causes these symptoms?

Cardinal Sign	Latin Term	Cause of the Symptom

21) What cells are generally the first to reach the site of inflammation?

How do they get there?

Are these cells part of the specific or nonspecific response to invasion?

22) What are the next cell types into an area of inflammation?

Are they specific or nonspecific?

What is their function?

23) What is pus and what do we call bacteria that cause pus to form?

24) What are the possible causes of a fever?

How does a fever help fight an infection?

25) Which white blood cells (leukocytes) are phagocytes?

Which are not?

How do phagocytes kill bacteria?

26) What is interferon and how does it limit the spread of viruses?

What other things do interferons contribute to the immune response?

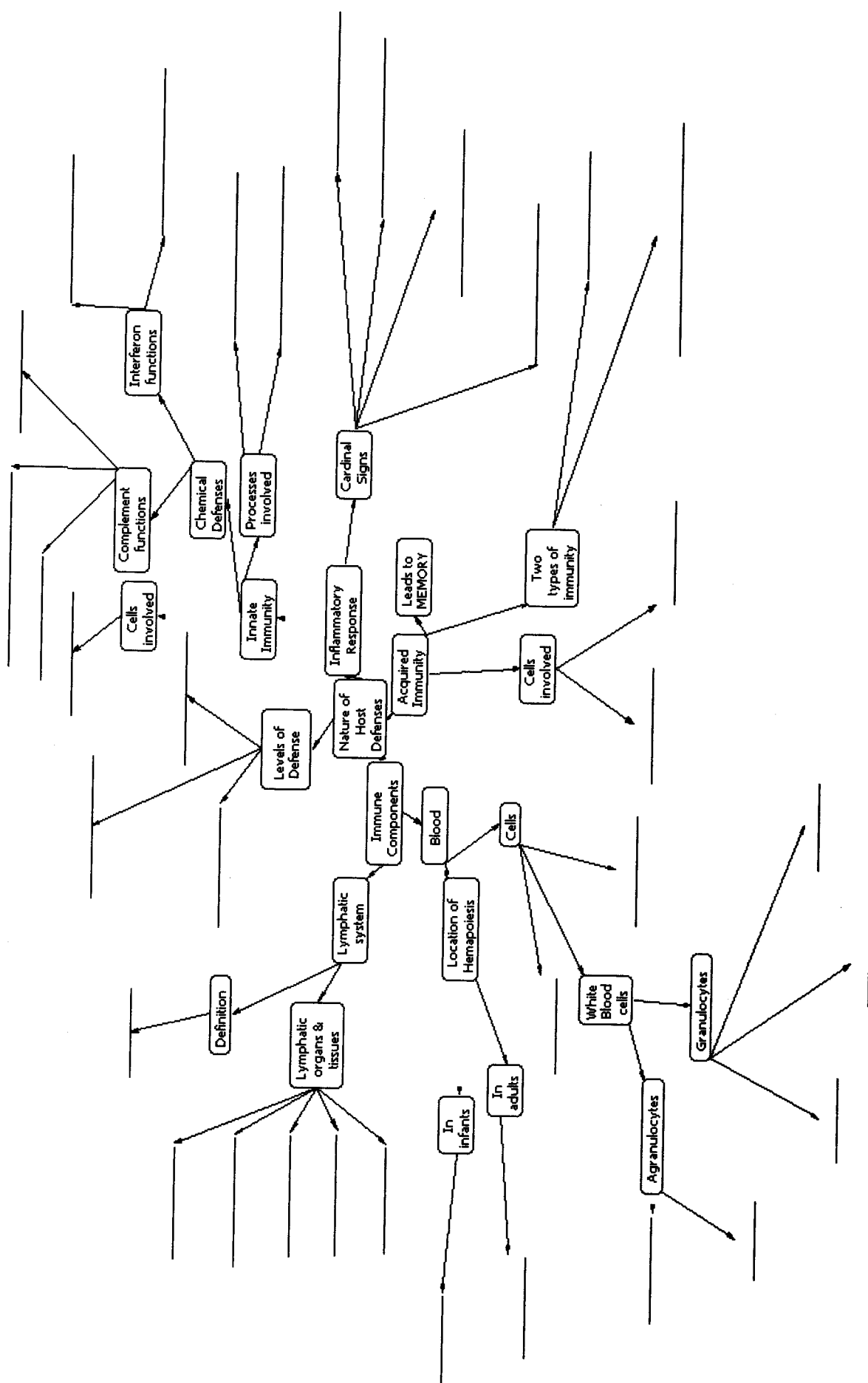
27) What is the complement cascade?

Describe the major steps to the cascade.

Organizing Your Knowledge

Immune Cell	Function	Phagocyte?	Granulocyte?
Neutrophils			
B cells			
Monocytes			
Eosinophils			
Mast cells			
Macrophages			
T cells			
Dendritic Cells			

Inflammation Event	Description	Cause of Event
Rubor		
Tumor		
Dolor		
Calor		



Practicing Your Knowledge

1. Granulocytes include ____.

- a. macrophages and neutrophils
- b. monocytes and eosinophils
- c. basophils and lymphocytes
- d. neutrophils and basophils

2. B cells and T cells are ____.

- a. both lymphocytes
- b. both part of cell-mediated immunity
- c. both capable of producing antibodies
- d. both granulocytes

3. The nonspecific defenses, such as phagocytes, are part of a body's ____ line of defense against infection

- a. first
- b. second
- c. third
- d. fourth

4. Cytokines aid in an immune response by ____.

- a. directly killing viruses
- b. activating leukocytes
- c. activating erythrocytes
- d. activating the complement cascade

5. Which of the body's fluid-filled spaces does NOT participate heavily in an immune response?

- a. bloodstream
- b. reticuloendothelial system
- c. lymphatic system
- d. cerebrospinal fluid

6. The lymphatic system includes all of the following EXCEPT ____.

- a. the spleen
- b. lymph nodes
- c. the heart
- d. the thymus

7. Any substance that causes fevers to develop is called a ____.

- a. cytokine
- b. pyogen
- c. pyrogen
- d. interferon

8. Which of the following cells is NOT part of the monocyte line of differentiation?

- a. monocytes
- b. macrophages
- c. platelets
- d. dendritic cells

9. Which of the following is an example of a chemical barrier to infection?

- a. blinking and lacrimation
- b. lysozyme
- c. lack of receptors on humans for distemper
- d. desquamation

10. Leukocytes that are phagocytic are ____.

- a. B cells and neutrophils
- b. platelets and B cells
- c. neutrophils and macrophages
- d. dendritic cells and B cells

11. Which of the following is mismatched?

- a. rubor - redness
- b. tumor - swelling
- c. calor - heat
- d. dolor - pus formation

12. Which of the following is mismatched?

- a. basophils - histamine
- b. neutrophils - specific immunity
- c. macrophages - phagocytes
- d. B cells - humoral immunity

13. A person with a high eosinophil count will likely ____.

- a. have an active helminth infection
- b. have an active histamine response
- c. have an active bacterial infection
- d. develop a pus-filled abscess

15. Immune cells cross blood vessels to enter tissue spaces by ____.

- a. differentiation
- b. phototaxis
- c. complement
- d. diapedesis

14. Human blood consists of ____.

- a. plasma, white blood cells, blue blood cells
- b. fibrin, plasma, white blood cells
- c. white blood cells, red blood cells, plasma
- d. plasma, lysozyme, hematin