

**Microbiology 2730
Study Guide #15
Winter Semester 2008
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LECTURE SECTION

Chapter 17

1. Some time was spent discussing active and passive immunity. What is the major difference between these two types of immunity?
2. The world of active immunity comes in two different types, that known as natural and that known as artificial. In the context of immunity to chicken pox, what is the difference?
3. the world of passive immunity also comes in the form known as natural and that known as artificial. Cite an example of each type of passive immunity.
4. The antibodies in mother's milk and what are known as maternal antibodies illustrate which kind of passive immunity? How does the infant acquire maternal antibodies?
5. A gamma globulin shot provides the recipient with what type of passive immunity?
6. Vaccines can be subdivided into 2 major types. What are they?
7. The modern history of attenuated vaccines starts with the work of Pasteur (and his associates) on a disease known as _____. What is the finding or observation that led to the discovery of attenuated vaccines?
8. To illustrate both types of vaccines, you were introduced to the Salk and Sabin polio vaccines. Which is inactivated and which is attenuated?
9. Briefly describe the following types of vaccines;
 - a. Whole agent
 - b. Toxoid
 - c. Protein subunit
 - d. Polysaccharide

10. When discussing vaccines, the term adjuvant is commonly encountered. What is an adjuvant in this context?

Chapter 19

1. You were introduced to two cellular organelles that are found in some bacteria and place a role in allowing these organisms to adhere to surfaces of human cells. What were these organelles?

2. In the case of *Streptococcus mutans*, it is the ___ of this bacterial species that allows it to cling to the surface of teeth.

3. Large, diverse communities of bacteria that are covered in a slimy like material constitute what are called ____. These communities are of considerable medical importance given the protection that the microbes get as a result of living in such communities while in the body.

4. You should be able to briefly describe the type of aid that derives from the following:

- Pili turnover
- IgA protease
- Siderophores

5. Wounds play a significant role in allowing microbes to breach anatomical barriers such as skin. I classed wounds as being of one of two types. What were these types?

6. A few comments were made concerning the so-called Type III Secretory Systems show by some Gram Negative bacteria. This system allows bacteria to essentially ___ chemical messages into target cells. These messages then induce the cell to ___ the bacterium.

7. Another way that microbes can gain access to the interior of a cell is to come into the cell during the normal course of the cell's antigen sampling of its ___.

8. Several ways to avoid host defenses were noted in class. One method involves the microbe actually living host ___ (hint, think *Chlamydia*)

9. The avoidance of phagocytic destruction is major means by which microbes can maintain themselves in the human body. You were introduced to 4 different means by which this can happen. *Yersinia pestis*, the causative agent of bubonic plague can kill cells by triggering the process of ___ of the phagocytes which have taken it up. *Streptococcus pyrogenes* produces a capsule consisting of ___ which allows it to escape ___ detection because this material is a natural constituent of the human body.

10. *Mycobacterium tuberculosis* has the ability to survive in the environment of the ___ where many other bacteria would be destroyed.

11. Members of the genus, Chlamydia actually cause interfere with the fusion of the ___ with phagosomes, thus protecting themselves from digestion.
12. You were introduced to 5 major ways that invading microbes can cause harm to the body. What were these methods?
13. The world of toxins comes in 2 general forms. What are they? Which class is the most potent? Gram negatives produce what class(es)? Gram positive bacteria produce what class (es)?

Chapter 20.

1. In the context of a microbiology course what is meant by the term, reservoir of infection? Man can serve this role quite well. What are 3 other major reservoirs of infection for man?
2. You were introduced to 4 major means by which a microbe can move from its reservoir to a susceptible host. What were they? What are fomites in the context of this discussion?

Disease prevention

1. In the discussion of disease prevention, you were introduced to two forms of hygiene. What were these forms?
2. You were introduced to 4 forms of community hygiene. What were these? A man by the name Snow was connected to which of these forms?
3. If we look at water treatment in the City of Detroit, two different chemical agents are used to destroy harmful microbes in the water supply. What are they? What is the role of Alum in water treatment?
4. Both active and passive immunity can be utilized to prevent disease. Briefly describe each. Which form is the preferred form of immunity by the medical profession?
5. Another way to prevent disease is the prophylactic use of antibiotics. What is meant by this approach?
6. You were introduced to 4 general means to deal with an ongoing infection. What were they?
7. In the discussion of disease treatment you were introduced to the following individuals. What did each of these people do?
 - a. Paul Ehrlich
 - b. Gerhard Domagk

- c. Alexander Fleming
8. Probiotics refers to what concept?
 9. You were introduced to 4 characteristics of the ideal antibiotic. What were they?

The following questions have their answers in your textbook

1. Consult your textbook (chapter 14) for the definitions to the following terms:
 - a. Nosocomial infection
 - b. A carrier
 - c. A communicable disease
 - d. A contagious disease
 - e. A notifiable disease.