

**Microbiology 2730
Study Guide #14
Winter Semester 2008
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LABORATORY SECTION

ELISA

Information concerning this procedure can be found in chapter 18, pages 543 –546 of your textbook

1. What does the acronym ELISA stand for?
2. ELISA tests come in two different forms, the direct and indirect form. What is the difference?
3. Which of the above mentioned forms did you make use of during the procedure employed in the laboratory?
4. The procedure conducted in the laboratory made use of ____ (a number) different antibodies. Describe them in terms of their function in this test procedure. Which of the antibodies had an enzyme attached to it?
5. In the ELISA procedures, a positive result is indicated by the development of some type of ____ in the test well. What is the origin of this positive indicator?
6. In conducting immunological test procedures, it is possible to get both false negatives and positives. You should be able to define each of these conditions.

STARCH HYDROLYSIS

See information provided in introductory material in laboratory manual

1. What is the reagent used to determine if starch hydrolysis has occurred?
2. What does a positive and negative test for starch hydrolysis look like?
3. You should be able to describe the origin of the above-mentioned colors
4. What happens to starch when it is hydrolyzed?

CATALASE TEST

See information provided in introductory material in laboratory manual

1. What does a positive and negative Catalase test look like?
2. What chemical reaction is controlled by the enzyme Catalase?
3. The bubbles that are seen in a positive test are really bubbles of ____.
4. The ability to produce the enzyme Catalase is really quite widespread among bacteria. You were introduced to two genera which are noted for their inability to produce this enzyme. What were they?

UREASE TEST

See information provided in introductory material in laboratory manual

1. What does a positive and negative Urease test look like on the medium that you used in the laboratory?
2. The color changes seen in this medium are the result of changes in the ____ of the medium.
3. What is the chemical reaction controlled by the enzyme Urease?

LECTURE SECTION

1. At the current time, there are ____ classes of antibodies that are currently recognized. What are their names? Which of these classes is normally found in greatest abundance in the circulating blood? Which of the classes is normally produced first after the immune system encounters an antigen? Which of the classes is normally associated with body secretions such as saliva or mucus?
2. You were introduced to some six different actions that antibody molecules can be associated with as they attempt to do their job of controlling nonself objects. What were those actions? Briefly describe each.
3. You should be able to sketch a typical IgG antibody molecule indicating its light and heavy chains as well as the areas of the molecule which serve as binding sites (Note a simple “Y like” sketch will be sufficient).

4. Small molecules such as the penicillins which can cause adverse reactions on the part of our immune system are spoken of as being ____.
5. The above-mentioned molecules usually cause “problems” because of the fact that they bind to large molecules which are normally found in the body. The “combination” molecule thus created can then serve to trigger off an unwanted response by our ____ system.
6. You were introduced to the “mother of vaccination”. Who was this individual? When did these events take place? What city did the above-mentioned woman “pick up” the idea that to day we call vaccination? What disease was involved?
7. You were also introduced to the work of Edward Jenner. What disease was Dr. Jenner interested in? In what country were his observations made? The core of his observations involved noting that if an individual contracted ____ and subsequently recovered he or she would also be protected against what illness?
8. Some time was spent discussing the so-called anamnestic response. This phenomenon results in the ____ exposure to an antigen eliciting a response which is both ____ and ____ than that produced by the first exposure.
9. It is the Anamnestic response that makes the common medical practice known as ____ a useful technique to employ to prevent illness.
10. In the discussion of antibody production, you were introduced to what are known as T and B cells. Both of these cell types are really different kinds of ____ a type of white blood cell or leukocyte. The term T cell results from their association with the ____ gland while the term, B cell derives from their association with an lymphoid structure known as the ____ which is found in birds and while not actually present in man has analogous components in man.

Chapter 16

1. In discussing the production of antibody molecules, it was noted, that the process comes in two distinct forms, that which is known as ____ dependent antibody production and that which is known as ____ independent antibody production. Which of the processes is the most common form of antibody production?
2. In what is known as T independent production, antigen is taken up and processed by ____ lymphocytes which are designed to handle that antigen. Once this has happened, the ____ cells are then activated which results in their undergoing ____ which is eventually followed by many of them undergoing specialization which leads to their assuming the form known as the ____ cell. These cells are actually the cells that produced the needed ____ molecule.

3. In the case of T dependent antibody production, you were introduced to 3 different cells which are involved in the process of producing the required antibody. What were those cells?
4. In the T dependent scheme, B lymphocytes are “activated” by the presence of antigen but actually will not begin to produce the needed antibody until “told” to do so by activated ____ . In order for these cells to become activated, they must be “presented” antigen by a group of cells known as ____ cells.
5. In the T dependent scheme, what then happens to the activated B cells when they interact with activated T cells?
6. In the discussion of T dependent antibody production, you were introduced to several kinds of memory cells. What were their names? What is the overall function of these “memory cells”? You were also introduced to suppressor cells. These are a type of ____ cell. What is their overall function in antibody production?
7. Some time was spent discussing cell mediated immunity. During this discussion, you were introduced to 2 specific cell types. What were their names?
8. Which type of cell (see #7) seems to specialize in killing cells that have been marked with antibody?
9. Which class of cells mentioned in question #7 seems to be involved in killing cells which have odd or unusual antigens displayed on their surfaces?
10. Cells which kill other human cells that have problems seem to do so using two approaches. What are those approaches?