

**Microbiology 2730
Study Guide #13
Winter Semester 2008
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LABORATORY SECTION

METABOLIC TESTS—GENERAL INFORMATION

1. Your laboratory manual and lecture introduced you to 3 additional methods that can be employed in addition to metabolic tests to aid in the identification of microorganisms. What were those methods?
2. You should be able to generally describe how “phages” can be employed to identify bacterial organisms.
3. In the general discussion of the bacterial identification approaches, the terms genomics and proteomics were mentioned. These two terms refer to the use of ___ or ___ in the study of some aspect of living organisms.

INDOLE TEST

See information provided in introductory material in laboratory manual

1. What medium was used to run the indole test?
2. What does a positive and negative indole test look like?
3. The indole test is based on the ability to some bacterial organisms to attack the amino acid ___ and convert it into indole.

THE HYDROGEN SULFIDE TEST

See information provided in introductory material in laboratory manual

1. What medium did you utilize when conducting the hydrogen sulfide test?
2. What does a positive and negative hydrogen sulfide test look like?

SUGAR FERMENTATIONS

See information provided in introductory material in laboratory manual

1. You should be able to describe the following results when sugar broths are inoculated with bacterial organisms:
 - a. A no change reaction
 - b. An acid reaction
 - c. An acid and gas reaction
2. The principle “gas” that is formed by carbohydrate fermenting bacteria is ____.
3. What is a Durham tube? What is its function in the sugar broths?

CITRATE TEST

See information provided in introductory material in laboratory manual

1. A “citrate positive organism” means that it has the ability to grow, using only ____ as its source of carbon atoms.
2. What does a positive citrate test look like? A negative citrate test?
3. Simmon’s Citrate Agar is the only example that you will use this semester of a defined medium. What is meant by this term?

Mannitol Salt Agar

Note: there is no information in your laboratory manual concerning this medium. You will need to rely on your class notes, textbook, and the handout dealing with media to locate answers to the questions which follow.

1. This particular medium is used in many medical situations to select out bacteria belonging to what important genus?
2. What is the selecting agent in the medium?
3. This medium is quite a hypertonic medium for many bacteria. What allows bacteria belonging to above-mentioned genus to grow on the medium?
4. The ability to ferment Mannitol is indicated by the development of a ____ color in the medium.
5. Briefly explain the origin of this color.

6. What bacterial characteristic is usually associated with the ability to ferment Mannitol?

LECTURE SECTION

Chapter 16

1. Antigens can be described as being chemicals which can trigger the production of ___ on the part of our immune system.
2. Usually antigens are modestly large molecules which a molecular weight of at least ___ molecular weight units (Daltons)
3. Sometimes relatively small molecules such as penicillin can provoke the immune system. When this happens, these molecules are functioning as ___. Usually what is going on is the small molecules are ___ to larger molecules and it is really the entire complex which is triggering the immune response.
4. Antibodies are really quite large ___ (lipid, protein, carbohydrate, etc) molecules. These molecules are quite large in ___ and are really quite ___ in the antigens that they will interact with.
5. It is currently thought that antibodies identify their target (antigen) on the basis of how they ___ together with the antigen molecule.
6. There are currently recognized ___ different classes of antibody molecules. What are their names? Which class is usually produced first? Which class is usually the most commonly found in the circulating blood? Which class has by far, the largest molecules?
7. Antibody molecules belong to a group of blood proteins known as the ___ ?