

## **Lab Topics for Review:**

### **Topics for Review: Anaerobic Cultures**

1. Describe the oxygen requirements for the following types of bacteria and describe where you would expect to find them growing in a tube of nutrient broth (assume air is at top of tube) obligate aerobes, obligate anaerobes, facultative anaerobes, aerotolerant anaerobes, microaerophiles.
2. What's a capnophile? Where might a capnophile be found? What would we use to grow a capnophile in the lab?
3. Why are there obligate anaerobes? (I.e. why are some bacteria killed by oxygen?) Be specific. Where would we incubate a petri plate which had been inoculated with an obligate anaerobe?
4. What type of liquid media would we use to grow an obligate anaerobe? Is a candle jar anaerobic? Explain. Be able to ID an organisms oxygen requirements based on where it grows in thioglycollate media.
5. What's the difference between an obligate anaerobe and an aerotolerant (anaerobe)?

### **Immunology: Innate Immunity**

1. Familiarize yourself with the basic anatomy of the eye covered in lab. What enzyme is found in tears (and other body secretions) that has anti-bacterial properties?
2. What types of infections generally enter through the eyes? Are these susceptible to antibiotic enzymes?
3. What are some infections of the eye that can take hold despite the antibacterial properties of tears? What is ophthalmia neonatorum?

### **ELISA**

1. Make sure you can identify antigens and antibodies (primary & secondary) given diagrams of ELISA assays or in vivo. Review the basic concepts of immunoassays such as ELISA and western blot.
2. Be able to identify positive and negative results, both in photo and in diagram form.

**THIS IS THE END OF STUDY GUIDE #3**

**The following is the first part of lab exam 4 study guide...ENJOY!**

### **Counting Microbes Lab**

1. Why would we care about counting microbes? Explain why we did experiment 6-1 twice (once at beginning of lab and once at end)
2. Why is the method we used called the "viable plate count method" (i.e. what's the significance of the word "viable " here'?) How many colonies must be on the plate for us to worry about counting them? What do we record if the number of colonies is outside this range?
3. Be able to calculate dilution factors: If given a final (total) dilution factor goal, be able to design a series of dilution factors to meet that goal; For example, if you needed to end up with a total dilution factor of  $10^7$ , give me a series of dilution factors that would get you there. **INCLUDE VOLUMES**. Be able to determine how many cells per ml (density) in original culture (please memorize "formula")
4. Why do we need to make dilutions in the first place?

### **Bacteria of the Mouth Lab**

1. List three surfaces in the mouth to which bacteria like to adhere.
2. Explain how a high sucrose diet increases one's risk of caries. You should mention the specific role of *Streptococcus mutans*.
3. What are the two most important "natural defenses" against bacteria in our mouths? How do bacteria combat these defenses?
4. Explain the Snyder test that we did in lab. What indicates a positive result versus a negative result? What does a positive result for the Snyder test tell us?