

Lab Exam 2- Topics for Review:

Pathogenic Cocci

1. What are the three genera of pathogenic cocci that we talked about? Why are they significant, in general?
2. What's the difference between *Staphylococcus* and staphylococcus? Is *Staphylococcus* Gram positive or Gram negative? What are the species of staphylococci that we talked about in lab? What kinds of infections do they cause? Are they ALWAYS pathogenic?
3. Are streptococci gram positive or gram negative? What are the three species of Strep that we discussed in class? What kinds of infections do they cause?
4. What's the idea behind the Lancefield system of classification? What is the basis of this classification?
5. What are the two major infections caused by *Neisseria*? Are *Neisseria spp.* Gram positive or negative?
6. What would we use PEA agar for? What kind of media is mannitol salt agar (i.e. is it selective, differential, or both?) Explain.
8. What's the oxidase test? Which genus of pathogenic cocci is oxidase positive?
9. What's catalase? Why would an organism want it?
11. Is blood agar selective or differential? Explain. What are "hemolysins"? Do all bacteria make them? How could they aid the bacteria? (Note: In texts, you will occasionally find this spelled "haemolysin"? Differentiate between beta, alpha, gamma hemolysis.

Enteric Bacteria

1. What is an enteric? (Please include the family name and their 3 defining characteristics in your answer) Enterics represent about how much of the normal intestinal floral population? Why do we care about the enterics?
2. What's a "coliform"? What's the prototypical coliform? Who are the prototypical pathogens?
3. What's *E.coli* O157:H7? Why is this bacterium important/of concern?

4. What kind of infection is caused by *Shigella dysenteriae*? What kind of infection is caused by *Salmonella typhimurium*?
5. Worldwide, how severe of a problem are diarrheal diseases? Which populations are most likely to suffer mortality from diarrheal diseases?
6. What are the primary differences between normal flora enterics & pathogenic enterics?
7. What do we use an EMB plate for? How do we interpret the results?
9. Describe each of the following tests discussed in lab used for identifying organisms: You should know what positive & results look like for
- OF Glucose (motility)
 - Starch
 - Simmons Citrate utilization
 - Motility
 - Tryptophan-indole reaction
 - Durham tubes
 - MR-VP
 - Sulfur reduction (cysteine decarboxylation) peptone iron deep
 - Urease
 - MIO (motility, indole, ornithine)
 - Phenylalanine
11. What result is considered "positive" for the Simmons Citrate test? What does this mean?
12. What result is considered positive for the Nitrogen-fixation/urease test? What does this mean? Why is this important ecologically?
13. Which test is used to ID bacteria capable of producing indole? Briefly explain the test. What are you looking for as an indicator of a positive result?
14. Which type of media did we use to check for motility?

Physical Control of Microbial Growth

1. Organisms can be classified into one of three groups depending upon their temperature requirements for growth. What are the three groups? What kind of temperatures does each prefer?
2. What is a "cardinal temperature's? What's the thermal death point? How is it

determined? Why do we care?

3. What's the thermal death time? How is it determined? Why do we care?
4. Compare and contrast dry heat and moist heat in terms of mechanism of killing (e.g. denaturing proteins or disrupting membranes), and efficiency. Why would one be chosen over the other?
5. Is boiling a method of sterilization?
6. What's the point of using an autoclave?
7. What's heat pasteurization? Does it sterilize? If not, what's the point of using it? What kinds of products are pasteurized? Describe the different kinds of pasteurization.
8. Why do we put food and beverages in the refrigerator? Describe what happens to microbes when you put them in the fridge.
9. Why do we put food/beverages in the freezer? What happens to microbes when they wind up in the freezer?
10. What's the point of dissipating (drying) food items? What's lyophilization? Why is it useful?
11. What are two forms of radiation used to control microbial growth? Which group do gamma rays fall into? How does each kill? Any particular advantages or disadvantages associated?
12. What would a membrane filter be used for? Why would you choose this method over another?
13. What's the point of the Kirby-Bauer Drug Sensitivity test? Describe how the test is performed and interpreted. What's the point of the MIC (minimum inhibitory concentration) test? Briefly describe how it works.