K. Sorensen Biol. 1110

Study Guide for Unit 4

1. Define chemotherapy, antimicrobial agent, antibiotic, synthetic drug, semisynthetic drug, selective toxicity, toxic dosage, therapeutic dosage, therapeutic index, broad spectrum, and narrow spectrum.
2. Be able to determine the safest drug based upon the therapeutic index.
3. Be familiar with the history of chemotherapy.
4. Know the characteristic of a broad spectrum verses a narrow spectrum antibiotic. Know which category the following antibiotics fall into: Penicillin, ampicillin, erythromycin, tetracyclines, and streptomycin.
5. Know the 5 modes of action of antimicrobial agents and the **examples** of each we discussed in the notes.
6. Understand the side effects of antimicrobial agents. Why are there many drugs for topical use only?
7. How do microbes become resistant to antimicrobial agents? Including mechanisms of resistance (include efflux pumps). Know the penicillin example.
8. How do we prevent resistance from developing?
9. Most antibiotics are produced by what organisms? Where are most of these found?
10. Know the 6 families of antibiotics and examples of each. (Note correction: carbapenems should be under the ß-lactam antibiotics).
11. Know the 5 antifungal drug mechanisms of action.
12. Know the 6 nonspecific host defenses and characteristics of each.
13. Understand that other factors contribute to susceptibility to infectious diseases and be able to identify some of them.
14. know the physical barriers in place and how they work.
15. How does normal flora protect us? How can it cause disease?
16. What are some chemical barriers and how do they work?
17. Know the granulocytes and agranulocytes and their function.
18. Know what a pluripotent stem cell is.
19. Be able to recognize a fixed macrophage and the resident tissue
20. Know the process of phagocytosis and some of the chemicals found in phagolysosomes.
21. Know what a NK cell is and how it kills.
22. Know the purpose of the lymphatic system.
23. Know the process of inflammation.
24. Know what histamines, bradykinin, and prostaglandins do.
25. Define diapedesis.
26. Define pus and abscesses.
27. Know the harmful effects of inflammation.
28. Know what causes a fever and define a fever.
29. What are the benefits of fever.
30. Know the three functions of complement.
31. Know the function of lymphokines.
32. Know the difference between a T-cell and a B-cell.
33. Understand what interferons do.
34. Understand the process of repair and regeneration.
35. Define active immunity and passive immunity.
36. Define an antigen and an epitope.
37. Know the basic structure of an antibody.
38. Know the difference between humoral and cellular immunity.
39. Know how the body gets rid of lymphocytes that recognize self-antigens.
40. Understand the clonal process of antibody production.
41. Know the basic differences between immunoglobulins IgG, IgM, IgA, IgE, & IgD.
42. Know the type of antibody that appears and when during a primary response and a secondary response.
43. Understand neutralization of toxins, opsonization, and immunecomplexes and how antibodies are involved.
44. Know the difference between a polyclonal antibody and a monoclonal antibody.
45. Understand how an antigen-presenting cell works. What is an antigen-presenting cell?
46. Know the function of the different T-cells: helper, cytotoxic, delayed type hypersensitivity, & suppressor.

47. Define hypersensitivity. Type I (both), type II, type II, & type IV
48. Understand immunization and know the difference between active and passive immunization.
49. Understand how pathogens tax the immune system.