

BIOS 312 – Microbiology

Review Sheet Final

Review Sheets Tests 1, 2, and 3 Excluding Microbe Hunters

Chapters 22 (and 23): Essentials of Immunology

- Organs of the immune system: bone marrow, thymus, lymph nodes, MALT
- Cells of the immune system: B cells, cytotoxic T cells, helper T cells
- Structure of antibodies, antigens, epitopes
- Types of antibodies: IgG, IgM, sIgA, IgE
- Role of antibodies:
 - opsonization
 - neutralization
 - activation of complement
 - trapping microbes in mucus
- Antigen presenting cells
- Major histocompatibility complex, MHCI, MHCII
- CD4, CD8
- T-cell receptor
- T helper cells
- Cytotoxic T-cells
- Clonal selection
- Antibody diversity
- Acquired immunity, natural, artificially, active, passive
- Vaccines, attenuated live, dead, subunits, toxoids

Chapter 26: Person-to-Person Transmitted Microbial Diseases

Respiratory diseases as most common communicable diseases

Bacterial respiratory pathogens:

- *Streptococcus pyogenes* -> beta-hemolysis, strep throat, scarlet fever, “flesh-eating bacteria” sequelae: rheumatic fever, glomerulonephritis
- *Streptococcus pneumoniae*, capsules
- *Staphylococcus aureus* -> coagulase, skin infections, boils, toxic shock syndrome, superantigens
- Diphtheria, phage, diphtheria toxin, ADP-ribosylates EFII
- DTP vaccine
- Pertussis, destroys ciliated cells
- Tuberculosis, cell wall of *Mycobacterium*, course of disease, tuberculin skin test, antibiotic resistance, BCG vaccine
- Leprosy

Viral respiratory pathogens

- Common cold
- Influenza -> hemagglutinin, neuraminidase, antigenic shift, antigenic drift
- Measles
- Mumps
- Rubella
- MMR vaccine
- Chickenpox – Shingles

Sexually transmitted diseases

- Gonorrhea
- Syphilis
- *Chlamydia*, reticulate bodies, elementary bodies
- Genital herpes
- Trichomoniasis
- AIDS/HIV, retrovirus, reverse transcriptase, nucleoside analogs, protease inhibitors

Chapter 27, 28, and 29: Animal-transmitted, vector-borne, and common source microbial diseases

- Rabies
- Hantavirus pulmonary syndrome
- Typhus
- Rocky Mountain Spotted Fever, prevalent in ?
- Lyme disease
- Malaria, co-evolution of host and parasite
- Plague
- Tetanus
- Mycoses
- Typhoid fever
- Cholera, oral rehydration therapy
- Giardiasis
- Cryptosporidiosis, Milwaukee incidence
- Legionellosis
- Staphylococcal food poisoning
- Botulism
- *Salmonella* food infection
- *E. coli* gastroenteritis, EPEC, EHEC, ETEC, O157:H7
- *Campylobacter*
- Listeriosis
- *Helicobacter*, gastric ulcers, urease
- Toxoplasmosis
- Hepatitis A, B, and C