

AIDS and Other Human Diseases
Review Sheet for Exam I on Tuesday, October 7

- I General Aspects of Disease
 - A. Definition of a disease
 - B. Causes of disease
 - C. Types of Infectious Agents
 - 1. bacterium
 - A. General structure
 - B. How bacteria cause disease in general
 - 2. virus
 - A. definition and how differs from bacteria
 - B. how virus cause disease
 - C. general structure
 - 3. Difference between an antibiotic and an antiviral agent

- II Biochemistry
 - A. Number of bonds that C, H, O, N form
 - B. Proteins
 - 1. How are proteins important to cells
 - 2. Different functions of proteins
 - 3. Structure
 - A. Amino acids
 - 1. know general structure
 - 2. draw structure if given a specific R group
 - B. Composed of a chain of amino acids linked together
Do not need to know how to link amino acids together
 - C. Importance of shape/structure to function
 - D. Hemoglobin
 - 1. Function and General structure
 - 2. Sickle Cell Anemia
 - A. Difference in structure between HbA vs. HbS
 - B. How difference in structure leads to physiological symptoms
 - E. Enzymes
 - 1. Function
 - 2. substrate, active site definitions
 - 3. inhibitor
 - F. Nucleic Acids
 - 1. Function
 - 2. Gene definition
 - 3. General structure of DNA
Nucleotide, double helix, base pairing
 - 4. DNA replication
 - 5. Protein Synthesis
 - A. Transcription vs. Translation

- B. RNA general structure
- C. Be able to determine amino acid sequence from nucleotide sequence in DNA from a provided codon table.

III Epidemiology of AIDS

- A. Definition of AIDS
- B. Which areas of the world are most affected
- C. Incidence vs. Prevalence
Be able to calculate each from raw data
- D. Epidemic vs. Pandemic

IV How HIV causes AIDS

- A. HIV structure (know the major parts and the major proteins)
- B. Definition of retrovirus
- C. Type of cell HIV infects
- D. How HIV chooses what cell to infect/types of receptors
- E. Replication of HIV – different steps in the process
- F. Immune System
 - 1. Organs of immune system
 - 2. Cells of immune system
 - 3. T lymphocytes
 - A. Helper T cell
 - B. Killer T cell
 - 4. B lymphocytes
- D. Process by which the immune system responds to a viral infection
- E. What happens to the immune system when HIV is present

V Progression of HIV/AIDS

- A. Acute Retroviral Syndrome
- B. Asymptomatic Stage
 - 1. Seroconversion
 - 2. Window of Infectivity
- C. Chronic Symptomatic HIV
- D. AIDS