

Cell Anatomy

Chapter 4

Student Required Vocabulary

Prokaryote

1. morphology
 - a. coccus
 - b. bacillus
 - c. coccobacilli
 - d. spiral
 - 1) vibrio
 - 2) spirilla
 - 3) spirochete
 - e. others
2. arrangement
 - a. diplo
 - b. strepto
 - c. tetrads
 - d. sarcinae
 - e. staphylo
3. shape retention
 - a. monomorphic
 - b. pleomorphic
4. flagella arrangements
 - a. atrichous
 - b. monotrichous
 - c. lophotrichous
 - d. amphitrichous
 - e. peritrichous

Lecture Outline

I. Overview

II. Prokaryotic Cells

A. External structures

1. glycocalyx
 - 1) capsule
 - 2) slime layer
- a. function
 - 1) virulence
 - 2) attachment
2. S-layer
3. flagella
 - a. structure
 - 1) filament - flagellin
 - 2) hook
 - 3) basal body
 - a) rotation
 - b. motility
 - 1) taxis
 - a) chemotaxis
 - c. identification
 - 1) serovar
 - 2) H antigen
4. Flagella like
 - a. fimbriae
 - b. pili
 - 1) twitching motility
 - 2) conjugation

B. Cell wall

1. function
2. peptidoglycan
3. Gram +
 - a. teichoic Acids
4. Gram -
 - a. plasma membrane
 - b. periplasm
 - c. outer membrane
 - 1) porins
 - 2) lipopolysaccharides
 - a) endotoxin.
 - 3) components
 - a) lipid A
 - b) core polysaccharide
 - c) O polysaccharide
5. Gram stain mechanism
6. atypical cell walls
 - 1) *Mycoplasma*
 - a. Archaea
 - b. acid-Fast
 - 1) mycolic acid
7. protoplast
 - a. lysozyme

C. Inside the cell wall

1. plasma membrane

a. structure

1) lipid bilayer

2) protein

a) peripheral

b) integral

c) glycoproteins

d) glycolipids

3) fluid mosaic model

b. selectively permeable

2. movement across membrane

a. passive

1) simple diffusion

2) facilitated diffusion

3) osmosis

- osmotic pressure

4) osmotic solutions

a) isotonic, hypotonic, hypertonic

b. active processes

1) active Transport

2) group Translocation

3. cytoplasm

4. nucleoid

a. bacterial chromosome

b. plasmids

5. inclusions

6. endospores

a. sporulation

b. germination

III. Common To Both Prokaryotic & Eukaryotic

1. plasma membrane

2. ribosomes

3. nucleic acids

IV. Eukaryotic cells

A. External structures

1. flagella & cilia

B. Cell wall

1. cellulose
2. chitin

- a. glycocalyx

C. Internal structures

1. plasma membrane

2. cytoplasm

- a. cytosol
- b. cytoskeleton

3. organelles

- a. nucleus

- a) histones

- 1) nuclear envelope

- a) nuclear pores

- 2) nucleolus

- 3) histones

- 4) chromatin

- 5) chromosomes

- b. endoplasmic reticulum

- 1) rough ER

- a) ribosomes

- 2) smooth ER

- c. vesicles

- d. Golgi complex

- e. lysosomes

- f. vacuoles

- g. mitochondria

- 1) inner membrane

- 2) cristae

- 3) intermembrane space

- 4) matrix

- h. chloroplasts

- 1) double membrane

- 2) thylakoids

- 3) granum

- i. endosymbiotic theory

- j. peroxisomes

- k. centrosome