

Study Outline Chapter 11

Bacterial Groups (pp. 295- 317)

- *Bergey's Manual* divides bacteria into sections based on Gram stain reaction, cellular morphology, oxygen requirements, and nutritional properties.
- Analyses of rRNA are providing more information on relatedness among bacteria.
- Spirochetes are long, thin, helical cells that move by means of axial filaments (endoflagella).
- Aerobic/microaerophilic, motile, helical/vibrioid gram-negative bacteria move by means of one or more polar flagella.
- Gram-negative aerobic rods and cocci have polar flagella (if flagellated) and can utilize a wide variety of organic compounds.
- Facultatively anaerobic gram-negative rods have flagella (if motile) and include the enterics, Vibrionaceae, Pasteurellaceae, and the genus *Gardnerella*.
- Members of the anaerobic gram-negative straight, curved, and helical rods can be found in humans.
- Dissimilatory sulfate-reducing or sulfur-reducing bacteria are anaerobes that are important in the sulfur cycle.
- Anaerobic gram-negative cocci are normal microbiota of the human mouth.
- Rickettsias and chlamydias are obligate intracellular parasites.
- Mycoplasmas are bacteria that lack cell walls.
- Gram-positive cocci include the catalase-positive *Staphylococcus* and catalase-negative *Streptococcus*, *Enterococcus*, and *Lactococcus*.
- Endospore-forming gram-positive rods and cocci may be aerobic, facultatively anaerobic, or anaerobic.
- The diverse group of regular, nonsporing, gram-positive rods includes *Lactobacillus* and *Listeria*.
- Irregular, nonsporing, gram-positive rods include the irregular-staining corynebacteria.
- Pathogenic species of mycobacteria are acid-fast.
- Nocardioform bacteria may be acid-fast; they form short filaments.
- Bacteria with unusual morphologies are discussed in this book in terms of the following groups: budding and/or appendaged; gliding, nonfruiting; gliding, fruiting; budding; and sheathed.
- The chemoautotrophic bacteria play important roles in the cycles of elements in the environment.
- Extreme halophiles, acidophiles, thermophiles, and methane-producing bacteria are included in the archaea.
- Photosynthetic purple and green bacteria are included in the group of anoxygenic phototrophic bacteria; they do not produce molecular oxygen.
- Cyanobacteria produce molecular oxygen during photosynthesis; they are oxygen phototrophs.
- Actinomycetes produce filaments and reproduce by external spores.

- *Epulopiscium* is a bacterial giant, visible to the unaided eye.