

BMD 330 and 334: Human Physiology
Chapter 5 Objectives

Chemical Messengers

1. Describe the two primary mechanisms of cell-to-cell communication
 - a. Describe the role of gap junctions in communication
 - b. Compare/contrast paracrines and autocrines
2. Compare the six major functional classes of chemical messengers with respect to the cell that releases them and the ways the messenger gets to the target cell.
3. Describe the basic structure and function of each chemical class of messenger with regard to mechanisms of synthesis, release, transport, and signal transduction.
4. Compare the signal transduction mechanisms for lipophilic and lipophobic messengers.
5. Describe the functional classes of receptors.
 - a. Describe channel-linked receptors
 1. Compare the actions of fast ligand-gated channels for sodium, potassium, and chloride, with those of calcium.
 2. Describe the role of calmodulin in some calcium-mediated responses.
 - b. Describe enzyme-linked receptors
 - c. Describe G protein-linked receptors
 1. Describe the role of G proteins in slow ligand-gated channels.
 2. Compare the various second messenger systems.
6. Compare receptor agonists and antagonists.
7. Compare communication mediated through the nervous and endocrine systems.