

Rang: Rang & Dale's Pharmacology, 7th Edition

Test Bank

Chapter 2: How drugs act: general principles

MULTIPLE CHOICE

1. The concentration of a drug required to occupy 50 percent of its receptor sites is
 - a. the concentration required to produce the maximum physiological effect
 - b. directly proportional to the drug's affinity for its receptor
 - c. inversely proportional to the drug's affinity for its receptor
 - d. directly proportional to the drug's intrinsic efficacy
 - e. usually determined with the Schild equation

Answer c: inversely proportional to the drug's affinity for its receptor

2. In the presence of a competitive antagonist, the agonist log-concentration effect curve is
 - a. shifted to the right without a change in slope or maximum effect
 - b. shifted to the left without a change in slope or maximum effect
 - c. shifted to the right with a decreased slope and maximum effect
 - d. shifted to the left with a decreased slope and maximum effect
 - e. not shifted right or left but shows a decreased maximum effect

Answer a: shifted to the right without a change in slope or maximum effect

3. The magnitude of the response to a drug is related to the
 - a. total number of receptors for the drug
 - b. number of receptors occupied by the drug
 - c. number of vacant receptors in the tissue
 - d. number of spare receptors in the tissue
 - e. number of phosphorylated receptors in the tissue

Answer b: number of receptors occupied by the drug

4. The Schild equation shows that the concentration ratio of an agonist required to occupy the same number of receptors in the absence and presence of a competitive antagonist is determined by the
 - a. equilibrium constant of the agonist
 - b. affinity of the agonist for its receptor
 - c. equilibrium constant of the antagonist

- d. total number of available receptors
- e. number of spare receptors in the tissue

Answer c: equilibrium constant of the antagonist

5. A partial agonist is typically a drug that
- a. has low affinity for its receptor
 - b. can only occupy a small fraction of its receptors
 - c. can only produce a submaximal response
 - d. requires high doses to produce a maximal response
 - e. increases the number of spare receptors

Answer c: can only produce a submaximal response

6. A type of drug that reduces the slope and maximum response of an agonist is
- a. a non-competitive antagonist
 - b. a competitive antagonist
 - c. a physiologic antagonist
 - d. an inverse agonist
 - e. a partial agonist

Answer a: a non-competitive antagonist

7. Drugs that form covalent bonds with their receptors are usually
- a. reversible competitive antagonists
 - b. irreversible competitive antagonists
 - c. partial agonists
 - d. inverse agonists
 - e. inverse antagonists

Answer b: irreversible competitive antagonists

8. A gradual decrease in the number of drug receptors is most likely to result from exposure to
- a. a competitive antagonist
 - b. a non-competitive antagonist
 - c. an agonist
 - d. an inverse agonist
 - e. an antimetabolite

Answer c: an agonist

9. The total number of receptor binding sites in a preparation and the binding equilibrium constant can be determined from a
- total binding versus drug concentration curve
 - dose-response curve
 - Hill-Langmuir equation
 - Scatchard plot
 - Schild plot

Answer d: Scatchard plot

10. Receptor desensitization typically results from
- endocytosis of receptors
 - exposure to an inverse agonist
 - irreversible agonist binding
 - spare receptors
 - phosphorylation of receptor protein

Answer e: phosphorylation of receptor protein