SELF-ASSESSMENT QUESTIONS

1. Binding of a drug to its target most often:
   - **A.** Involves covalent binding between the target and the drug.
   - **B.** Involves more than one type of weak bond between the drug and its target.
   - **C.** Requires long-lasting stable bonds between the drug and its target.
   - **D.** Has a similar affinity for the several stereoisomers of the drug.
   - **E.** Is characterized by high K_D values.
2. A patient was being maintained on a β-adrenergic receptor antagonist to control hypertension. The continuous exposure of receptor to this antagonist can:
   - **A.** Result in supersensitivity.
   - **B.** Desensitize the receptor.
   - **C.** Produce tachyphylaxis.
   - **D.** Cause down regulation of the receptor.
   - **E.** B and C are correct.
3. Which of the following statements regarding drugs' action and cell surface receptors is not correct?
   - **A.** By acting on receptors, drugs can enhance, diminish, or block generation or transmission of signals.
   - **B.** The K_D of drug binding to receptors can vary widely.
   - **C.** Agonist drugs are highly specific for each subtype of receptor in various classes of receptors.
   - **D.** More than one drug molecule may be required to bind to a receptor and elicit a response.
   - **E.** Receptors are frequently glycosylated.
4. Which of the following processes are involved in intracellular signaling cascades?
   - **A.** Tyrosine phosphorylation.
   - **B.** Receptor association with and stimulation of G proteins.
   - **C.** Formation of second messengers, such as cAMP.
   - **D.** Mobilization of Ca^{2+} from the endoplasmic reticulum.
   - **E.** All of the above.

5. An in vitro experiment was performed that involved adding two different drugs to a solution bathing a strip of intestinal smooth muscle. Both drugs cause relaxation of the muscle but had very different EC_{50} values. Based on this single piece of information, which of the following statements is most correct?
A. The two drugs have similar chemical structures.
B. The two drugs have different potencies in causing relaxation.
C. Both drugs activate the same receptor in the muscle.
D. Both drugs are directly acting agonists.
E. The maximum relaxation caused by the two different drugs will be similar.

6. The affinity constant of a drug for its target (K_D) is:
A. An intrinsic property of the binding site of the target molecule for the drug and the drug itself.
B. The ratio of the reverse to forward rate constants for the drug-target binding equation.
C. Determined by the rate of diffusion of the drug in plasma.
D. Characterized by A and B above.
E. Characterized by C only.