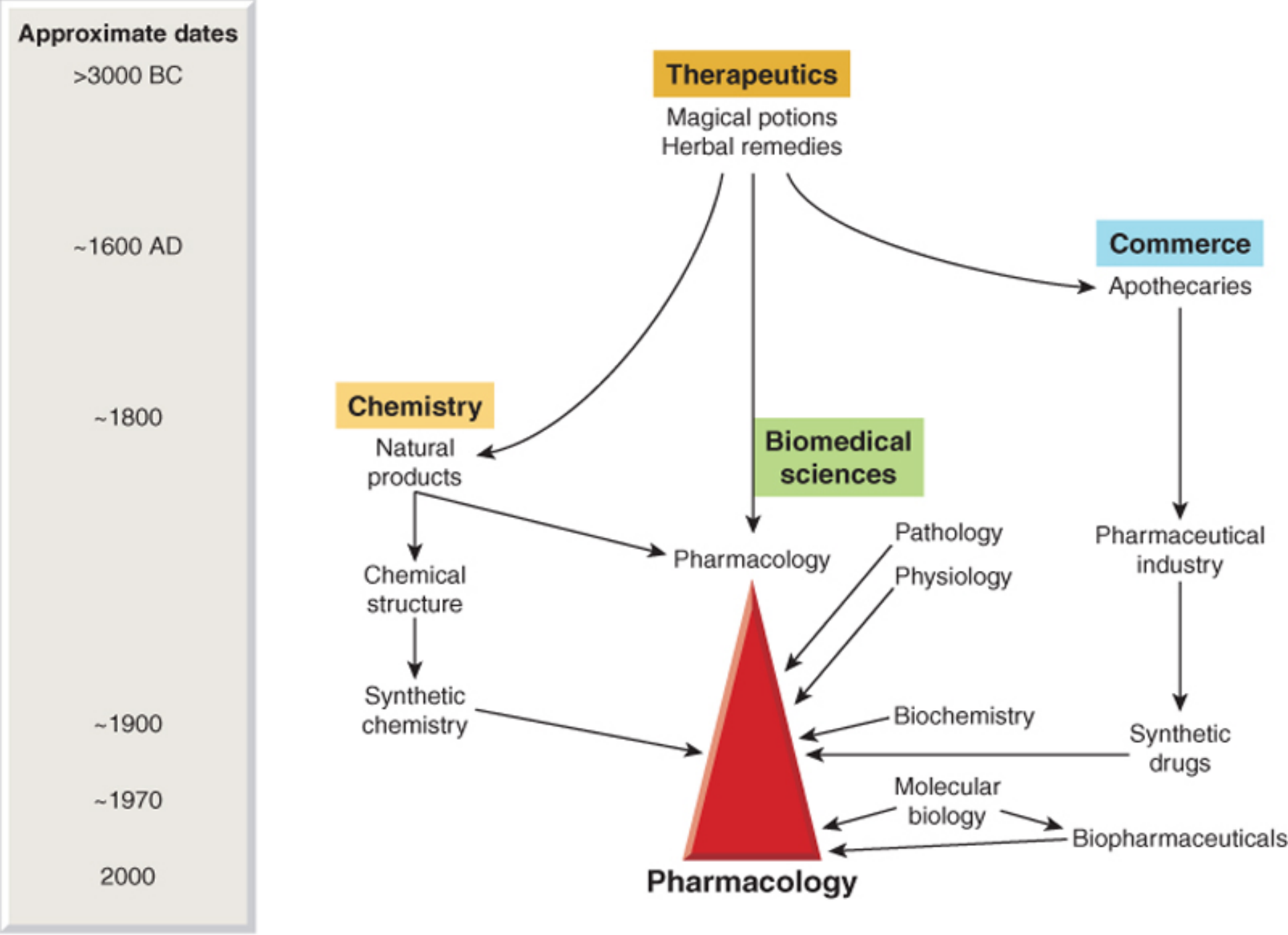
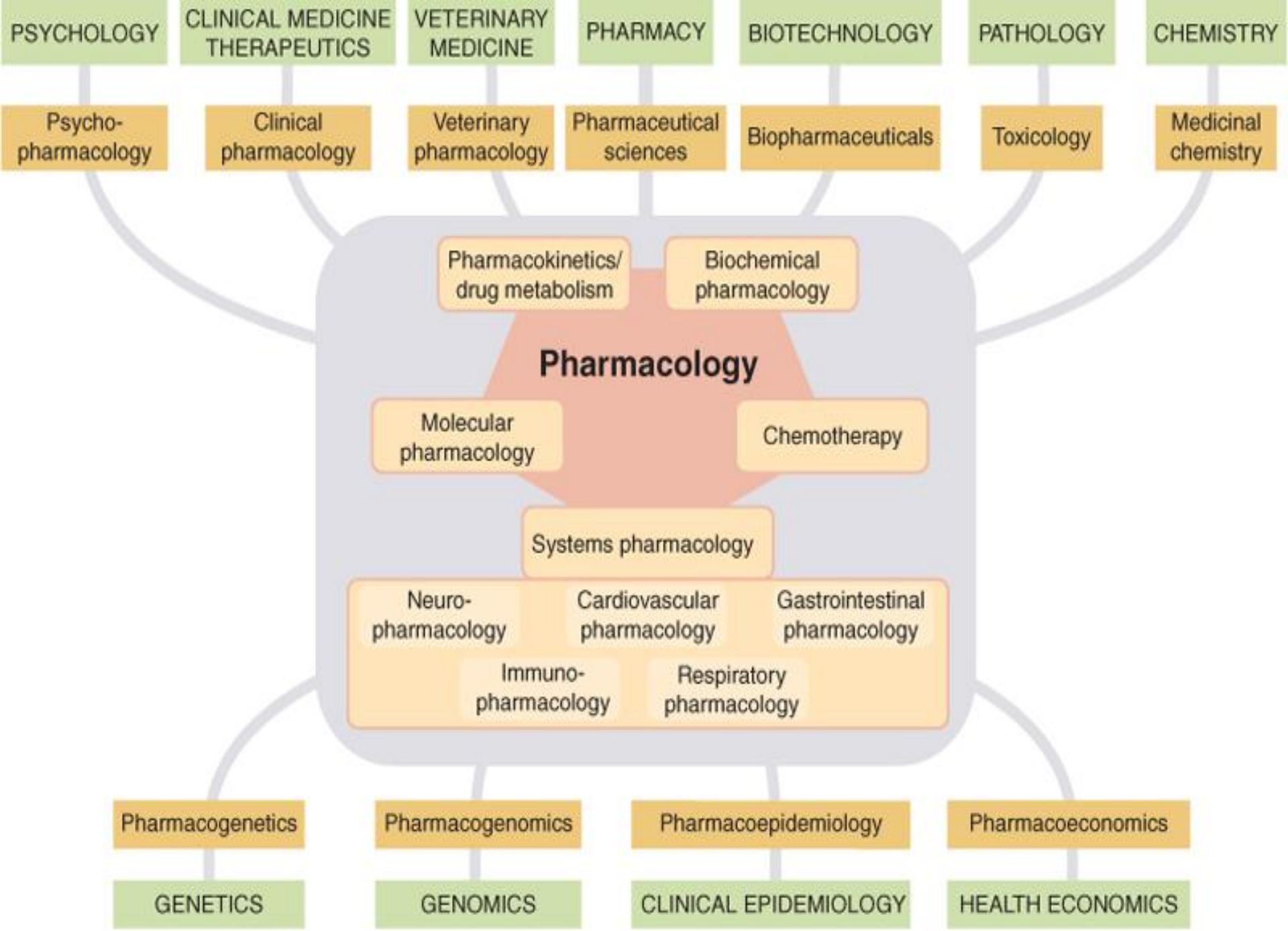
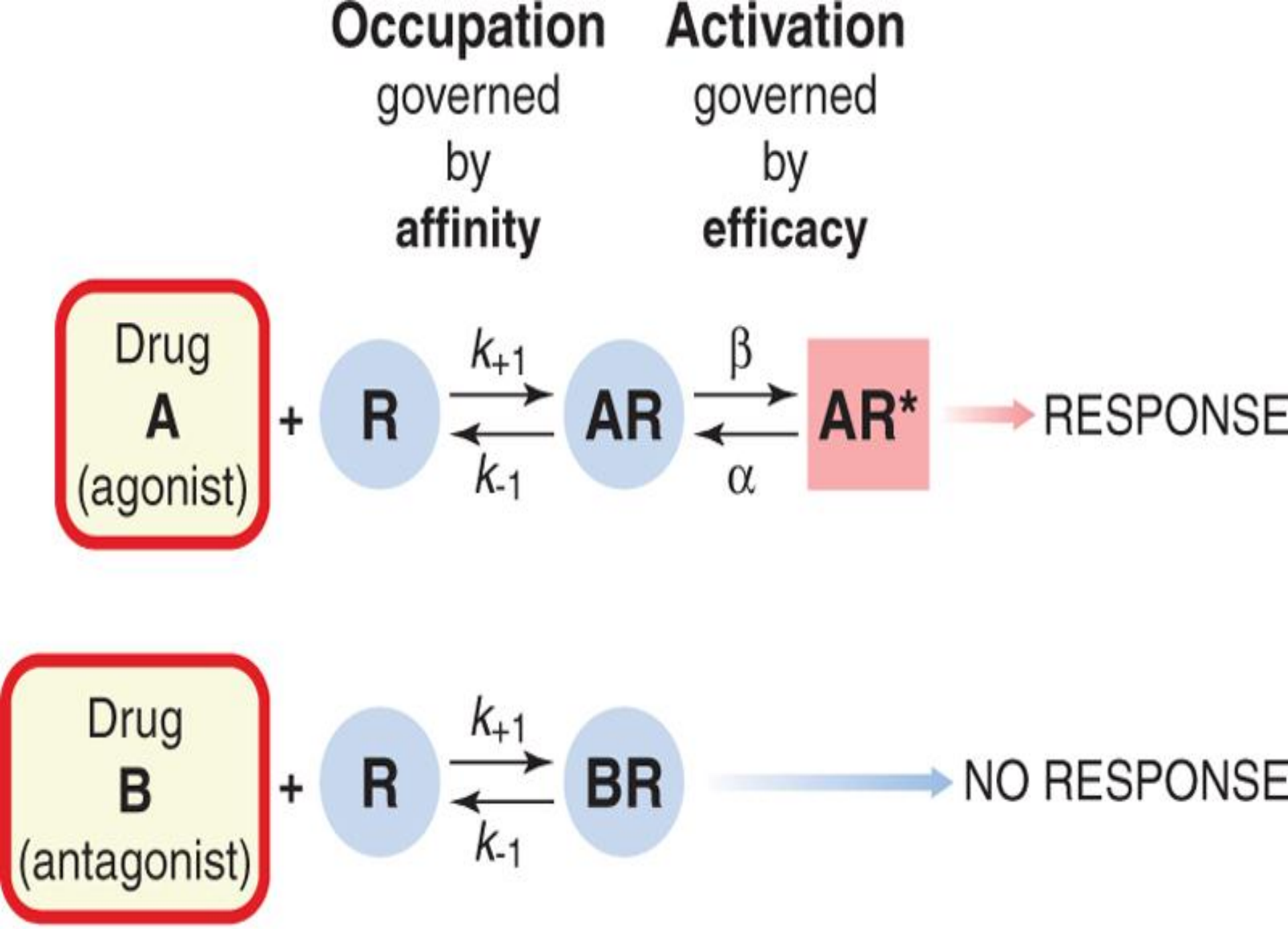
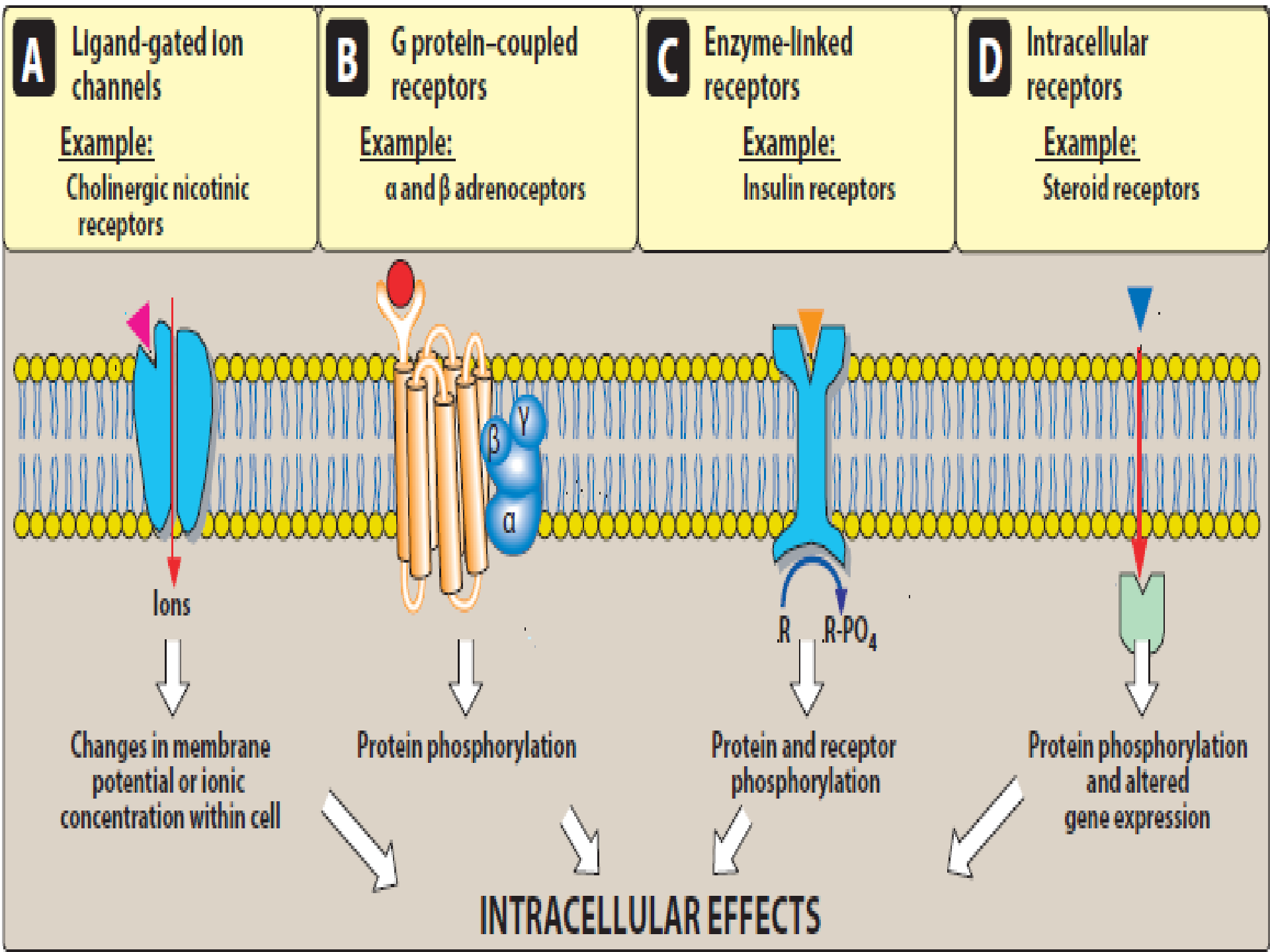
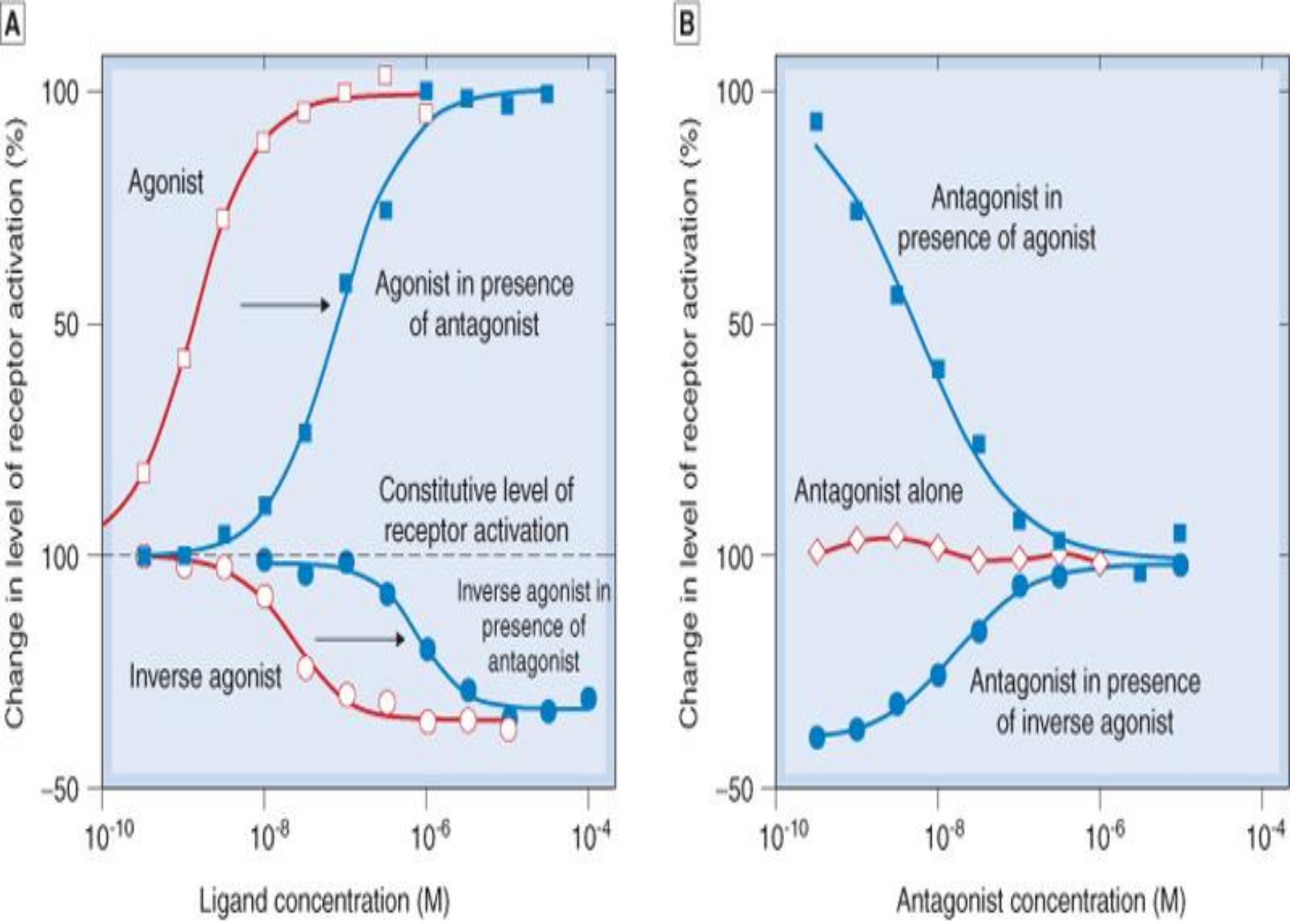
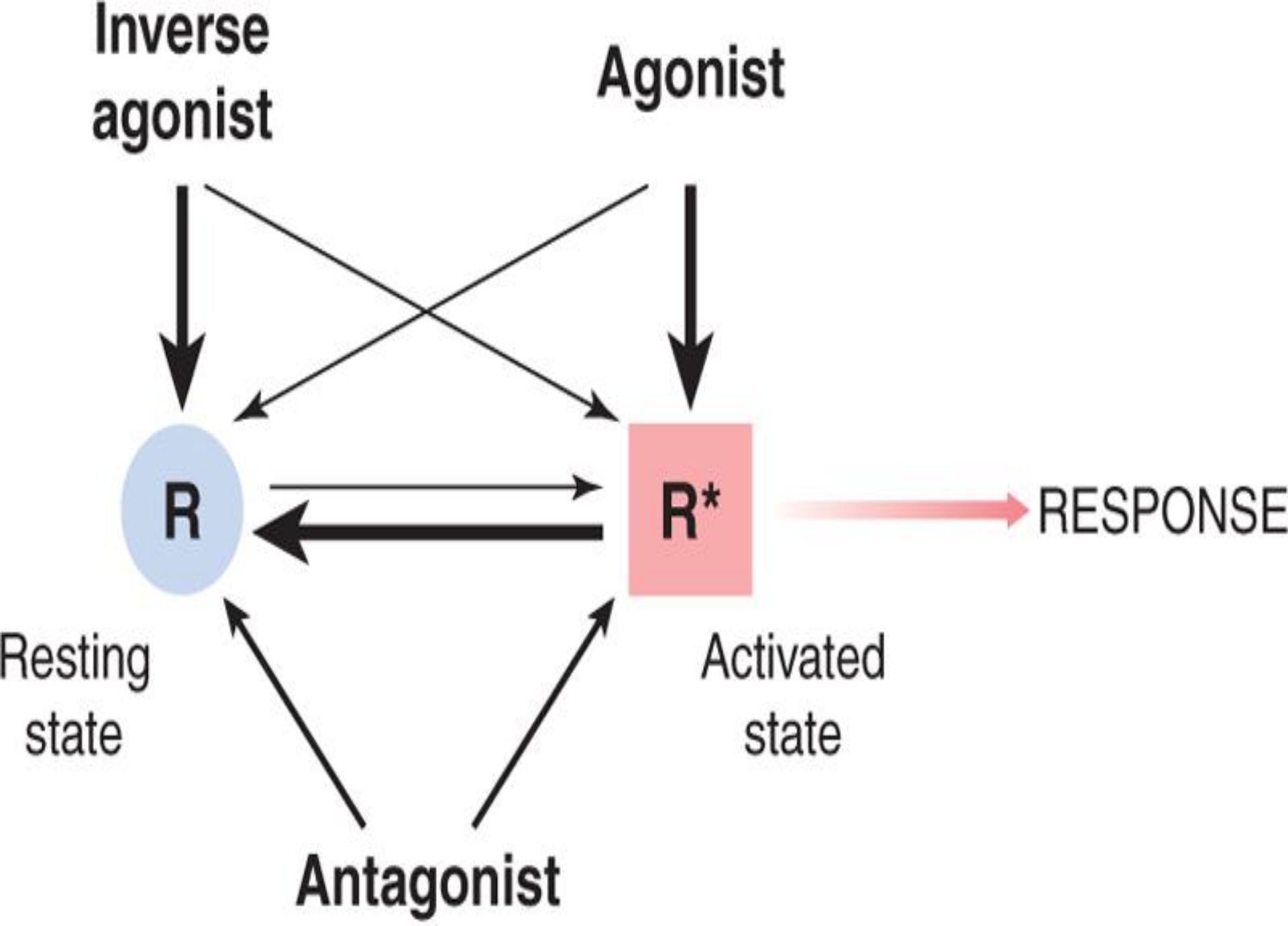


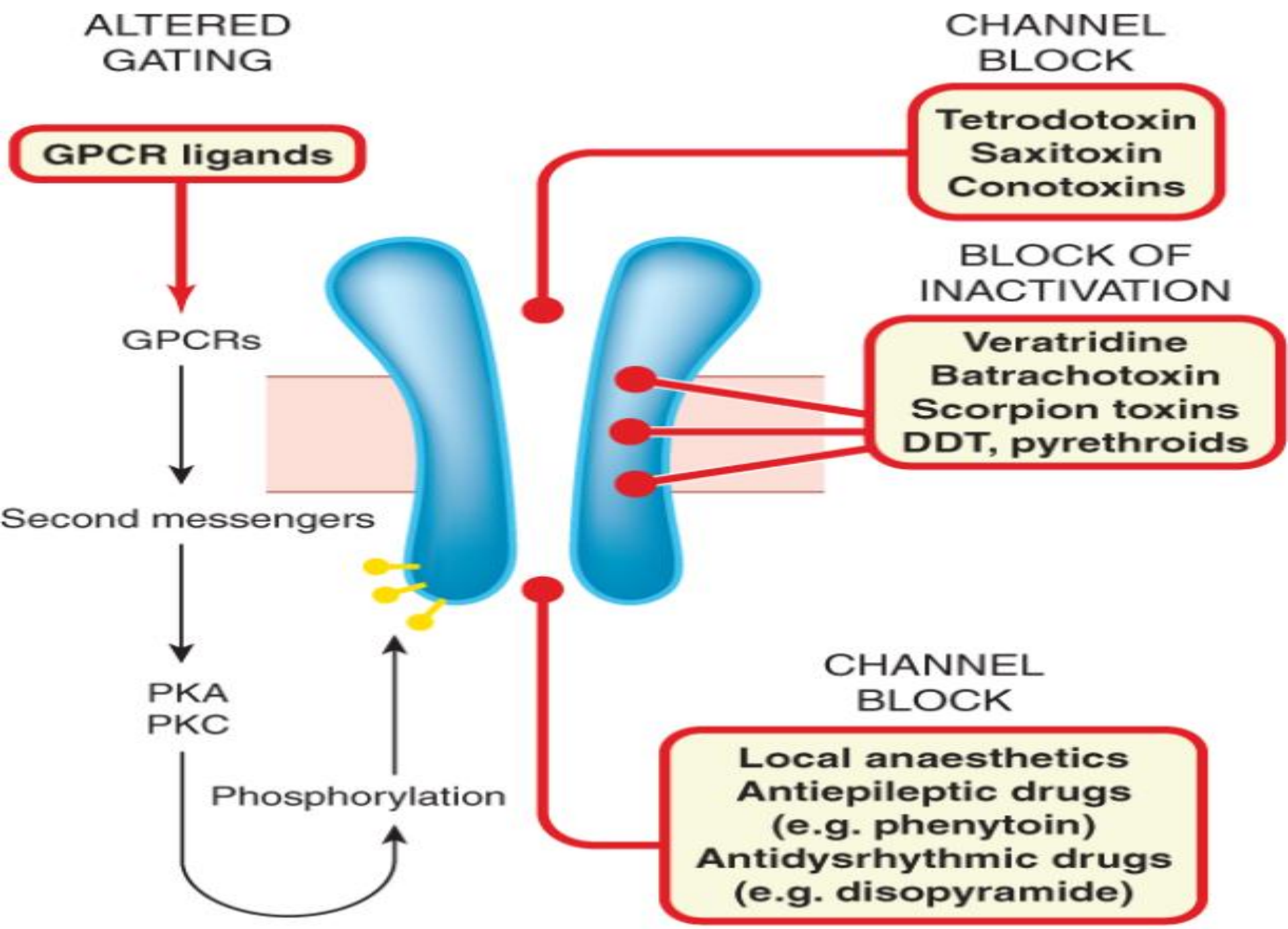


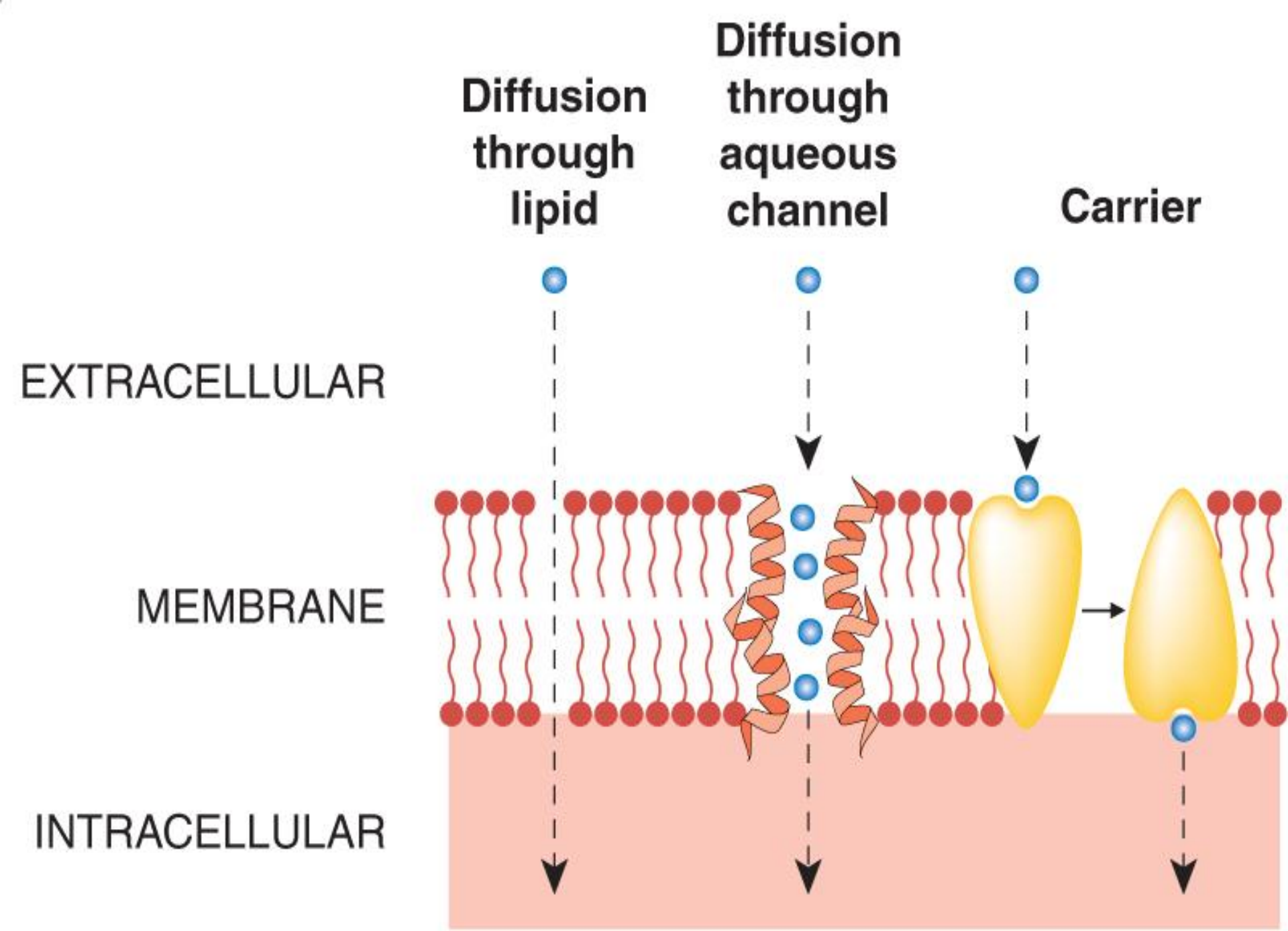


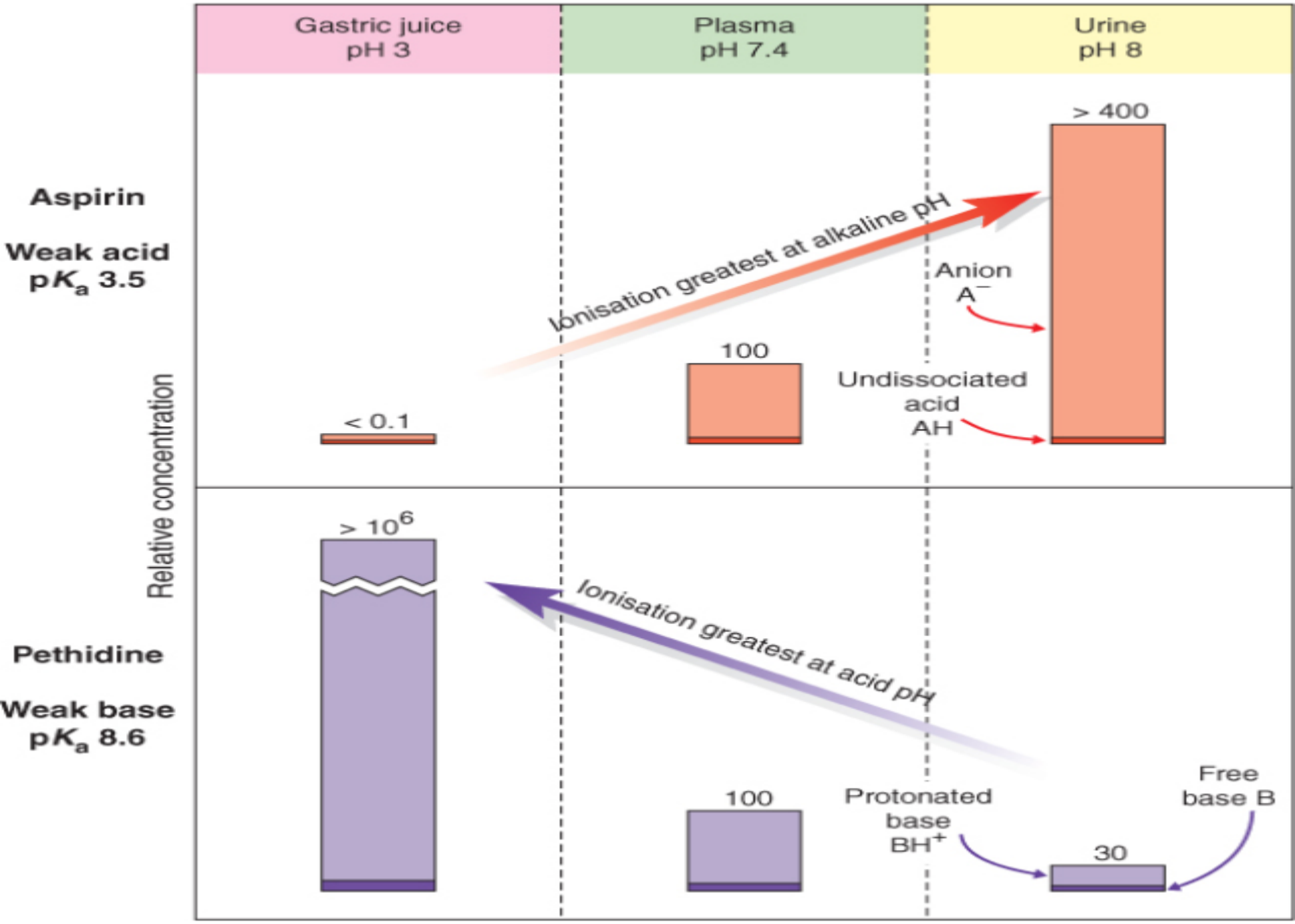

A
Ligand-gated ion channels
Example:
Cholinergic nicotinic receptors
B
G protein–coupled receptors
Example:
α and β adrenoceptors
C
Enzyme-linked receptors
Example:
Insulin receptors
D
Intracellular receptors
Example:
Steroid receptors
β
γ
α
Ions
R
R-PO4
Changes in membrane potential or ionic concentration within cell
Protein phosphorylation
Protein and receptor phosphorylation
Protein phosphorylation and altered gene expression
INTRACELLULAR EFFECTS

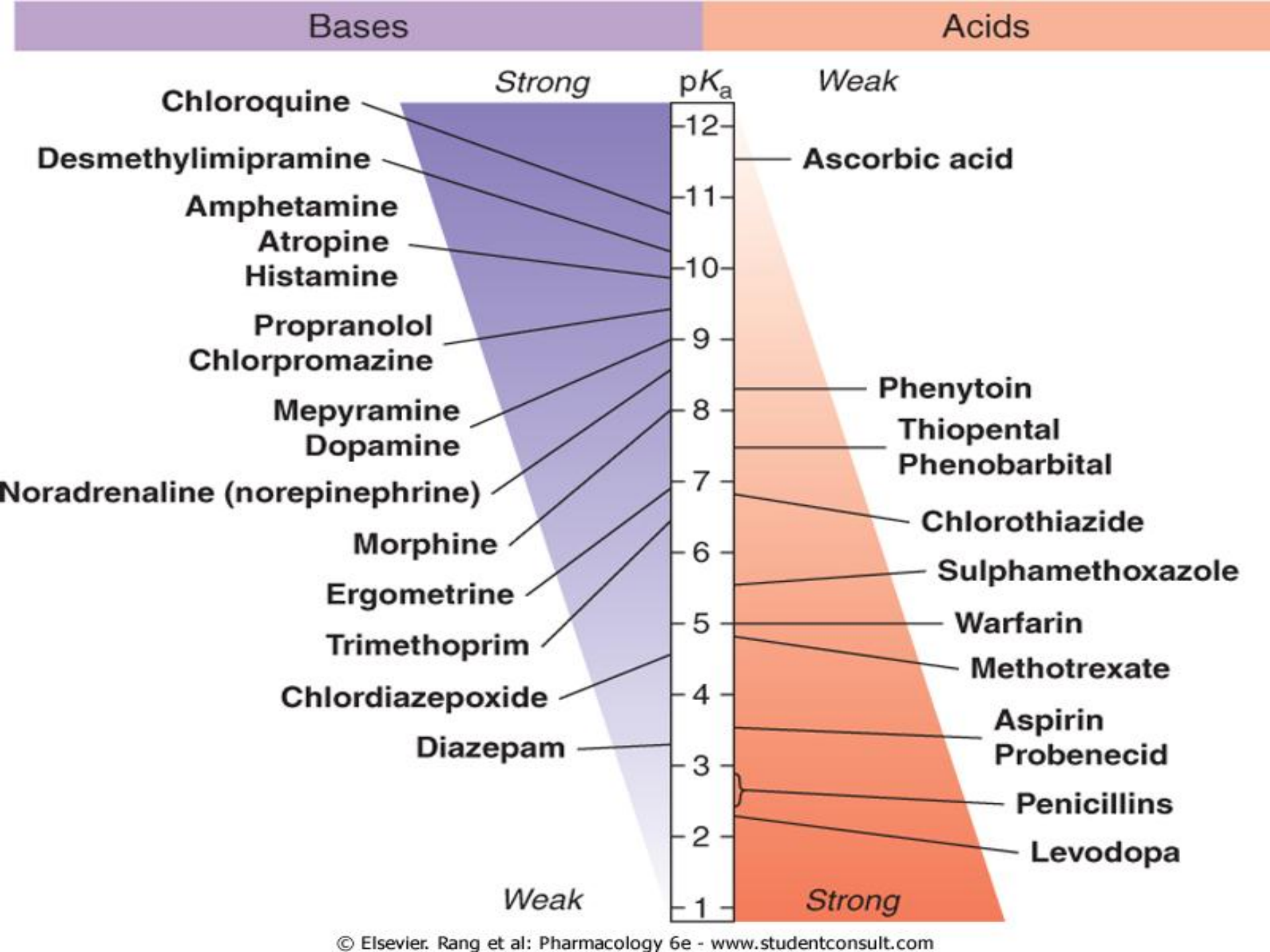


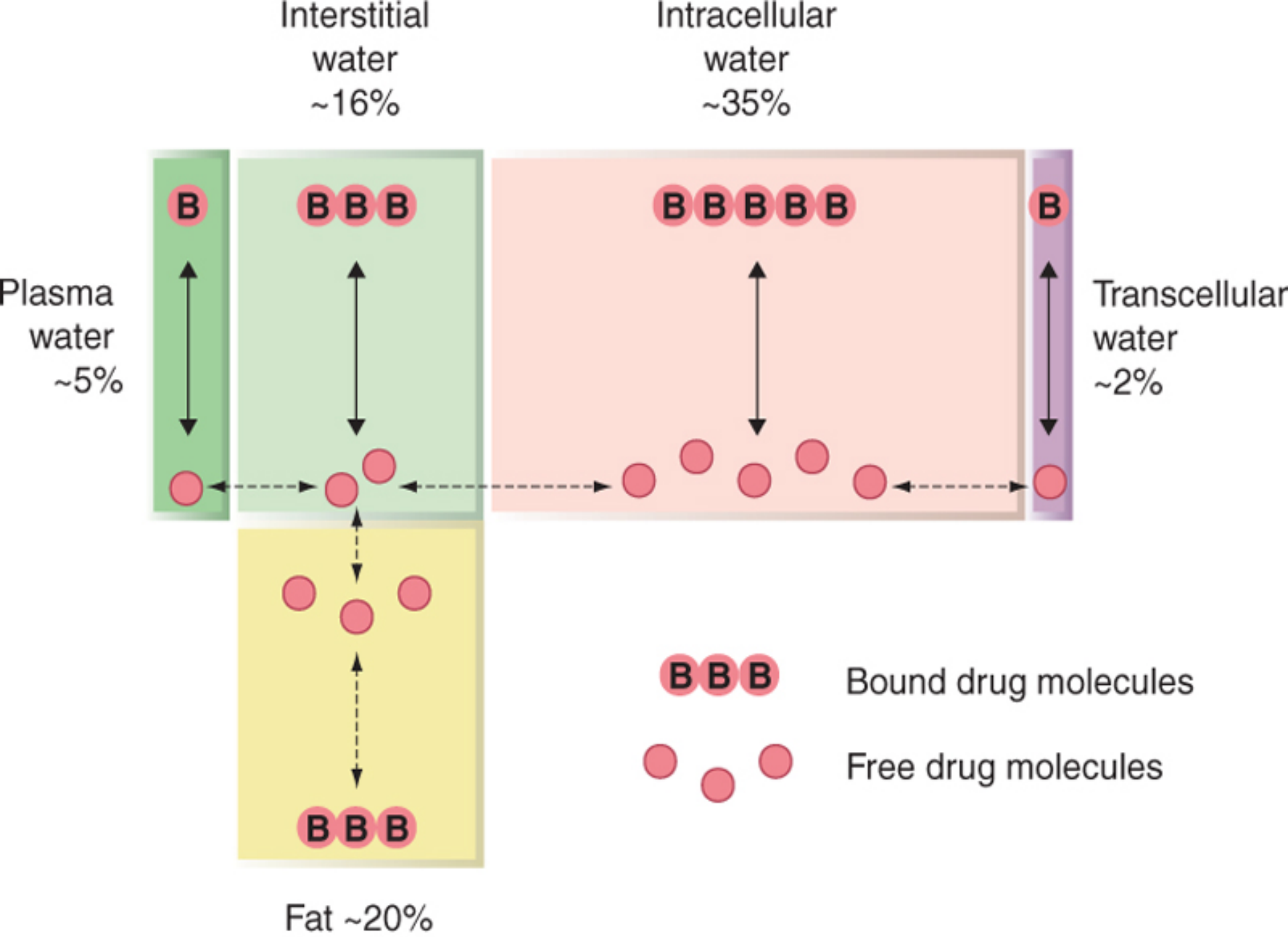




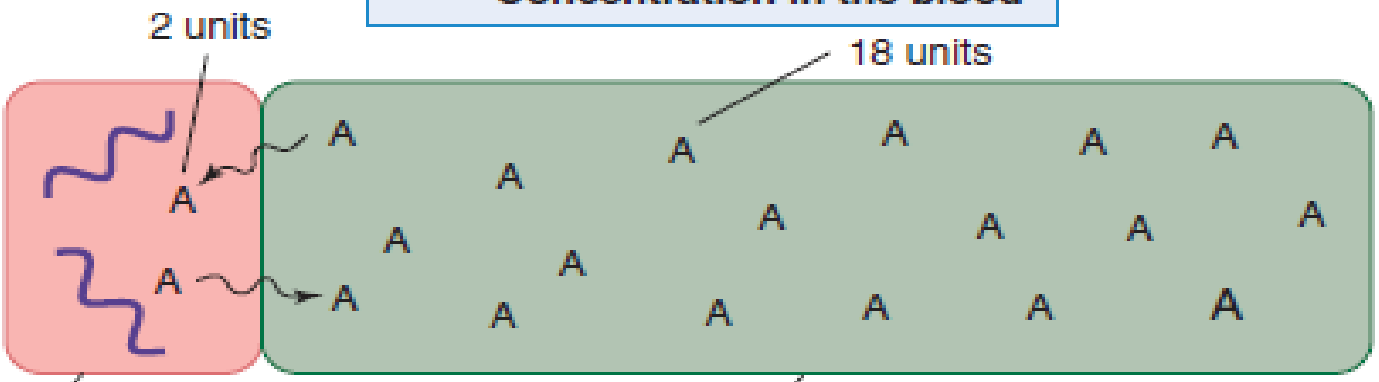






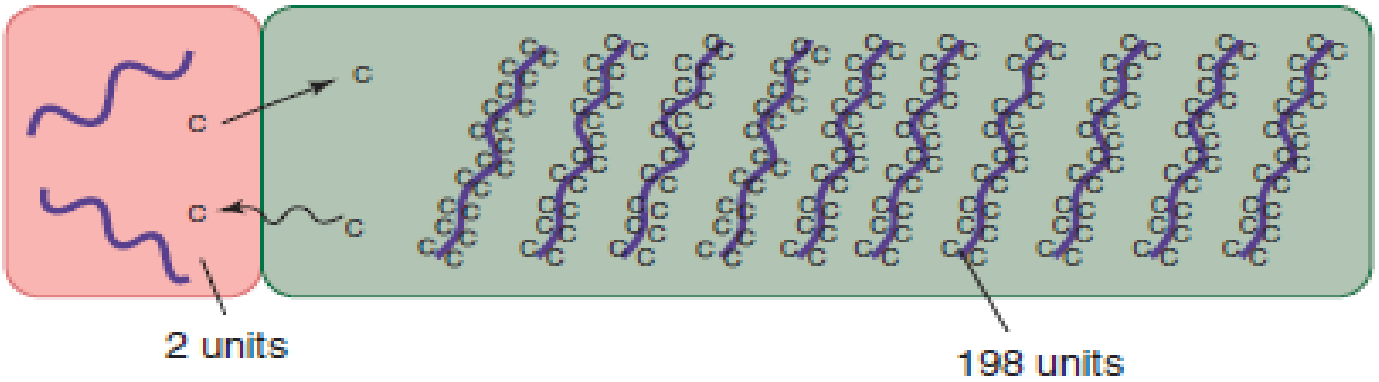


$$V_d = \frac{\text{Amount of drug in the body}}{\text{Concentration in the blood}}$$

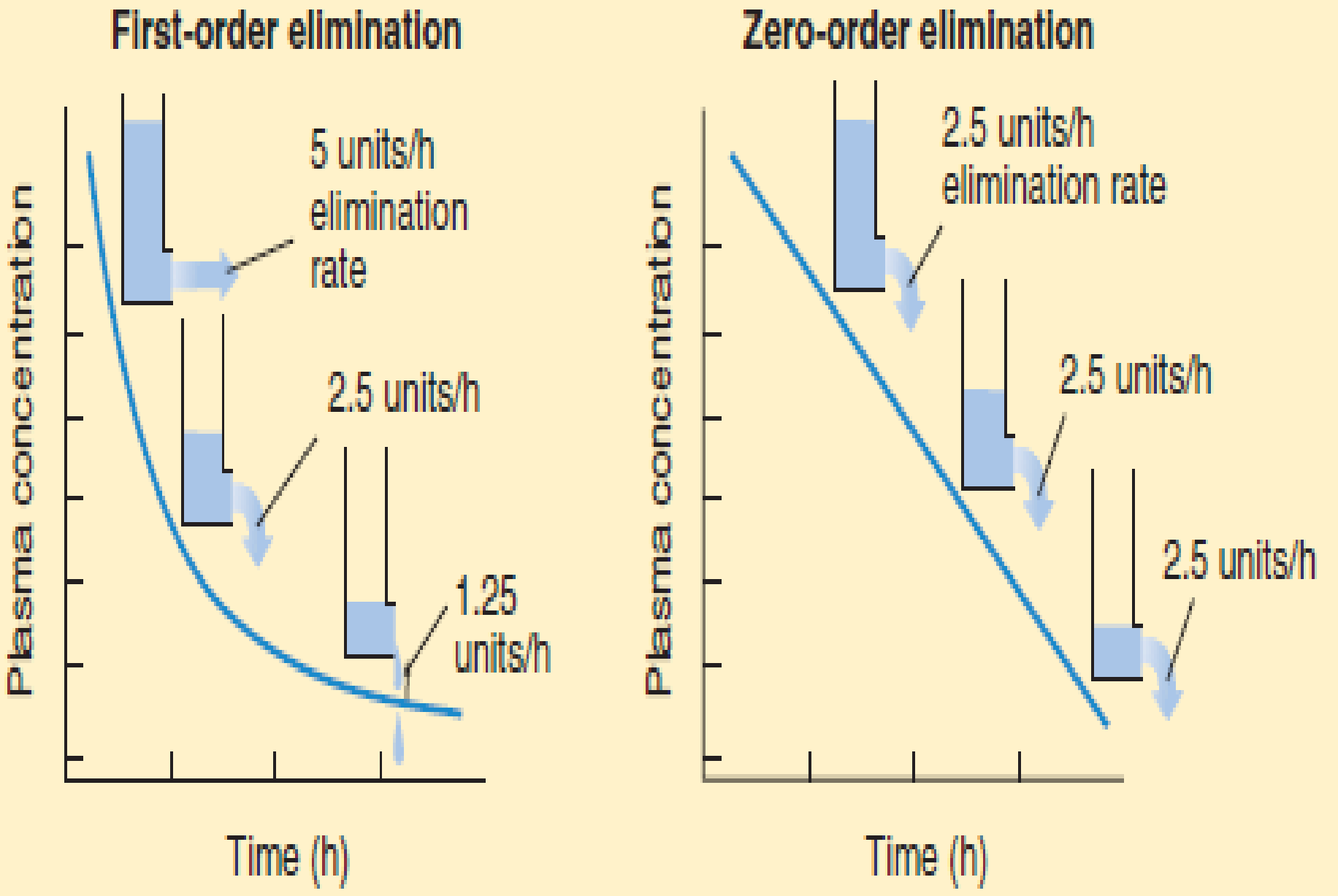


$$V_d = \frac{20}{2} = 10$$

$$V_d = \frac{20}{18} = 1.1$$

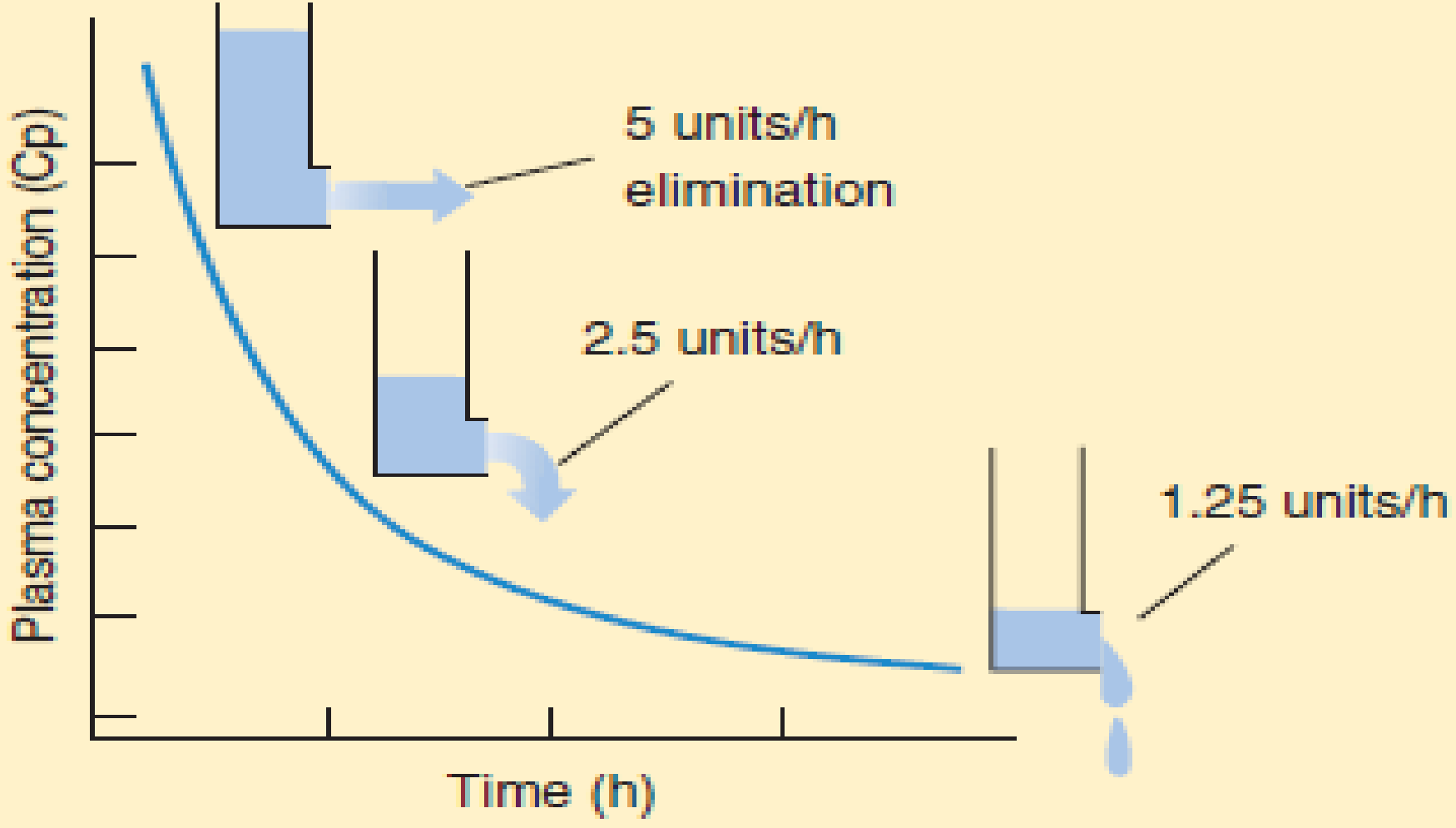


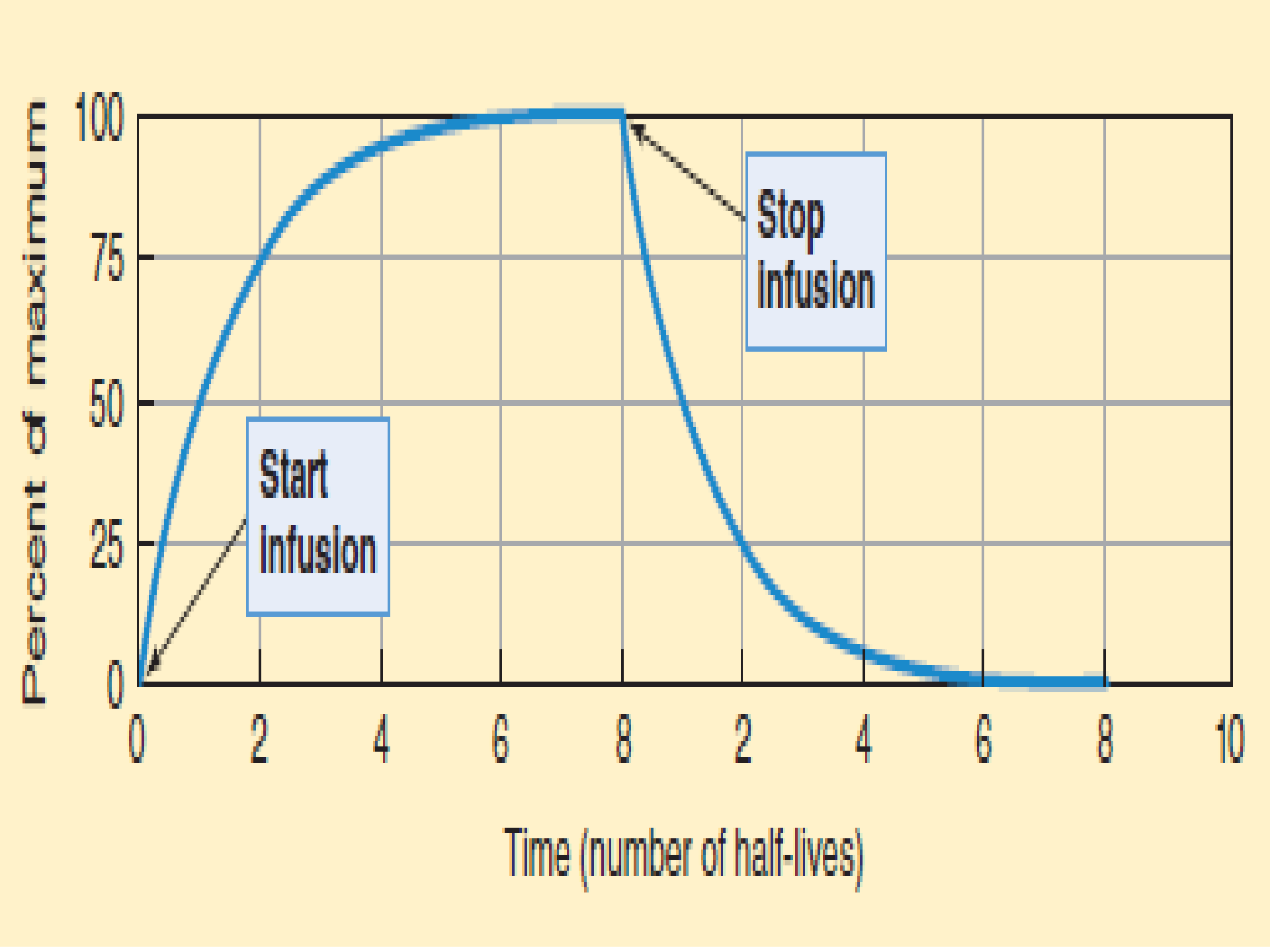
$$V_d = \frac{200}{2} = 100$$

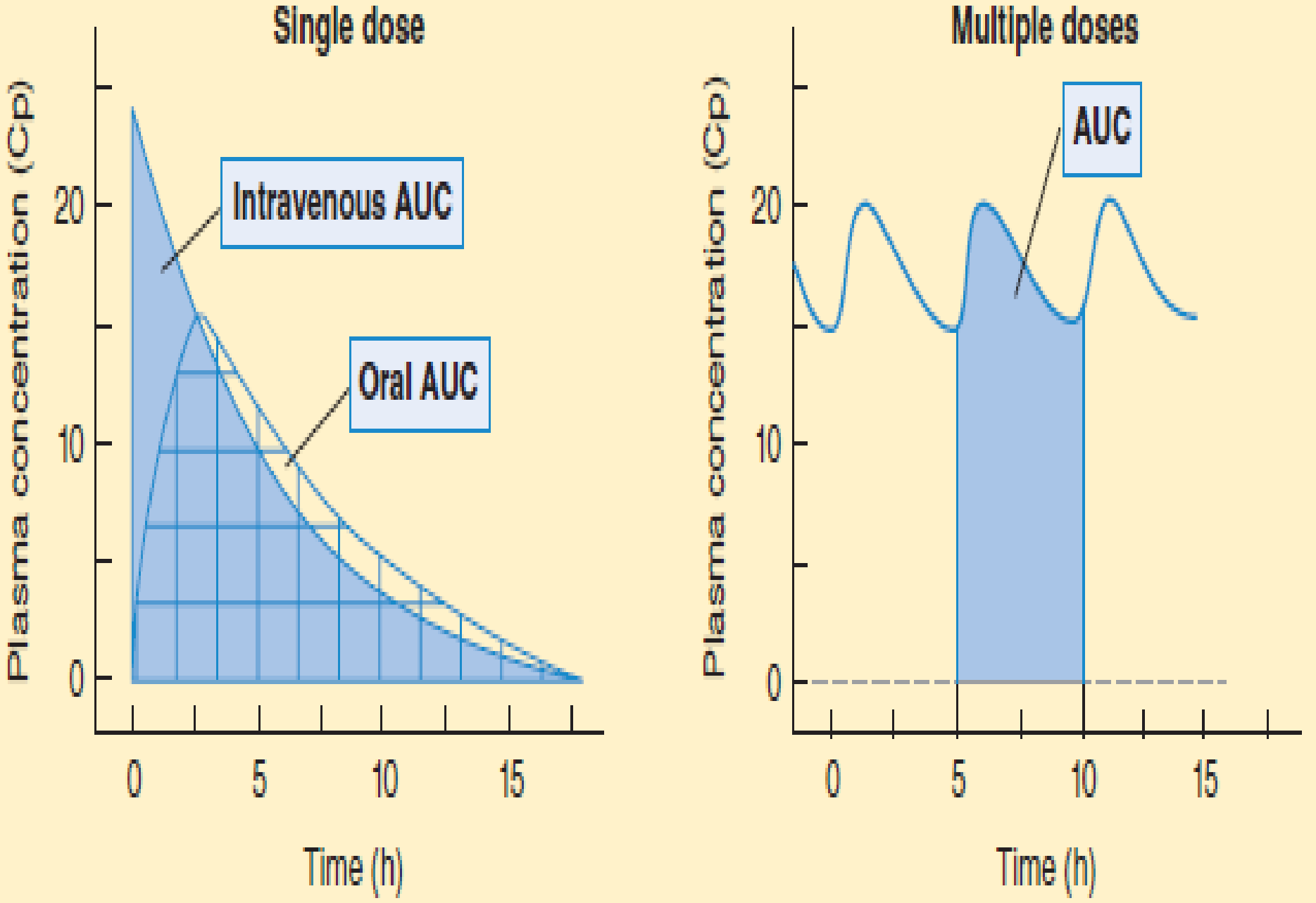

First-order elimination
5 units/h elimination rate
2.5 units/h
1.25 units/h
Plasma concentration
Time (h)
Zero-order elimination
2.5 units/h elimination rate
2.5 units/h
2.5 units/h
Plasma concentration
Time (h)

$$\text{Clearance (CL)} = \frac{\text{Rate of elimination}}{\text{Plasma concentration (Cp)}}$$

Rate of elimination = CL x Cp




Percent of maximum
100
75
50
25
0
Start infusion
Stop infusion
0
2
4
6
8
2
4
6
8
10
Time (number of half-lives)


Single dose
Plasma concentration (Cp)
20
10
0
Intravenous AUC
Oral AUC
0
5
10
15
Time (h)
Multiple doses
Plasma concentration (Cp)
20
10
0
AUC
0
5
10
15
Time (h)