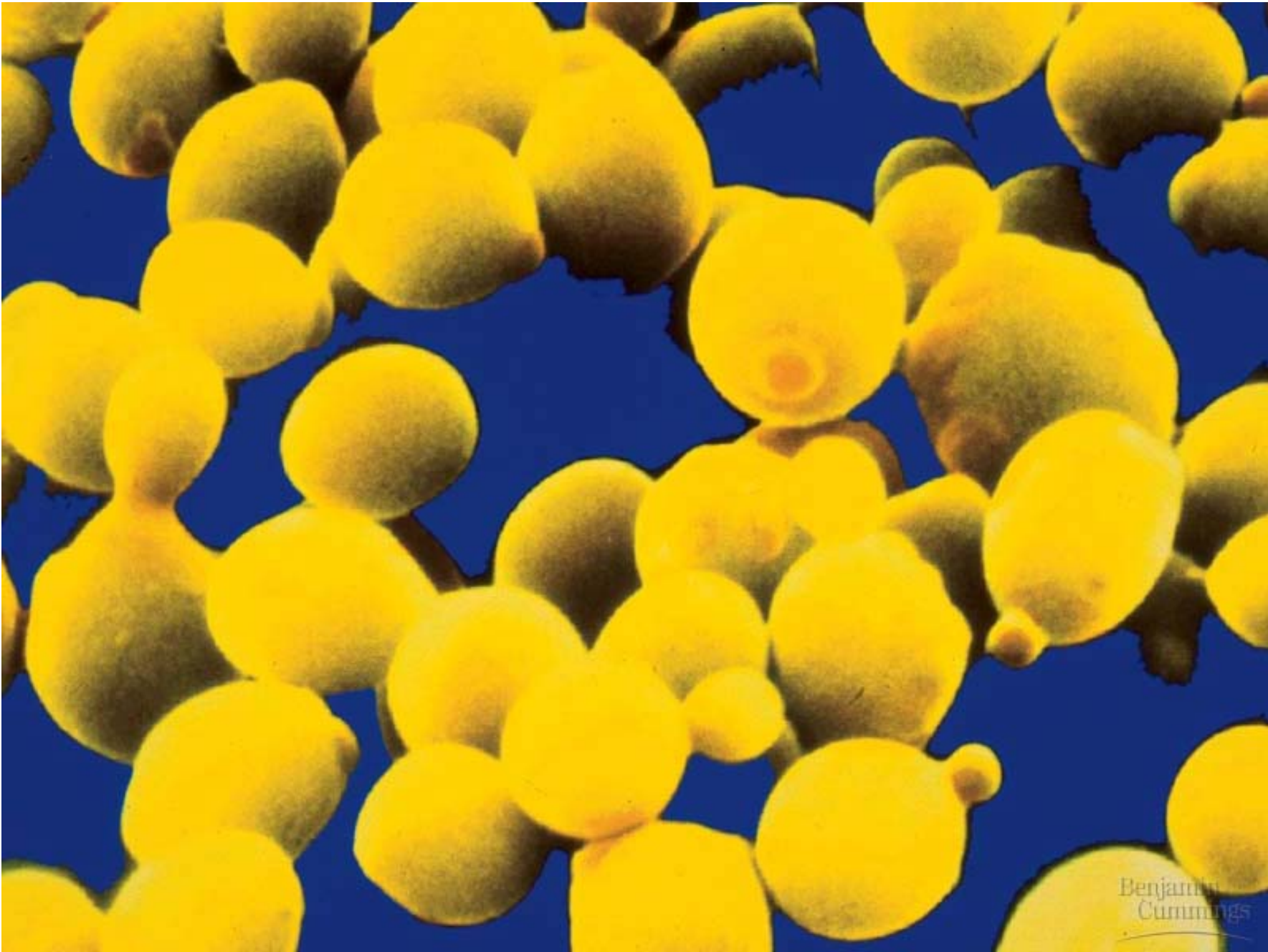


CHAPTER 11

CELL COMMUNICATION



Figure 11.0 Yeast



OVERVIEW OF CELL SIGNALING

- YEAST CELLS AND MATING.
- A AND ALPHA CELLS.
- A FACTOR/RECEPTOR CELLS OF Alpha cells.
- Fusion of cells/mating
- Surface signals/cellular response
- Signal Transduction Pathway

Figure 11.1 Communication between mating yeast cells

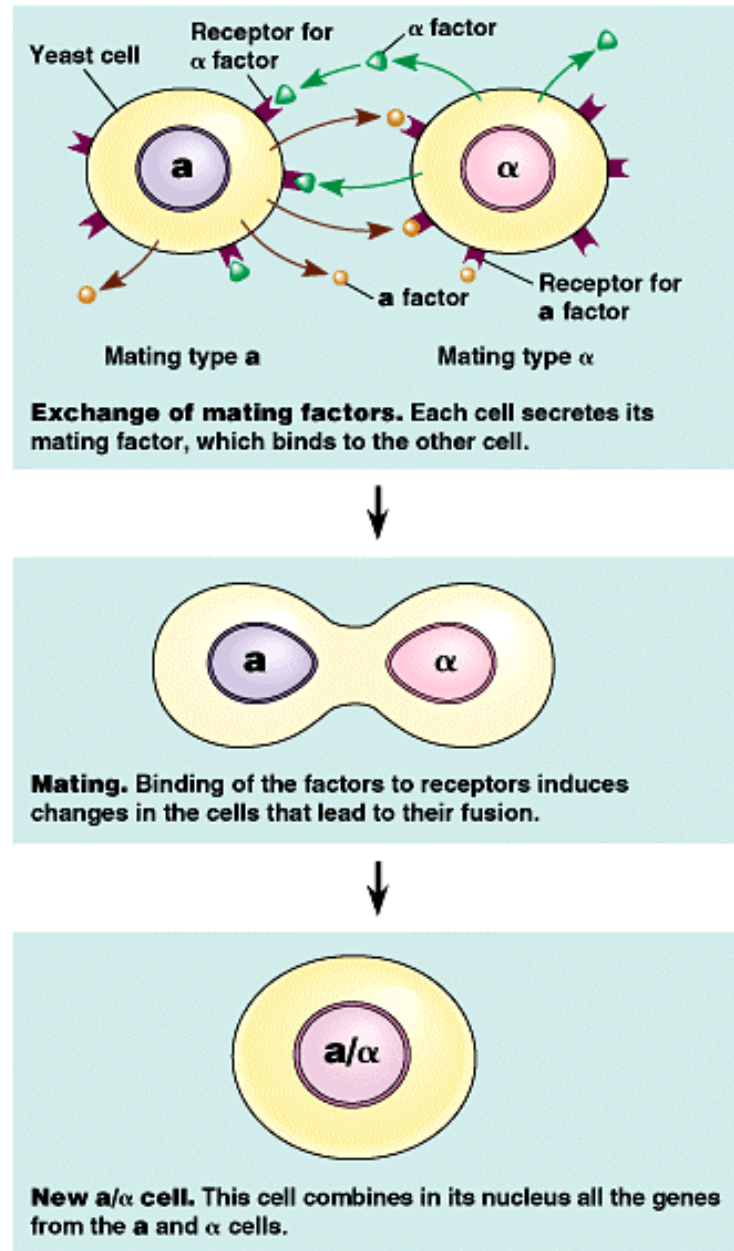


Figure 11.2 Communication among bacteria

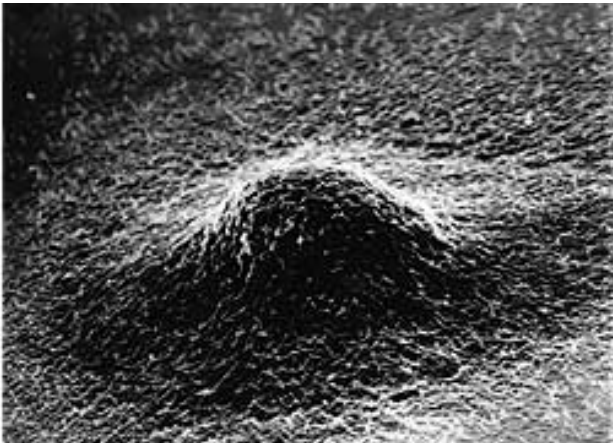
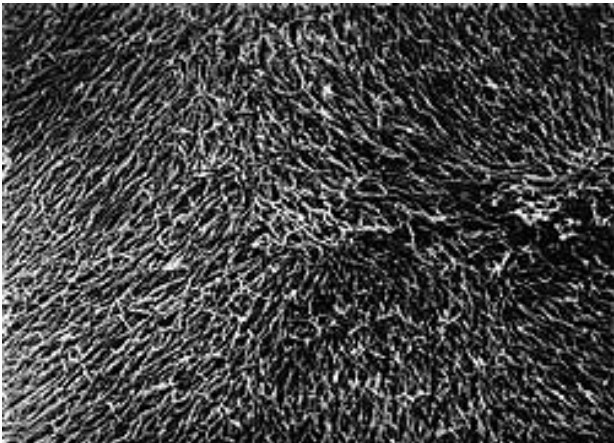


Figure 11.2x Myxobacteria



TYPE OF CELL COMMUNICATION

- Local regulator/growth factors and animal nervous system/ neurotransmitters.
- Distant regulators/hormones such as insulin/have target organs.
- Direct contact/junctions or plasmodesmata between cells.

Figure 11.3 Local and long-distance cell communication in animals

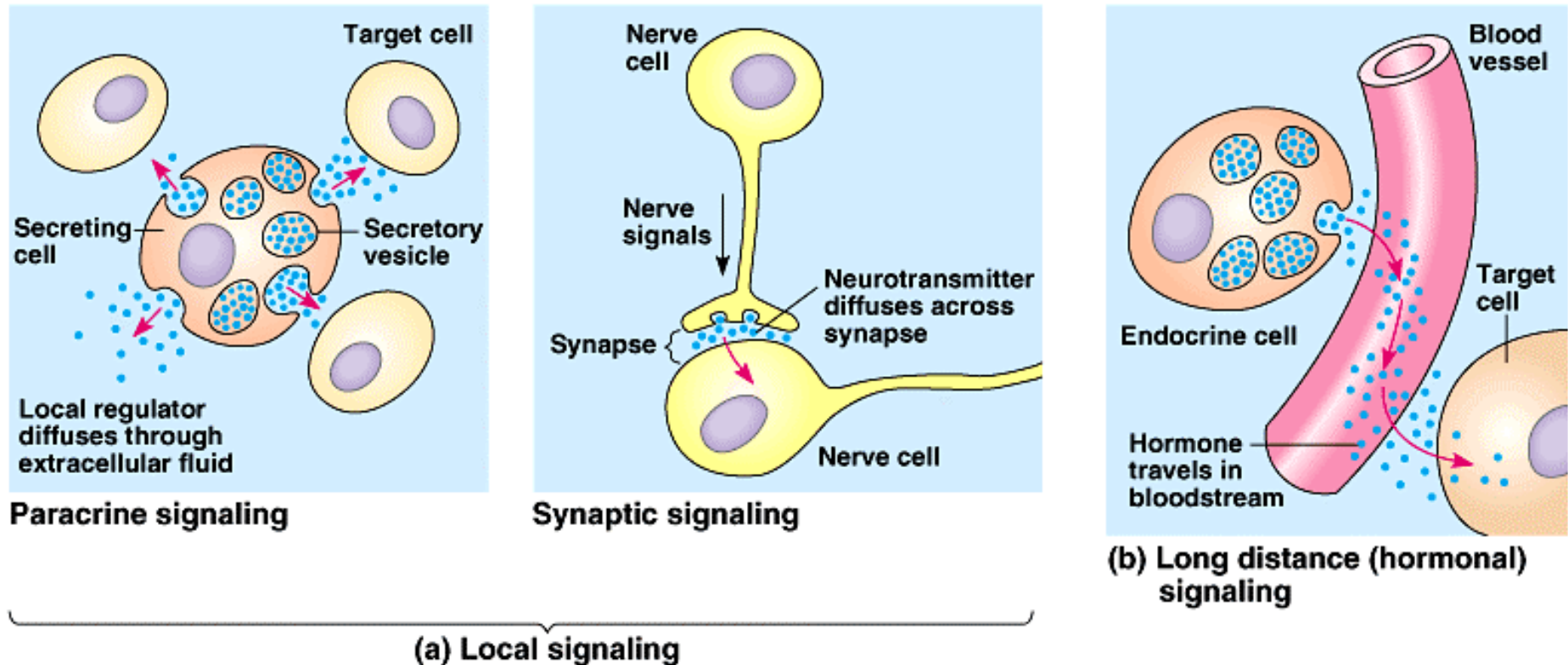
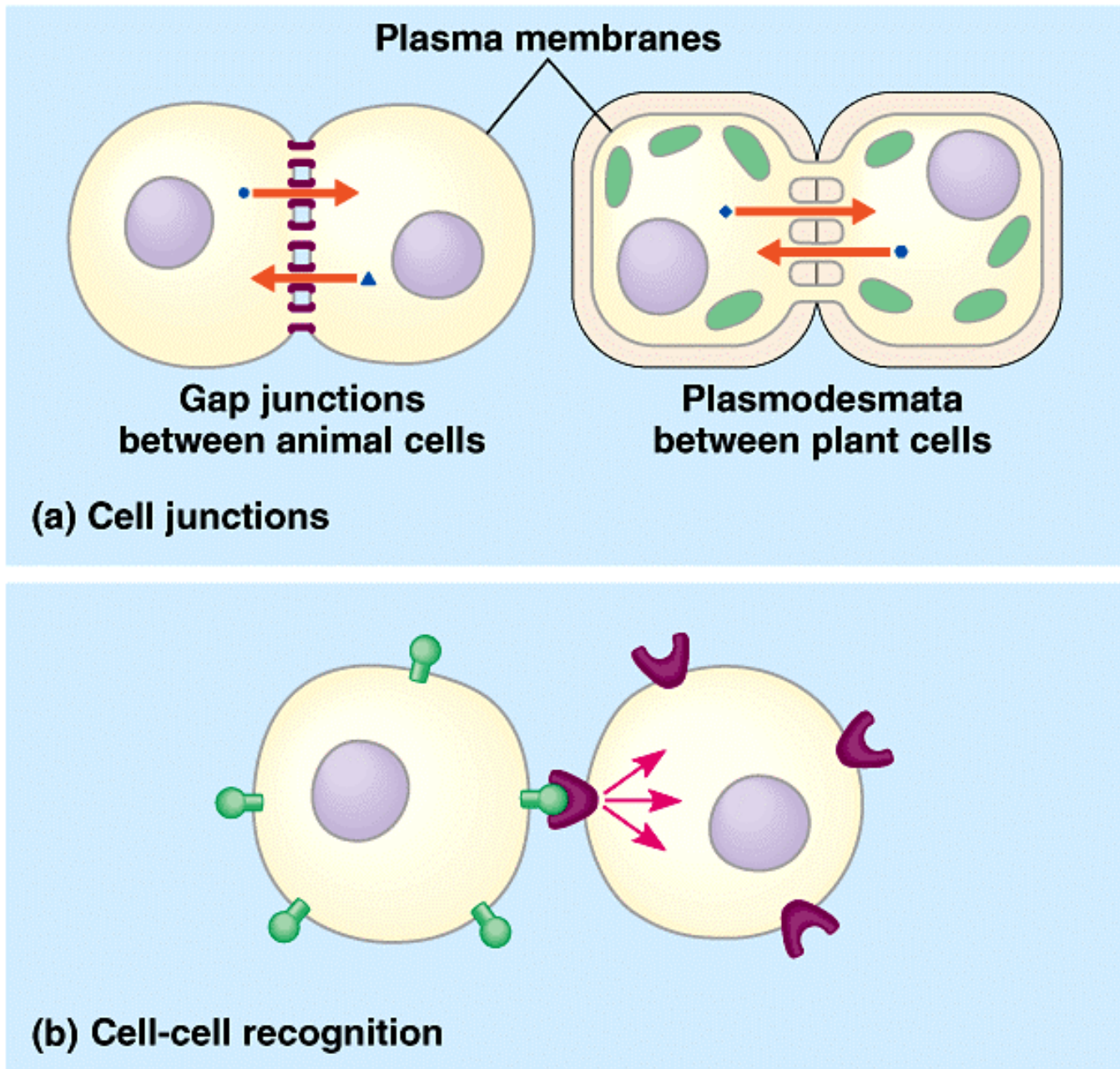


Figure 11.4 Communication by direct contact between cells



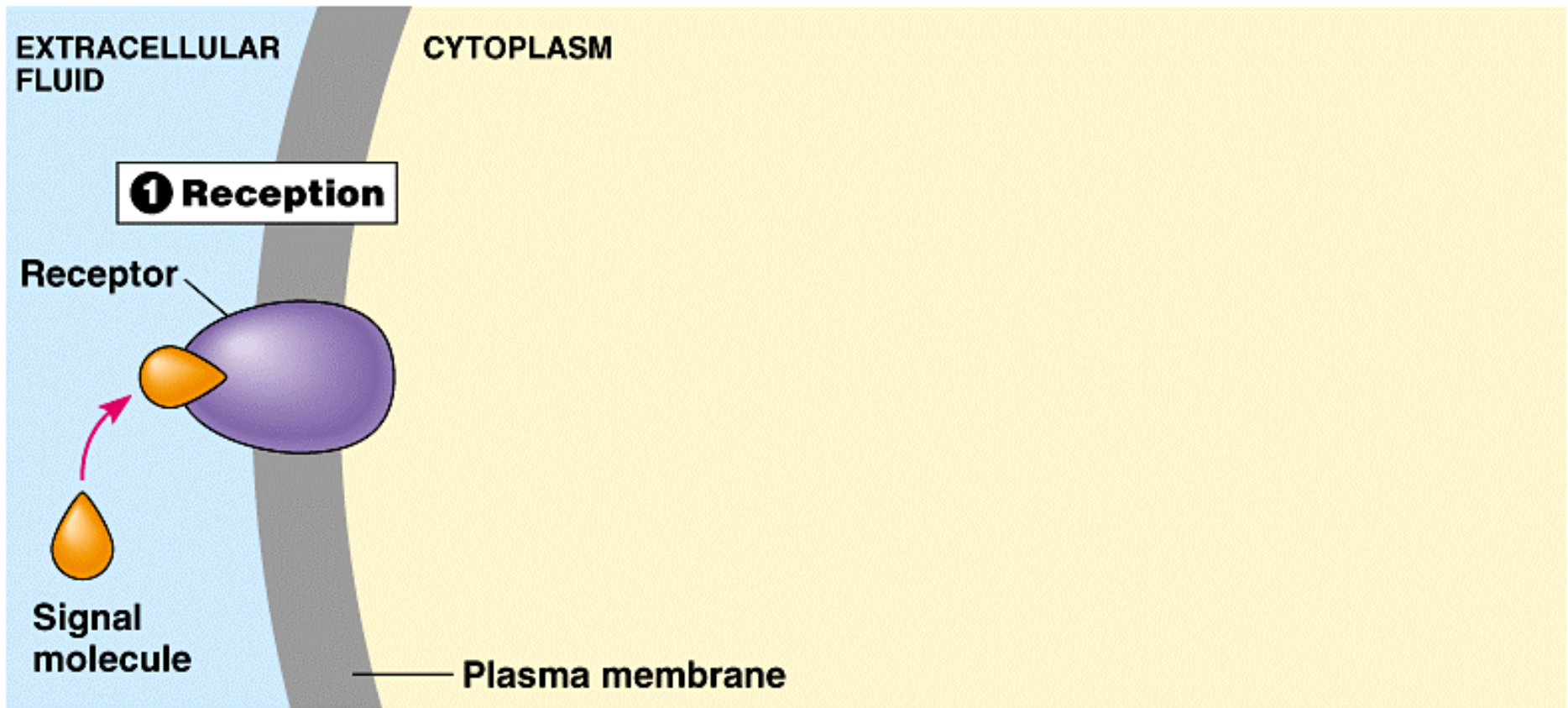
TYPE OF CELL COMMUNICATION

- Local regulator/growth factors and animal nervous system/ neurotransmitters.
- Distant regulators/hormones such as insulin/have target organs.
- Direct contact/junctions or plasmodesmata between cells.

SIGNAL RECEPTION

- Signal molecule binds to receptor protein, causing the protein to change shape.
- Signal receptors are plasma-protein membranes.
- G protein linked receptor.
- Ligand binding activities.
- Lipid hormones, nitric oxide.

Figure 11.5 Overview of cell signaling (Layer 1)



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Figure 11.5 Overview of cell signaling (Layer 2)

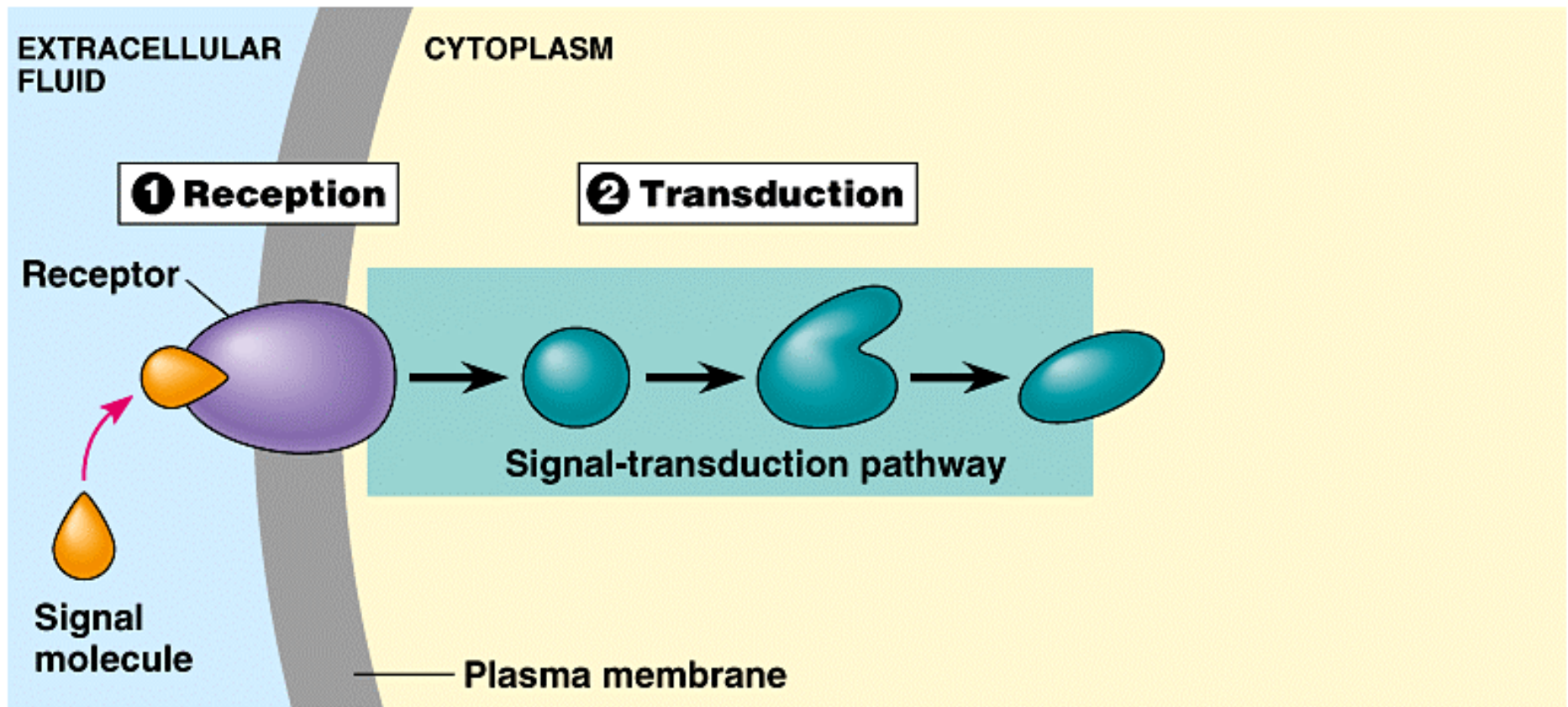


Figure 11.5 Overview of cell signaling (Layer 3)

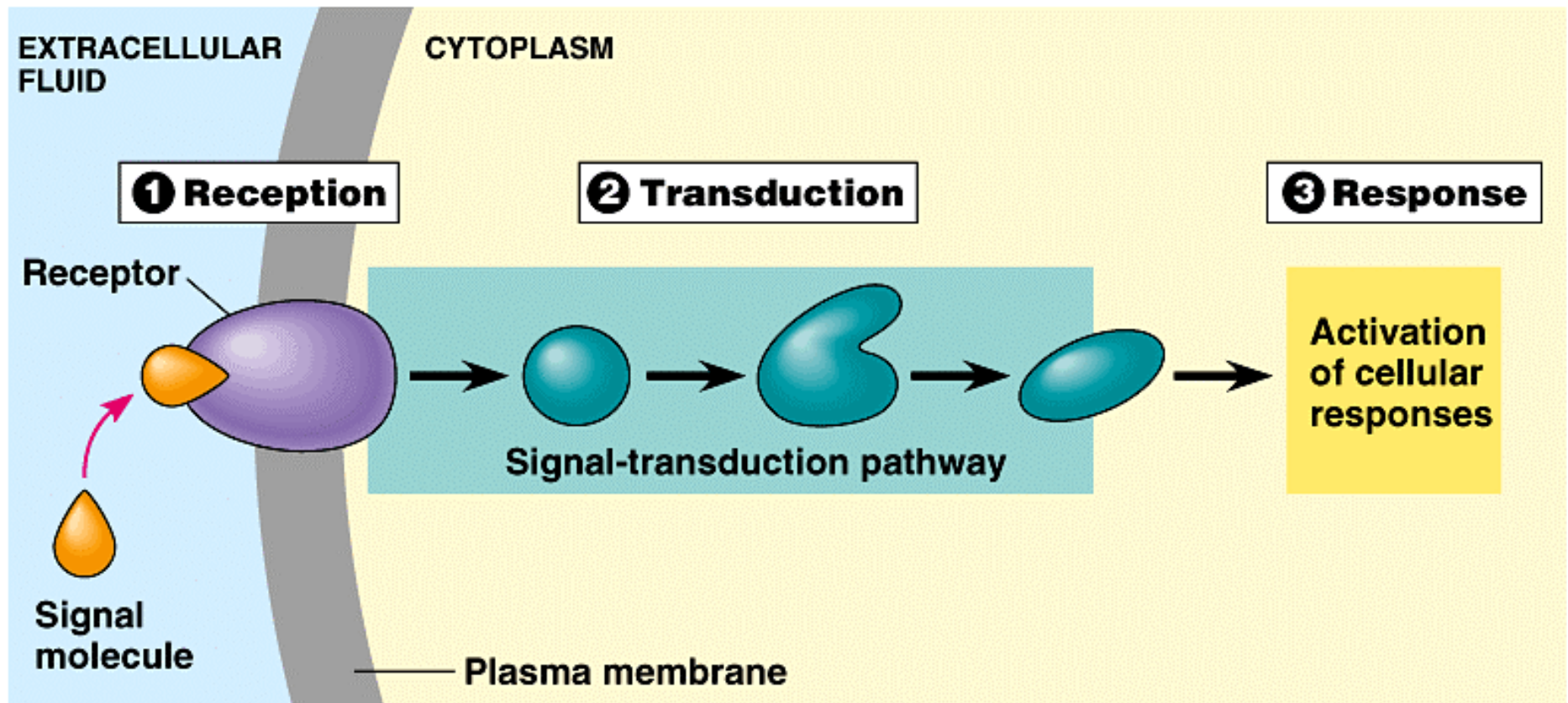
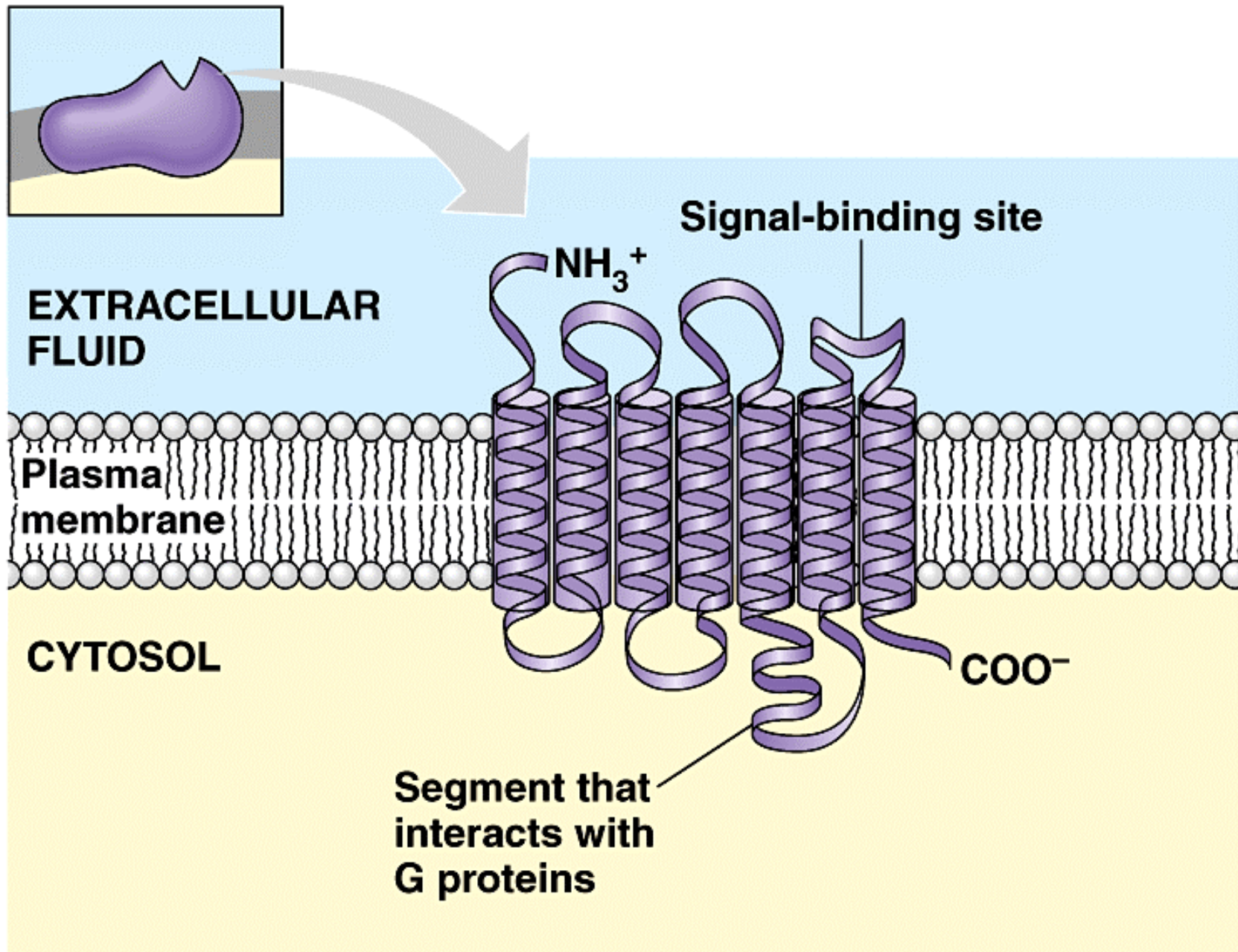


Figure 11.6 The structure of a G-protein-linked receptor



SIGNAL TRANSDUCTION PATHWAYS

- PATHWAYS RELAY SIGNALS FROM RECEPTORS TO CELLULAR PROCESSES.
- PROTEIN PHOSPHORYLATION, ADD PHOSPHATE GROUPS.
- SECONDARY MESSANGERS, SMALL IONS & MOLECULES.
- CYCLIC AMP AND Ca^{++} ion.

Figure 11.7 The functioning of a G-protein-linked receptor

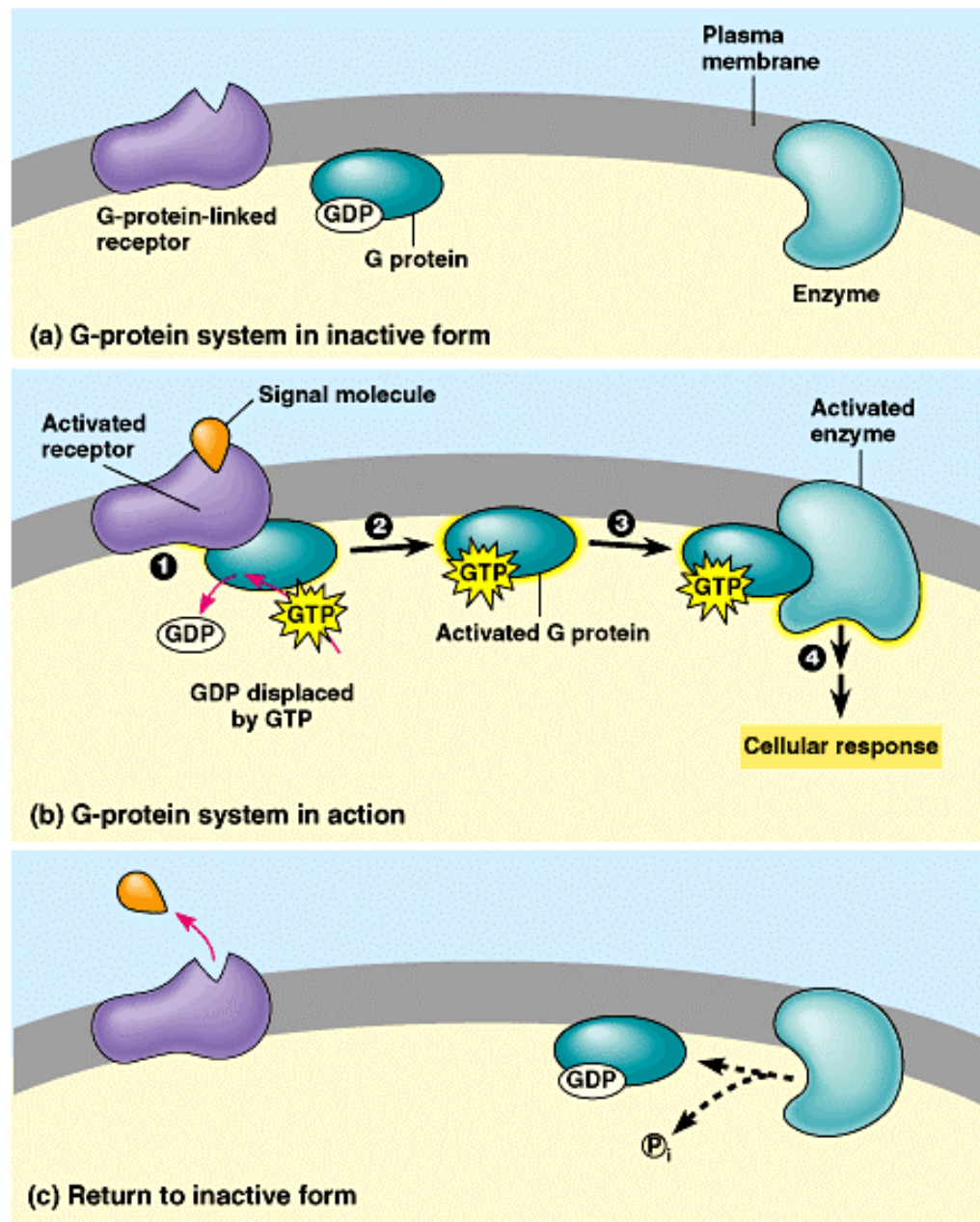


Figure 11.8 The structure and function of a tyrosine-kinase receptor

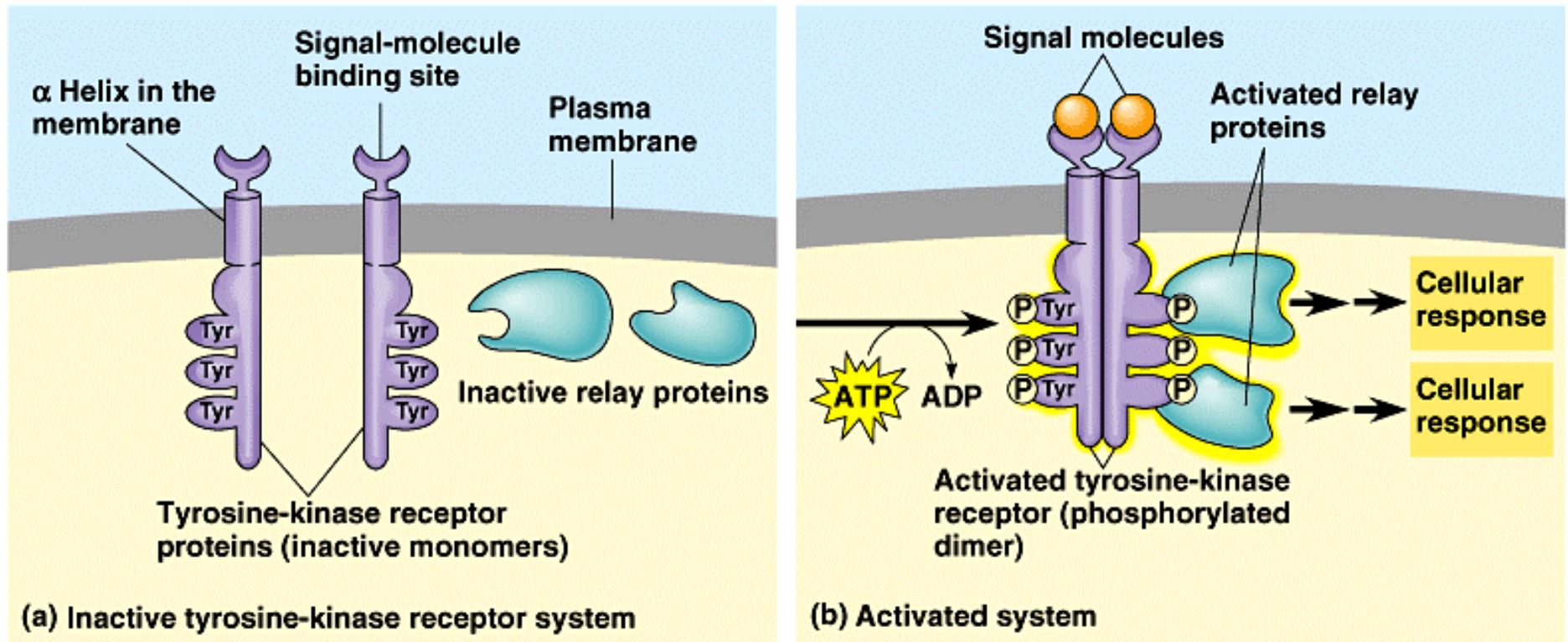
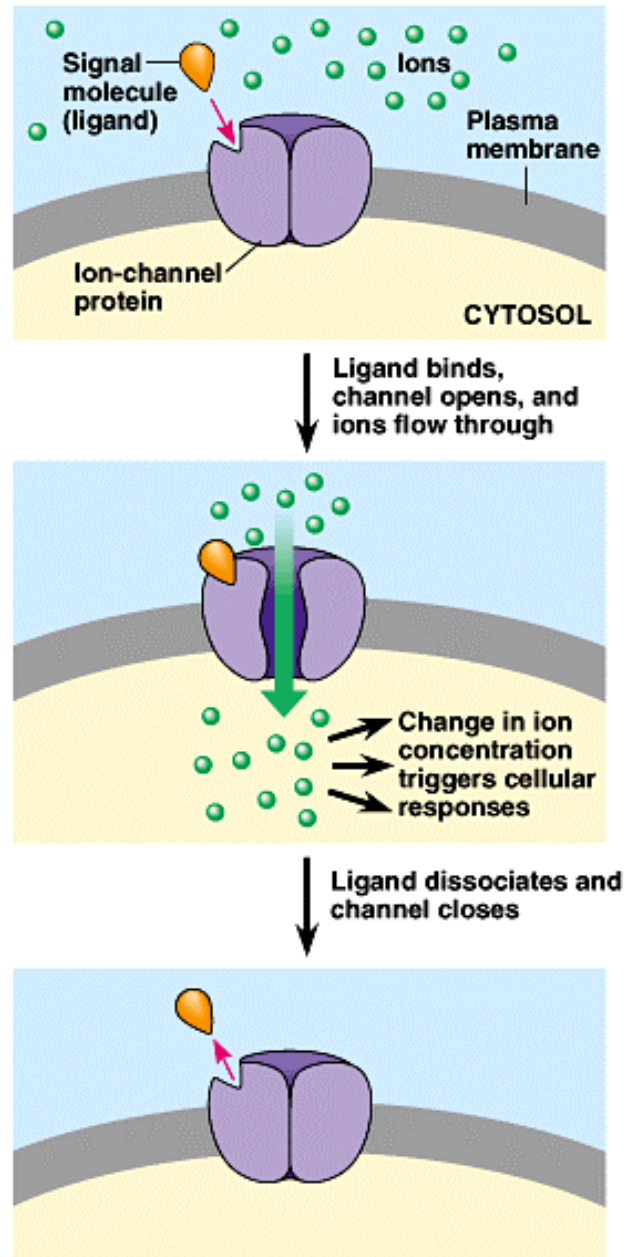


Figure 11.9 A ligand-gated ion-channel receptor



CELLULAR RESPONSES TO SIGNALS

- IN RESPONSE TO SIGNAL, CELL MAY REGULATE ACTIVITIES IN THE CYTOPLASM OR TRANSCRIPTION IN THE NUCLEUS.
- ELABORATE PATHWAYS AMPLIFY AND SPECIFY THE CELLS RESPONSE TO SIGNALS.