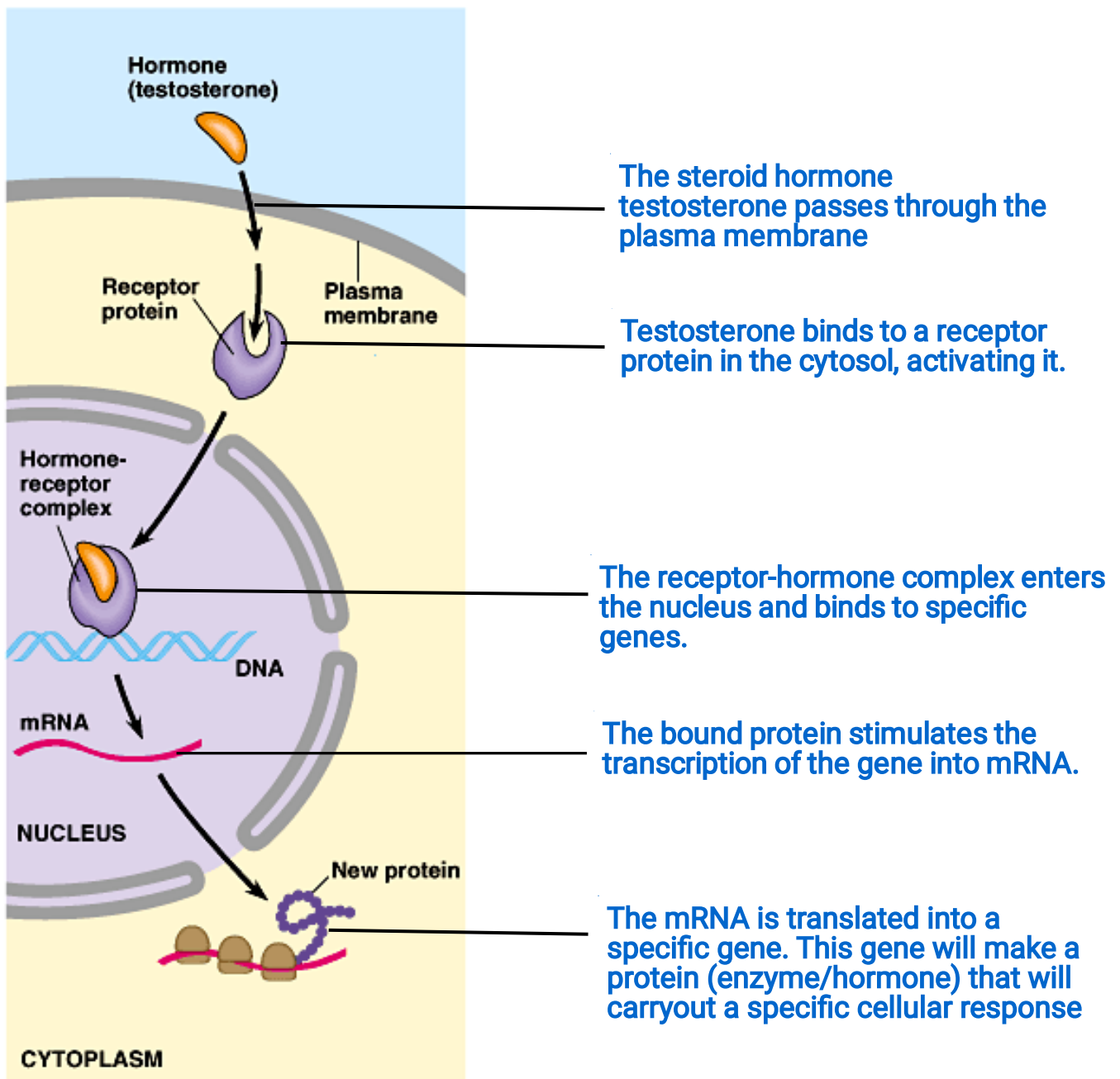


- (p.204)45. In what body system are *ligand-gated ion channels* and *voltage-gated ion channels* of particular importance?

Ligand-gated ion channels and voltage-gated ion channels are important in the nervous system.

Part III. Signal Transduction Pathways

- (p.205)46. This diagram below uses testosterone, a hydrophobic hormone, to detail how intracellular receptors work. At each line, add an explanation of what is happening in the cell. (*Figure 11.10*)



- (p.207) 47. Two common *second messengers* are cyclic AMP (cAMP) and calcium ions (Ca^{2+}).
Explain the role of the second messenger cAMP in the diagram to the right. (Figure 11.13)

Cyclic AMP is a component of many G-Protein-Signaling pathways. The signal molecule activates a G-Protein-linked receptor, which activates a specific G protein. In turn, the G-Protein activates adenylyl cyclase, which catalyzes the conversion of ATP to cAMP. The cAMP acts as a *SECONDARY MESSENGER* which activates another protein, usually Protein kinase A.

